

# **University of Missouri**

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**UNDERGRADUATE CATALOG 2012-14**

# Welcome to Mizzou

## Our mission

Our distinct mission, as Missouri's only state-supported member of the Association of American Universities, is to provide all Missourians the benefits of a world-class education enriched by service and global interaction. We are stewards and builders of a priceless state resource, a unique physical infrastructure and scholarly environment in which our tightly interlocked missions of teaching, research, service and economic development work together on behalf of all citizens. Students work side by side with some of the world's best faculty to advance the arts and humanities, the sciences and the professions. Scholarship and teaching are driven by a sense of public service — the obligation to produce and disseminate knowledge that will improve the quality of life in the state, the nation and the world.

## We are MU — Missouri's Flagship University

We are a diverse group of students, faculty and staff who value the excitement and learning that come from interaction among people with richly different backgrounds and ideas.

We challenge talented undergraduates to stretch their minds and imaginations with the unique strengths of a research-extensive university. Our students experience an interwoven web of learning experiences — in classrooms, in residence hall learning communities, and in collaborative research and creative, artistic and service projects with faculty.

We develop the world leaders of tomorrow through rigorous graduate and professional programs across the broadest range of disciplines offered on a Missouri campus.

We ensure improving the quality of MU through a financial model that supplements taxpayer support with rational tuition and student aid, public-private partnerships and aggressive fundraising. Our responsible fiscal planning assures both excellence and access for all well-prepared students, regardless of socioeconomic status.

We live and work in a community of scholars. We treasure our core values of respect, responsibility, discovery and excellence.

As a 21st century land-grant university, we are an economic engine for Missouri. We generate businesses and jobs by creating and disseminating the knowledge that fuels the new economy.

We use our unique intellectual resources to improve the civic, economic, health and educational well-being of Missourians from all walks of life and all corners of the state. We are committed to improving the quality of life of students and their families and communities through the creative and performing arts and the application of new knowledge.

# A Statement of Values

The University of Missouri, as the state's major land-grant university, honors the public trust placed in it and accepts the associated accountability to the people of Missouri for its stewardship of that trust. Our duty is to acquire, create, transmit, and preserve knowledge, and to promote understanding.

We the students, faculty, and staff of MU hold the following values to be the foundation of our identity as a community. We pledge ourselves to act, in the totality of our life together, in accord with these values.

## Respect

Respect for one's self and for others is the foundation of honor and the basis of integrity. A hallmark of our community is respect — for the process by which we seek truths and for those who engage in that process. Such respect is essential for nurturing the free and open discourse, exploration, and creative expression that characterize a university. Respect results in dedication to individual as well as collective expressions of truth and honesty. Respect is demonstrated by a commitment to act ethically, to welcome difference, and to engage in open exchange about both ideas and decisions.

## Responsibility

A sense of responsibility requires careful reflection on one's moral obligations. Being responsible imposes the duty on us and our university to make decisions by acknowledging the context and considering consequences, both intended and unintended, of any course of action. Being responsible requires us to be thoughtful stewards of resources — accountable to ourselves, each other, and the publics we serve.

## Discovery

Learning requires trust in the process of discovery. Discovery often fractures existing world views and requires acceptance of uncertainty and ambiguity. Therefore, the university must support all its members in this lifelong process that is both challenging and rewarding. As we seek greater understanding and wisdom, we also recognize that knowledge itself has boundaries — what we know is not all that is.

## Excellence

We aspire to an excellence that is approached through diligent effort, both individual and collective. Pursuing excellence means being satisfied with no less than the highest goals we can envision. Pursuing excellence involves being informed by regional, national, and global standards, as well as our personal expectations. We recognize and accept the sacrifices, risks, and responsibilities involved in pursuing excellence, and so we celebrate each other's successes. We commit ourselves to this process in an ethical and moral manner.

*These statements are mere words until we integrate them as values in our individual lives and reflect them in our institutional policies and practices. We pledge ourselves to make them effective in the very fabric of our lives, our community, and all our relationships with others, thereby enhancing the development of individuals and the well-being of society.*

# Important Facts

## History

The University of Missouri was established in Columbia in 1839 as the first public university west of the Mississippi River, and the first public university in Thomas Jefferson's Louisiana Purchase territory. In 1870 the University of Missouri was approved as a land-grant university under the Morrill Act of 1862. The original mission of land-grant institutions was to make higher education accessible to more people. Gradually that mission has expanded to include research, service and outreach; enabling the state's citizens to benefit directly from the knowledge gained through university research.

As Missouri's flagship university, MU continues its historic mission through its emphasis on excellence in teaching, research, service and economic development.

## Students

- Students come from all 50 states and more than 100 countries. The diversity of backgrounds, opinions and lifestyles improves the overall quality of the student experience.
- The university has more than 25,000 undergraduate students who choose courses from a broad range of academic disciplines.
- The university also has more than 7,000 graduate and professional students enrolled in more than 90 different degree programs. The professional schools include more than 1,200 students in law, medicine and veterinary medicine.
- MU is nationally recognized for its Freshman Interest Groups, where students with shared academic interests live in the same residence hall and often attend classes together. These communities provide a strong academic and social foundation for freshmen, as well as increased faculty involvement with students.

## The Campus

- The University of Missouri prides itself on respecting the past while embracing the future. The 1,372-acre Mizzou campus is a testament to that belief. From the six Ionic Columns that adorn Francis Quadrangle to the Memorial Union Tower that honors fallen soldiers to the MU Student Center completed in 2010, every piece of campus represents equally the heart and soul of what it means to be a Tiger.
- The campus is also a living museum with hundreds of plant species from all over the world that make up the Mizzou Botanic Garden. The garden features over 42,000 plants and invites a stroll through more than 170 years of history as MU was transformed into the global university it is today. National magazines and newspapers consistently rank Columbia, among the top cities in the nation for its excellent quality of life.

## Alumni

There are more than 260,000 living alumni worldwide. Many continue to support the University through membership in the Mizzou Alumni Association.

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# Academic Calendar 2012-2013

Fall Semester 2012	Day	Date
Classwork begins @ 8:00 a.m.	Monday	August 20
Labor Day Holiday (no classes)	Monday	September 03
Thanksgiving recess begins @ close of day *	Saturday	November 17
Classwork resumes @ 8:00 a.m.	Monday	November 26
Classwork ends @ close of day*	Thursday	December 06
Reading Day	Friday	December 07
Final Examinations begin	Monday	December 10
Fall semester closes @ 5:30 p.m.	Friday	December 14
Commencement	Friday/Saturday	December 14 & 15
Spring Semester 2013	Day	Date
Martin Luther King Holiday (no classes)	Monday	January 21
Classwork begins @ 8:00 a.m.	Tuesday	January 22
Spring Recess begins @ close of day*	Saturday	March 23
Classwork resumes @ 8:00 a.m.	Monday	April 01
Classwork ends @ close of day*	Thursday	May 09
Reading Day	Friday	May 10
Final Examinations begin	Monday	May 13
Spring semester closes @ 5:30 p.m.	Friday	May 17
Commencement	Friday, Saturday, Sunday	May 17, 18 & 19
Summer Session 2013	Day	Date
8-Week Session 2013	Day	Date
Classwork begins @ 7:30 a.m.	Monday	June 03
Independence Day recess (no classes)	Thursday	July 04
8-week session closes @ 5:30 p.m.	Friday	July 26
First 4-Week Session 2013	Day	Date
Classwork begins 7:30 a.m.	Monday	June 03
First 4-week session closes @ 5:30 p.m.	Friday	June 28
Second 4-Week Session 2013	Day	Date
Classwork begins @ 7:30 a.m.	Monday	July 01
Independence Day recess (no classes)	Thursday	July 04
Second 4-week session closes @ 5:30 p.m.	Friday	July 26

*\*Close of day is defined as including late afternoon and evening classes.*

It is the policy of the University of Missouri to respect the diversity of our students. The faculty is reminded that students might want to observe religious holidays and days of special commemoration and is encouraged to accommodate students who have a conflict with a class period, test or activity because of these obligations.

Approved by the MU Faculty Council on October 21, 2010.

Amended by the MU Faculty Council on April 21, 2011.

Approved by the MU Faculty Council on October 6, 2011.

For a detailed listing of semester registration dates and deadlines, please visit the University of Missouri Registrar's Dates and Deadlines webpage: <http://registrar.missouri.edu/dates-deadlines.php>

## Accreditation

The University of Missouri is accredited by the Higher Learning Commission of the North Central Association of College and Schools. Various schools, colleges and departments are also accredited by their respective professional associations and accrediting agencies.

## MU's Notice of Nondiscrimination

The University of Missouri does not discriminate on the basis of race, color, religion, sex, sexual orientation, national origin, age, disability, protected veterans. Any person having inquiries concerning the University of Missouri compliance with implementing Title VI of the Civil Rights Act of 1964, Title IV of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, or other civil rights laws should contact the Assistant Vice Chancellor, Human Resources Services, University of Missouri, 130 Heinkel Building, Columbia, MO 65211, (573) 882-4256, or the Assistant Secretary for Civil Rights, US Department of Education.

## Accommodations for Students with Disabilities

The University of Missouri complies with the American with Disabilities Act and other applicable laws and regulations. If you have a disability and need accommodations, please contact Disability Services, S5 Memorial Union, Voice (573) 882-4696, TTY (573) 882-8054, or e-mail [disabilityservices@missouri.edu](mailto:disabilityservices@missouri.edu) as soon as possible so that appropriate arrangements can be made. For more information please visit the website at <http://disabilityservices.missouri.edu>. If you need this information in an alternative format (Braille, large print, or digital format), Disability Services can provide assistance.

## Family Education Rights and Privacy Act (FERPA)

The University of Missouri policies and procedures adhere to this federal law. Students have the right to restrict the release of directory information. Directory information for MU is defined as: a student's name, address, telephone listing, e-mail address, major field of study, student level, dates of attendance, degrees and awards received, enrollment status in any past and present semester (i.e. full/part-time), and the most recent previous educational agency or institution attended by the student. To restrict this information, students should change their privacy settings in myZou or contact the Office of the University Registrar-Registration, 125 Jesse Hall. For the full policy, go to <http://registrar.missouri>, and type FERPA in the search box. Note: The University does not release grades to parents unless the student specifically authorizes it in writing in the Office of the University Registrar or a parent shows proof that the student is a dependent as defined in Section 152 of the Internal Revenue Code of 1954. "Parent" means a parent of a student and includes a natural parent, a guardian, or an individual acting as a parent in the absence of a parent or guardian.

## Equity in Athletics Disclosure Act

The University of Missouri complies with the Equity in Athletics Disclosure Act of 1994, Section 360B of Pub. L. 103-382. This act and accompanying federal regulations require that certain information with regard to intercollegiate athletics, including operation expenses, revenue, salaries and participation

rates, be made available to current and prospective students and the public. This report is available from the Department of Intercollegiate Athletics at (573) 882-6501.

## Graduate Study

The University of Missouri Graduate School offers 96 master's, 71 doctoral, and 6 educational specialist degree programs; 13 graduate minors; and 40+ graduate certificates. Opportunities for e-learning, including online graduate degrees, are available. To view the A-Z list of graduate degrees and the online Graduate Catalog, see <http://gradschool.missouri.edu/catalog>.

For more information, contact the MU Graduate School at 210 Jesse Hall, Columbia, MO 65211. Local calls: 573-882-6311. Toll free, Long-Distance: 800-877-6312. Email: [gradadmin@missouri.edu](mailto:gradadmin@missouri.edu).

## Professional Schools

The University of Missouri has three professional schools.

### School of Law

The MU School of Law offers a collegial environment, reinforced by a small student body and a low faculty-student ratio. The intimacy of this setting, coupled with reasonable cost, consistently high bar passage rates, a network of alumni around the globe and access to top scholars in the legal world, make MU Law one of the best values in the nation.

For more information about the School of Law, call (573) 882-6042. <http://law.missouri.edu>

### School of Medicine

Established in 1841, the school offers an innovative problem-based curriculum that provides medical students with early exposure to clinical training. In addition to undergraduate medical education, the school offers a master's degree in health administration and boasts well-established, residency and continuing education programs. It is recognized nationally for its primary care and rural training programs. The Health Sciences Center provides health care for patients from every Missouri county.

For more information about the School of Medicine, call (573) 882-9219. <http://medicine.missouri.edu>

### College of Veterinary Medicine

The college was established in 1946. It offers a four-year program leading to the doctor of veterinary medicine (DVM) degree. The college provides diagnostic and patient-care services for animals. The college has a national reputation for excellent student-to-instructor ratio and state-of-the-art facilities. Biomedical science courses available to undergraduate students are listed in this catalog. The college also offers post-graduate training to interns, residents in various specialties and graduate students.

For more information about the College of Veterinary Medicine, call (573) 882-9594. <http://cvm.missouri.edu>

## University Organization

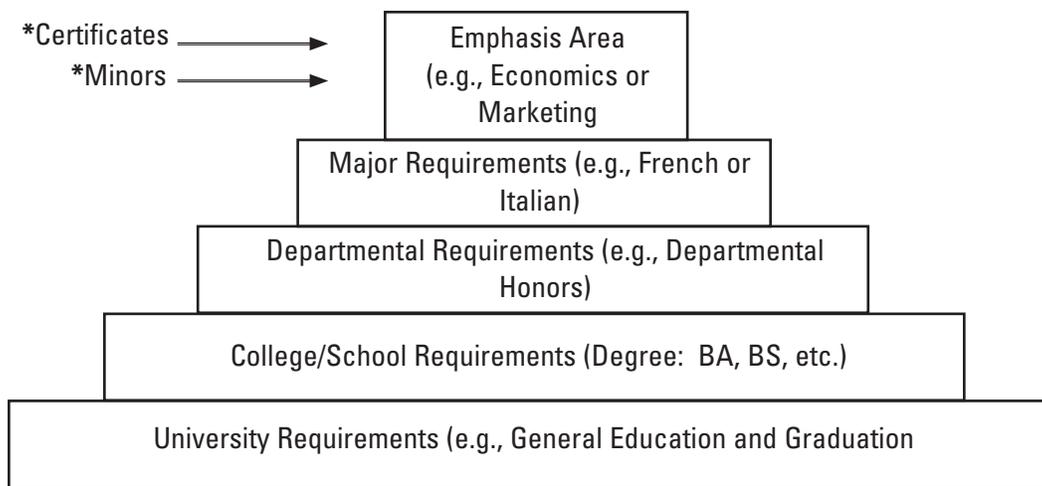
The largest academic units at the University of Missouri are its colleges and schools. Each college and school may consist of smaller units called departments. Some colleges have divisions within them as well, which are a collection of departments within a college or school. By long tradition, some of the smaller units are also called schools.

The academic year is divided into two semesters (fall and spring) and summer sessions. The January intersession is considered part of the spring semester for registration and financial aid purposes. The May intersession is considered part of the summer session.

## Academic Programs and Degree Structure

To earn a degree from the University of Missouri, students must complete all University, college and/or school, departmental and major requirements. In some cases, the major requirements may include emphasis areas and/or minors. In other cases, they may be options or tracks, which do not appear on transcripts. The diagram below illustrates how students build from the broad, University-wide requirements, to the very specific requirements for majors as they complete their degree.

### The Academic Program/Degree Hierarchy:



\*Certificates and minors generally have separate requirements. Completion of a minor, may, however, be part of a degree requirement and is a separate plan or subplan in myZou.

## Degrees and Degree Programs

The University of Missouri offers a wide variety of academic offerings. As a research intensive, Division I University, MU offers bachelors, masters, professional and doctorate degrees. In some fields students may also earn minors or certificates in conjunction with their degrees.

**Degree:** Students earn a degree based upon the total summary of courses taken. A bachelor's includes the University general education and additional major requirements. This is described as the student's program and plan in myZou. MU offers a variety of bachelor-level degrees. Examples include the Bachelor of Science and the Bachelor of Arts. For a complete list, see the degree list elsewhere in this catalog. Degrees are noted on the transcript and the diploma.

### Major (Degree Program or Academic Plan within myZou):

A major (or degree program/academic plan) is the subject area in which the student has focused his or her studies, within a degree. For example, a student may earn a Bachelor of Arts degree with majors in French, English or Philosophy. In some subject areas, a major may be available with two different types of bachelor's degrees. A degree program is the combination of the degree (e.g., Bachelor of Arts or a Bachelor of Science) with the subject area or major in (e.g., Biology). The degree program is noted on the transcript.

**Emphasis Area:** An emphasis is related to a degree program and is a set of related course work that students complete within the subject area. Officially recognized areas are listed on the transcript. They are also referred to as an academic sub-plan.

**Minor:** A minor is a smaller grouping of courses (15-18 credits of course work) focused on a particular subject area outside the student's degree program. Minors must be earned in conjunction with a degree program of study (i.e. major). A minor is noted on the transcript. To earn a minor, students must contact the academic unit that offers the minor to complete appropriate paperwork.

**Certificate:** A certificate is similar to a minor, but is more focused. It consists of 12-18 credits of course work in a given area. At MU, certificates are awarded only to degree-seeking students who also earn a bachelor's degree. An example is the certificate offered in Environmental Studies. Completion of a certificate program will be noted on a student's transcript at the end of the term in which all of the degree requirements and certificate requirements have been completed. The degree and certificate must be awarded simultaneously. A separate certificate document is issued from the Office of the University Registrar. For more information on certificates, see [http://provost.missouri.edu/program/ug\\_cert](http://provost.missouri.edu/program/ug_cert).

State licensure may require certificates that are not issued by MU, such as the State of Missouri's Teaching Certificate. Academic units will assist students in identifying and meeting requirements to earn these certificates.

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

## Undergraduate Colleges and Schools

CAFNR	College of Agriculture, Food and Natural Resources NAT R The School of Natural Resources *
A&S	College of Arts and Science School of Music *
BUS	College of Business School of Accountancy*
EDUC	College of Education
ENGR	College of Engineering
HP	School of Health Professions
HES	College of Human Environmental Sciences SOC WK School of Social Work *
JOURN	School of Journalism
NURS	School of Nursing

\* Schools within a College

## Undergraduate Majors (Degree Programs)

*Emphasis areas are in italics*

**Accountancy** (BUS) BS Acc  
**Agribusiness Management** (CAFNR) BS  
**Agricultural Economics** (CAFNR) BS  
*Financial Planning, Public Policy*  
**Agricultural Education** (CAFNR) BS  
*Leadership, Teacher Certification*  
**Science and Agricultural Journalism** (CAFNR) BS  
**Agricultural Systems Management** (CAFNR) BS  
**Agriculture** (CAFNR) BS  
*Sustainable Agriculture*  
**Animal Sciences** (CAFNR) BS  
**Anthropology** (A&S) BA  
**Architectural Studies** (HES) BS HES  
*Architectural Studies, Interior Design*  
**Art** (A&S) BA, BFA  
**Art History and Archaeology** (A&S) BA  
**Athletic Training** (HP) BHS  
**Biochemistry** (CAFNR) BS  
**Biological Engineering** (ENGR) BS BE  
**Biological Sciences** (A&S) BA, BS  
**Business Administration** (BUS) BS BA  
*Economics, Finance and Banking, International Business-Economics, International Business-Finance, International Business-Management, International Business-Marketing, Management, Marketing, Real Estate*  
**Chemical Engineering** (ENGR) BS ChE  
*Biochemical, Environmental, Materials*  
**Chemistry** (A&S) BA, BS  
**Civil Engineering** (ENGR) BS CiE  
**Classics** (A&S), BA  
*Classical Humanities, Classical Languages, Greek, Latin*  
**Clinical Laboratory Sciences** (HP) BHS  
*Medical Technology*  
**Communication** (A&S) BA  
**Communication Science and Disorders** (HP) BHS  
**Computer Engineering** (ENGR) BS CoE  
**Computer Science** (A&S) BA  
**Computer Science** (ENGR) BS  
**Diagnostic Medical Ultrasound** (HP) BHS  
**Early Childhood Education** (EDUC) BS Ed

**Economics** (A&S) BA, BS  
**Educational Studies** (EDUC) BES  
*Interdepartmental*  
**Electrical Engineering** (ENGR) BS EE  
**Elementary Education** (EDUC) BS Ed  
*Elementary Education*  
**English** (A&S) BA  
**Environmental Geology** (A&S) BA  
**Film Studies** (A&S) BA  
**Fisheries and Wildlife** (NAT R) BSFW  
**Food Science and Nutrition** (CAFNR) BS  
**Forestry** (NAT R) BSF  
*Forest Entrepreneurship and Business, Forest Resource Management, Individualized Studies, Urban Forestry*  
**French** (A&S) BA  
**General Studies** (A&S) BGS  
**Geography** (A&S) BA  
*General Geography, Geographic Information Sciences, Regional/Cultural, Physical/Environmental, Urban/Population*  
**Geological Sciences** (A&S) BS  
**German** (A&S) BA  
**Health Science** (HP) BHS  
**History** (A&S) BA  
**Hospitality Management** (CAFNR) BS  
*Conference and Event Planning Management, Food and Beverage Management, Lodging Management, Sport Venue Management*  
**Human Development and Family Studies** (HES) BS HES  
*Child Development and Education, Child Life Specialist, Family and Consumer Sciences Education, Family and Lifespan Development, General Human Development and Family Studies, General Human Development and Family Studies and Social Work (dual degree)*  
**Industrial Engineering** (ENGR) BS IE  
**Information Technology** (ENGR) BS  
*Information Systems, Networks and Wireless Technologies; Media Technologies*  
**Interdisciplinary** (A&S) BA  
*Black Studies, Environmental Studies, Peace Studies, Women's and Gender Studies*  
**International Studies** (A&S) BA  
*East Asian Studies, Environmental Studies, European Studies, International Business, Latin American Studies, Peace Studies, South Asian Studies*  
**Journalism** (JOURN) BJ  
*Strategic Communication, Radio/Television, Magazine Journalism, Convergence Journalism, Print and Digital News, Photojournalism*  
**Linguistics** (A&S) BA  
**Mathematics** (A&S) BA, BS  
*Actuarial Science and Mathematical Finance (BS only)*  
**Mechanical Engineering** (ENGR) BS ME  
*Aerospace Engineering*  
**Middle School Education** (EDUC) BS Ed  
*Language Arts, Mathematics, Science, Social Studies*  
**Music** (A&S) BA, BM  
*Composition, Music History, Music Theory, Performance*  
**Nursing** (NURS) BSN

**Nutritional Sciences** (HES) BS HES  
*Medical Dietetics, Nutrition and Fitness, Nutritional Sciences*  
**Occupational Therapy** (HP) BHS  
**Parks, Recreation and Tourism** (NAT R) BS  
*Leisure Service Management, Natural Resource Recreation Management, Sport Management, Tourism Development*  
**Personal Financial Planning** (HES) BS HES  
*Financial Counseling, Personal Financial Management Services, Personal Financial Planning*  
**Philosophy** (A&S) BA  
**Physics** (A&S) BA, BS  
**Plant Sciences** (CAFNR) BS  
*Crop Management, Horticulture Science and Design, Breeding Biology and Biotechnology, Turfgrass Science*  
**Political Science** (A&S) BA  
**Preprofessional Physical Therapy** (HP) BHS  
**Psychology** (A&S) BA  
**Radiologic Sciences** (HP) BHS  
*Radiography, Nuclear Medicine Technician*  
**Religious Studies** (A&S) BA  
**Respiratory Therapy** (HP) BHS  
**Russian** (A&S) BA  
**Secondary Education** (EDUC) BS Ed  
*Art Education, Biology, Chemistry, Earth Science, General Science, Language Arts, Mathematics Education, Music Education, Physics, Social Studies*  
**Social Work** (HES) BSW  
**Sociology** (A&S) BA  
**Soil, Environmental and Atmospheric Sciences** (NAT R) BS  
*Atmospheric Science, Environmental Science, Environmental Soil Science, Soil Resource Management*  
**Spanish** (A&S) BA  
**Special Education** (EDUC) BS Ed  
*Cross Categorical Special Education*  
**Statistics** (A&S) BA, BS  
**Textile and Apparel Management** (HES) BS HES  
**Theatre** (A&S) BA  
*Design/Technical, Performance, Writing for Performance*

## Minors

**Aerospace** (ENGR)  
**Aerospace Studies** (A&S)  
**Afro-Romance Literatures in Translation** (A&S)  
**Agricultural Economics** (CAFNR)  
**Agricultural Education** (CAFNR)  
**Agricultural Leadership** (CAFNR)  
**Agricultural System Management** (CAFNR)  
**Animal Sciences** (CAFNR)  
**Anthropology** (A&S)  
**Architectural Studies** (HES)  
**Art** (A&S)  
**Art History and Archeology** (A&S)  
**Astronomy** (A&S)  
**Biological Sciences** (A&S)  
**Black Studies** (A&S)  
**Business** (BUS)  
**Canadian Studies** (A&S)  
**Captive Wild Animal Management** (CAFNR)  
**Chemistry** (A&S)  
**Classics** (A&S)  
*Classical Humanities, Greek, Latin*  
**Computational Neuroscience** (Interdisciplinary)

**Computer Science** (ENGR), (A&S)  
**East Asian Studies** (A&S)  
**Economics** (A&S)  
**Engery** (ENGR)  
**Engineering** (ENGR)  
**English** (A&S)  
**English Writing** (A&S)  
**Film Studies** (A&S)  
**Financial Literacy for Helping Professionals** (HES)  
**Food Science and Nutrition** (CAFNR)  
**Forestry** (NAT R)  
**French** (A&S)  
**Geographic Information Sciences** (A&S)  
**Geography** (A&S)  
**Geological Sciences** (A&S)  
**German** (A&S)  
**History** (A&S)  
**Hospitality Management** (CAFNR)  
**Human Development and Family Studies** (HES)  
**Information Technology** (ENGR)  
**International Agriculture** (CAFNR)  
**Italian Area Studies** (A&S)  
**Jazz Studies** (Music)  
**Journalism** (JOURN)  
**Latin American Studies** (A&S)  
**Leadership and Public Service** (A&S)  
**Linguistics** (A&S)  
**Luso-Brazilian Area Studies** (A&S)  
**Mathematics** (A&S)  
**Medical/Health Physics** (ENGR)  
**Medieval and Renaissance Studies** (A&S)  
**Military Science** (A&S)  
**Music** (A&S)  
**Natural Resources** (NAT R)  
**Naval Science** (ENGR)  
**Nuclear Engineering** (ENGR)  
**Nutritional Science** (HES)  
**Peace Studies** (A&S)  
**Personal Financial Management Services** (HES)  
**Philosophy** (A&S)  
**Physics** (A&S)  
**Plant Sciences** (CAFNR)  
**Political Sciences** (A&S)  
**Psychology** (A&S)  
**Radioenvironmental Sciences** (ENGR)  
**Religious Studies** (A&S)  
**Romance Literatures in Translation** (A&S)  
**Rural Sociology** (CAFNR)  
**Russian** (A&S)  
**Social Justice** (HES)  
**Sociology** (A&S)  
**Soil, Environmental and Atmospheric Sciences** (NAT R)  
**South Asian Studies** (A&S)  
**Spanish** (A&S)  
**Statistics** (A&S)  
**Sustainable Agriculture** (CAFNR)  
**Textile and Apparel Management** (HES)  
**Theatre** (A&S)  
**Women's and Gender Studies** (A&S)  
**Youth Services** (CAFNR)

## Certificates

**Environmental Studies** (Provost)

**General Honors** (Provost)  
**Geographical Information Systems** (A&S)  
**Jazz Studies** (Music)  
**Multicultural Studies** (A&S)  
**Sales and Consumer Development** (BUS)

## University Terms Defined

Below are definitions of the academic terms used throughout this catalog. Additional policy information can be found in later sections and in the *Faculty Handbook*, which is available on the University of Missouri's web site.

**Academic Action:** Students who do not meet requirements for University academic standing requirements are subject to academic action, such as being placed on probation or being declared ineligible to enroll, which is often called dismissal.

**NOTE:** Academic units may have more restrictive standards. (Also refer to Academic Standing and Satisfactory Progress for additional policy information.)

**Academic Plan:** See *Academic Program/Degree Structure* section of the catalog.

**Academic Program:** The academic organization to which a student applies, is admitted, and ultimately graduates. These will, in most cases, correspond to schools and colleges.

**Academic Progress for Financial Aid:** Students who have attempted at least 60 credits will not be making satisfactory progress for financial aid purposes if their cumulative GPA is less than 1.67.

**Academic Standing:** For further information see, *Academic Procedures, Rules and Regulations: Academic Standing*.

**Academic Sub-plan:** An emphasis area or concentration within a specific academic plan.

**Academic Unit:** Colleges and schools are approved to offer degree programs or oversee degree or non-degree programs approved by the state Coordinating Board of Higher Education. Because the organization of these units varies across the campus, these entities are referred to as academic units, or AUs for short.

**Add/Drop:** The process for changing/dropping class; may require an advisor's approval.

**Applied Course:** A course that is focused on the personal practice of the subject matter. Applied courses are typically found in music, art, physical education and courses preparing for certain vocations.

**Audit:** A method of taking a course in which student receives no grade or credit. Sometimes referred to as Hearer. See *Academic Procedures, Rules and Regulations: Auditing a Course*.

**Basic Skills Courses:** Courses for which credit does not apply to the degree to be earned. These courses may be considered remedial or preparatory for course work that follows. These courses are numbered lower than 1000.

**Capstone Experience:** An academic activity that integrates general knowledge with the specialized knowledge each student has developed in the major area and, when appropriate, the related field.

**Certificate:** A program of study that requires completion of a minimum of 12 credits. It is part of a degree program or may be completed in addition to a degree program. Officially approved Certificates are listed on transcripts.

**Class Number:** A 5-digit unique identifier for each class.

**Commencement:** In May and December, each MU school

and college holds commencement ceremonies for graduates, during which students walk across the stage and are recognized individually. Ceremonies are not held for summer session graduates; however, these students are invited to participate in May or December commencements.

**Concurrent Courses:** Two or more courses that must be taken in the same term. They may or may not have inter-dependent information. Exceptions may be made with permissions.

**Consent Required:** Courses that require the permission of the instructor, department or division.

**Co-requisite:** A course or requirement that must be met prior to or concurrent with enrolling in a course. Exceptions may be made with permissions.

**Core Requirements:** The basic, required courses or standards that students must meet for a given major, degree, minor, emphasis or concentration.

**Course Components:** A portion or part, (i.e. subset) of a course.

- **Lecture/Standard:** Faculty delivered instruction to multiple students often in, but not always, a classroom setting. A lecture or standard class is the *primary portion of the course* that is often delivered face to face, but does not have to be. It may be presented on-line or via other delivery methods. While it is usually presented in a small or large group setting led by a faculty member the course might also be very interactive and include group activities. It may be offered in a traditional lecture format, a seminar format, sections with group interaction, etc.
- **Discussion:** A small group that meets to discuss topics introduced in a related lecture to supplement the instruction and allow for discussion.
- **Lab:** A class or the "practice" portion of a course in which experimentation, class projects or other exercises or skills conjunction with material presented, are performed.
- **Individual Study:** One-on-one instruction allowing for greater individualized learning and self direction. Individual study may be directed studies that are based upon an agreed upon topic between instructor and student. Titles may include but are not limited to research, problems and readings.
- **Lesson:** Typically a musical or other performance art instruction delivered one-on-one or in a small group.
- **Studio:** Hands-on, interactive, project-oriented instruction that is delivered one-on-one or in a small group. May apply to art, architectural studies, textile and apparel management, broadcast media, film creation, and communication instruction.
- **Exam-only:** Graduate student enrollment required to complete the final, comprehensive examination.
- **Internship/Externship:** Provides opportunity for students to gain experience in their field outside the classroom. Instruction is hands-on, experimental learning that may require additional research and written assignments. Titles may include, but are not limited to, preceptorships, clinical, practicums.
- **Field Study:** Off-campus, hands-on instruction directed by a faculty member with one or more students. Typically part of science and social science, as well as some humanities instruction.

**Course Attribute:** Characteristic of the instructional delivery or related aspects of a course, such as "BlackBoard", Honors, Writing Intensive, A-F grading, Study Abroad, MU Direct, etc.

**Credit by Exam:** Credit earned by passing advanced-standing examinations in a subject-matter field. Examinations can

include: departmental exams, CLEP subject-matter exams and International Baccalaureate and Advance Placement exams given by the College Entrance Examination Board of Princeton, N.J. (See Advanced Standing section later in the catalog for a full explanation of requirements and departmental examinations the College of Arts and Science.)

**Credit:** One credit represents approximately three hours of a student's time each week for one semester. This may mean one hour in lecture or standard classroom instruction, in addition to two hours spent in preparation. (Also referred to as Units.)

**Cross-level Course:** A cross-level course is a course offered at both the undergraduate and the graduate level. Undergraduate students enroll in a course numbered in the 4000 range and graduate students enroll in a course numbered in the 7000 range. Lectures and discussions may be held jointly, but different graduate level work will be required of students in the 7000-level courses. (They are also referred to as combined sections.)

**Cross-listed Course:** A course that is considered the same as, and often may meet with a section of, another course with a different curricular abbreviation and possibly a different course number. (They are also referred to as combined sections.)

**Curriculum:** An organized program of study arranged to provide integrated cultural or professional education.

**Curriculum Designator (Subject Area):** A specific area of instruction within an academic organization. These are the subject matter headings that appear in the Course Catalog and the Schedule of Classes.

**Degree Audit Report:** MU uses a degree audit system called DARS for short, which tracks degree programs. Many academic units and departments use these reports to assist in advising students. Students may look at their own DARS reports using myZou.

**Dean's Signature:** The dean's signature is the mark of approval for certain academic actions, such as approvals to withdraw at certain points in the term. Usually a "dean's signature" refers to a stamped signature from the academic advising office within the academic unit. A dean's signature may also be the signature of the dean or associate dean of the college or school. When instructions indicate that a student should obtain a dean's signature for approval of a process, students should first inquire in the academic advising office for their degree program.

**Degree:** A formal award or title conferred upon an individual for the completion of a program or courses of study.

**Degree Component:** A portion or part, (i.e. subset) of a degree requirement.

**Degree Program:** See *Academic Program/Degree Structure* section of the catalog.

**Discipline:** A branch of learning or field of study (e.g., mathematics, history or psychology).

**Dual Degree:** The completion of two degrees simultaneously. All requirements for both degrees must be met and at least 12 credits beyond the first degree must be successfully completed for the second. (See the *Faculty Handbook*.)

**Emphasis Area:** A subarea of specialized study within a major that has been formally approved. Emphasis areas are printed on students' transcripts. (See *Academic Program/Degree Structure* section of the catalog.)

**Enrollment Dates:** A specific time period in which registration is allowed for a specific upcoming term in myZou. Time period is narrowed by a specific date and time.

**Enrollment Requirement:** A condition the student must satisfy prior to enrolling in a course. (i.e., "Sophomore Standing, ENGLISH 1000.") (Also referred to as requisites or

prerequisites.)

**General Education (University):** The MU Faculty has developed a comprehensive program of University general education course work that equips students with the skills, knowledge and foundations in the disciplines required of all informed citizens. All MU students must satisfy University general education requirements as a part of their undergraduate degrees. (See details in *General Education Requirement* section of the catalog.)

**GPA of Record:** The GPA stands for grade point average. A GPA of record is the official GPA. (See GPA in the Rules and Regulations section of the catalog or in the *Faculty Handbook*.)

**Graded Course:** A course in which credit is awarded if successfully completed. A course in which a student has enrolled as a "Hearer/Auditor" is not regarded as a graded course for that student.

**Grading Basis:** The grading system used to assign a grade. (See *Grades* section later in the catalog.)

**Graduation:** The act of having the degree(s) conferred.

**Honors Course-Departmental:** See *Course Numbering* section. Catalog number is not followed by an "H".

**Honors Course-General:** A course limited to honors-eligible students. Course has been approved by Honors college for use towards Honors Certificate or University Honors. Catalog number is followed by an "H".

**Honors Eligibility:** See Honors College section for more information.

**Instructional Mode:** The dominant delivery method of instruction of the class content.

- **Traditional:** No online technology used -- content is delivered in writing or orally. May have a video of the class that is used during the initial delivery and viewed later. Course attributes should indicate this.
- **Web Facilitated:** Includes face-to-face instruction. Includes those courses in which zero to 29 percent of the content is delivered online. May have a video of the class that is used during the initial delivery and viewed later. Course attributes should indicate this.
- **Blended class instruction:** Defined as having between 30 percent and 80 percent of the course content delivered online. It is sometimes called hybrid.
- **On-line:** A course where most or all (80% or greater) of the content is delivered online. Typically these sections have no face-to-face meeting, but there may be some or face-to-face exams, etc.

**Interdisciplinary or Multidisciplinary:** A course of study that combines two or more academic disciplines.

**Location:** An indication of where a student is taking a course for billing and informational purposes.

**Lower Division:** Undergraduate courses numbered less than 3000.

**Major:** A primary field of specialized study that is referred to as a degree program. (See *Academic Program/Degree Structure* section of the catalog.)

**Minor:** A secondary field of specialized study. (See *Academic Program/Degree Structure* section of the catalog.)

**Mizzou Online:** Mizzou Online partners with academic units to develop, market, and deliver programs and courses designed for distance students.

**Mizzou Online-Self Paced:** Students may enroll in self-paced, online courses year-round, (minimum six weeks, maximum nine months) and complete coursework at their own pace. Students with 60 or more approved credit hours may complete a bachelor

of general studies degree online.

**Mizzou Online-Semester Based:** Semester-based courses have specific start and end dates and follow the University semester calendar. Students participate with other students and instructors in the courses and have assignment due dates and deadlines. Enrollment periods are the same as campus sections.

**Option:** A track or other portion of a major that may be required or optional. A separate designation is not made on the transcript or diploma for an option or track.

**Prerequisite:** A course or requirement that must be met prior to enrolling in a course. Exceptions may be made with permissions.

**Readmission:** See Admissions website for information on the readmission process and standards.

**Recommended course:** A course that is beneficial or preferred for the student to have taken before enrolling in a subsequent course. It is a strong suggestion, but not a requirement.

**Registration:** The act of enrolling in classes for a given semester or term. At the University of Missouri, registration refers to the process in which students select course work for a term and, reserve spaces (enroll) in the courses in the University's computer system. This may be done through myZou.

**Repeat for Credit:** Courses that may be taken more than once for credit (e.g., music performance courses.)

**Requirement:** A course, activity or accomplishment that must be completed successfully.

**Satisfactory Progress:** The time progression in meeting the requirements of the student's established educational objective, typically, the completion of a degree program. Satisfactory progress is based on two concepts:

- Minimum number of credits completed expressed as a percentage of total credits attempted
- Maximum time to complete the degree as expressed by a total number of credits attempted

The term may also refer to financial aid requirements. (See

*Financial Aid* section.)

**Second, Undergraduate Degree:** A second undergraduate degree a student pursues after earning one degree.

**Section:** Multiple sections of the same course will be identified by different numbers and/or letters in the schedule of classes.

**Sequence of Courses:** Two or three closely related courses that must be taken in specified order.

**Service Indicators/Holds:** An indication to the student that enrollment actions may be restricted from the student. Clicking on the details of the indicator will tell the student what the restriction may be and who to contact regarding the restriction. (i.e. financial holds, probation, etc.)

**Session:** A class scheduling/enrollment control time period within an academic term.

**Student Center:** The page in myZou where a student can view a synopsis of all their information. (i.e. schedule, service indicators, enrollment dates, financial information.)

**Student Level:** Students are assigned to a particular class level based upon the number of credits they have completed. (i.e. freshmen, sophomore, junior and senior.) (See Student Level under Academic Procedures, Rules and Regulations.)

**To-Do List:** A place in the Student Center that administrative or academic departments may place a list of things a student still must complete. (i.e. Admissions, Financial Aid)

**Track:** An option or other portion of a major that may be required or optional. A separate designation is not made on the transcript or diploma for an option or track.

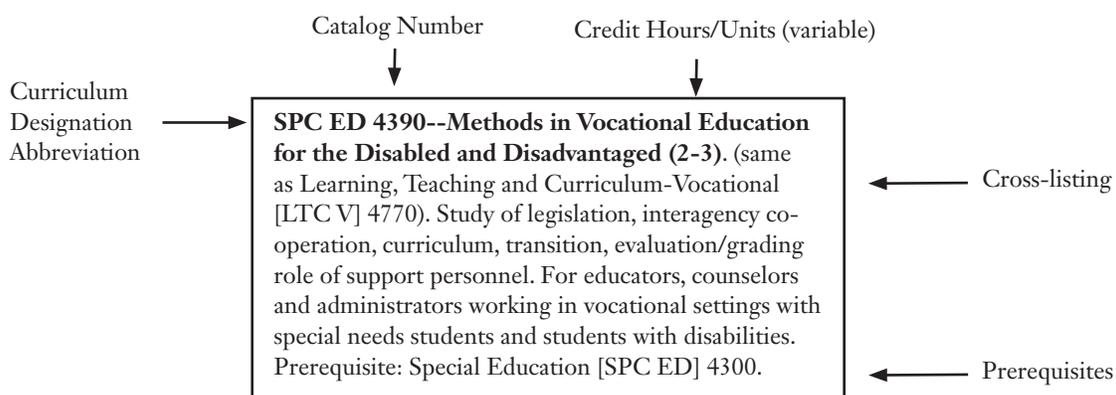
**Upper Division:** Undergraduate courses numbered 3000-4000.

**Variable Credit(Units):** For some courses, the student may choose the number of credits.

**Waive:** To set aside without credit certain requirements for a degree.

## How to Read a Course Description

Course descriptions can be found in the second half of this catalog. Course descriptions may contain the information shown below. The curriculum abbreviations and course-numbering system are explained in the following pages.



# Course-Numbering System

Basic skills courses	0000-0999	Courses that do not count toward degree requirements—primarily used for skill development.
Freshmen-level courses	1000-1999	Entry-level courses that have only skill development courses for course prerequisites. (Test scores, etc. are acceptable prerequisites.) Considered lower-division. Community college courses will be considered equivalent to this level.
Sophomore-level courses	2000-2999	Intended primarily for second-year or sophomore students who have the essential prerequisites or background. Considered lower-division. Community College courses will be considered equivalent to this level as well.
Junior/Senior-level courses (Upper division)	3000-3999	Upper-division courses that may NOT be listed as cross level with 5000-8999. Intended primarily for third and fourth-year (juniors and seniors) students who have the essential prerequisites or background. Often restricted to students admitted to junior-level entry degree programs.
Junior/Senior-level courses (Upper division)	4000-4999	Upper-division courses that may be listed as cross level with 5000-7999. Intended primarily for juniors and seniors. Note special sub-ranges for capstone, research and departmental honors courses.
Undergraduate Research courses	4950-4959	Upper-division, undergraduate research courses
Capstone courses	4970-4990	
Capstone/Honor courses	4991	Courses that are both capstone and departmental honors courses
Capstone/Reading courses	4992	
Capstone/Internship courses	4993	
Capstone/Research courses	4994	
Extended Research & Departmental Honors course	4995	
Departmental Honors courses	4996-4999	Multiple term duration courses based on research
Departmental Honors courses	4996-4999	Used only for departmental honors courses. Include Dept. Honors in title or course description. No “H” is listed after the catalog number.
Professional-level courses	5000-6999	Professional-level courses for Law, Vet. Med and Medicine. Generally, not for undergraduate credit. May be listed as cross-level with 4000-4999 courses.
Beginning Graduate courses	7000-7999	Graduate-level courses for beginning and mid-level graduate students primarily. Generally not for undergraduate credit, but may be listed as cross-level with 4000-4999 courses.
Mid-level Graduate courses	8000-8999	Graduate-level courses intended primarily for mid- and upper-level graduate students. Not for undergraduate credit. <b>May not</b> be listed as cross-level with 4000-4999 courses.
Upper-level Graduate courses	9000-9999	Graduate-level courses intended primarily for upper-level graduate students. Not for undergraduate credit. <b>May not</b> be listed as cross-level with 4000-4999 courses.

“H” after a number indicates that it is an Honors course, approved by the Honors College for use toward Honors Certificate or University Honors. Not applicable to courses only designated for departmental honors.

## Undergraduate Topics Courses

Final two digits represent the distribution category within the University requirements.

- 01 General
- 02 Biological/physical/mathematical sciences
- 03 Behavioral sciences
- 04 Social sciences
- 05 Humanities

## Guidelines for Cross-Listed and Cross-Level Courses\*

\*Approved by Faculty Council February 13, 2003

**Overview:** Per the faculty approved policies, only 4000 and 7000 level courses may be cross-level listed. Courses that are cross-listed should be from different departments, but cover the same content, with matching course descriptions.

### Cross-Listed Courses:

- Courses that are cross-listed *must* be:
- At the same level
- Cover the same content

Courses that are cross-listed *may*:

- Meet different general education requirements (i.e. social science for one and humanities for another)
- Not have the exact same number, but it is preferred that they do
- Have different additional fees. However, students may need to enroll in a specific course to meet a requirement and may or may not be allowed to substitute the cross-listed course to avoid the fee. There are limits on enrollment and space may not be available in the non-fee course or section.
- Exceptions: Fine art and music “skills” classes such as painting or drawing may have different levels meeting in the same room at the same time, such as 1000, 2000, etc. with the instructor requiring the appropriate additional quality and/or quantity of work for the respective level.

### Cross-Level Courses:

- *Only 4000 and 7000-level courses may be* cross-level listed.
- The 7000-level course must require work appropriate for graduate credit and be approved as such by the Graduate Faculty Senate.

Courses that are not cross-level *may not* meet in the same room at the same time or near each other are the same time so that they attempt to “get around” this rule.

## Curriculum Designator Abbreviations

The abbreviations listed below are used in course descriptions. They may be called Curriculum Designators.

Designator	Subject Area	Academic Unit
ACCTCY	Accountancy	BUS
AERO	Aerospace Studies	A&S
AFNR	Agriculture, Food and Natural Resources	CAFNR
AG EC	Agricultural Economics	CAFNR
AG ED	Agricultural Education	CAFNR
AG S M	Agricultural Systems Management	CAFNR
ANESTH	Anesthesiology	MED
AN SCI	Animal Science	CAFNR
ANTHRO	Anthropology	A&S
ARABIC	Arabic	A&S
ARCHST	Architectural Studies	HES
ART CERM	Art-Ceramics	A&S
ART DRAW	Art-Drawing	A&S
ART FIBR	Art-Fibers	A&S
ART GNRL	Art-General	A&S
ART GRDN	Art-Graphic Design	A&S
ART PHOT	Art-Photography	A&S
ART PNT	Art-Painting	A&S
ART PRNT	Art-Printmaking	A&S
ART SCUL	Art-Sculpture	A&S

Designator	Subject Area	Academic Unit
AR H A	Art History and Archaeology	A&S
ASTRON	(Astronomy) Physics and Astronomy	A&S
ATM SC	(Atmospheric Science) Soil, Environmental and Atmospheric Sciences	NAT R
BIOCHM	Biochemistry	CAFNR
BIOL EN	Biological Engineering	CAFNR
BIO SC	Biological Sciences	A&S
BIOMED	Biomedical Sciences	VET M
BL STU	Black Studies	PRVST
BUS AD	Business Administration	BUS
CPD	Cardiopulmonary and Diagnostic Sciences	HP
CH ENG	Chemical Engineering	ENGR
CHEM	Chemistry	A&S
CH HTH	Child Health	MED
CHINSE	(Chinese) German and Russian Studies	A&S
CV ENG	Civil Engineering	ENGR
CL HUM	(Classical Humanities) Classical Studies	A&S
CLASS	(Classics) Classical Studies	A&S
CL L S	Clinical Laboratory Sciences	HP
COMMUN	Communication	A&S
C S D	Communication Sciences and Disorders Program	HP
CMP SC	Computer Science	ENGR

# Curriculum Designator

## Abbreviations (cont.)

Designator	Subject Area	Academic Unit
DERM	Dermatology	MED
DMU	Diagnostic Medical Ultrasound	HP
ECONOM	Economics	A&S
EDUC H	Education Honors	EDUC
ED LPA	Educational Leadership and Policy Analysis	EDUC
ESC PS	Educational, School and Counseling Psychology	EDUC
ECE	Electrical and Computer Engineering	ENGR
EMR ME	Emergency Medicine	MED
ENGINR	Engineering	ENGR
ENGLSH	English	A&S
ELSP	English Language Support Program	ELSP
ENV SC	(Environmental Science) Soil, Environmental and Atmospheric Science	NAT R
ENV ST	Environmental Studies	PRVST
F C MD	Family and Community Medicine	MED
FILM S	Film Studies	A&S
FINANC	Finance	BUS
FINPLN	Personal Financial Planning	HES
F W	Fisheries and Wildlife	NAT R
F S	Food Science	CAFNR
FOREST	Forestry	NAT R
FRENCH	(French) Romance Languages and Literatures	A&S
GN HES	General Human Environmental Sciences	HES
G STDY	General Studies	A&S
GEOG	Geography	A&S
GEOL	Geological Sciences	A&S
GERMAN	(German) German and Russian Studies	A&S
GRAD	Graduate School	GRAD
GREEK	(Greek) Classical Studies	A&S
HMI	Health Management and Informatics	MED
HTH PR	Health Professions	HP
HEBREW	(Hebrew) Interdepartmental	A&S
HIST	History	A&S
GN HON	(Honors General) Honors College	PRVST
HSP MGMT	Hospitality Management	CAFNR
H D FS	Human Development and Family Studies	HES
IMSE	Industrial and Manufacturing Systems Engineering	ENGR

Designator	Subject Area	Academic Unit
IS LT	Information Science and Learning Technology	EDUC
INFOINST	MU Informatics Institute	MED
INFOTC	Information Technology	ENGR
INTDSC	(Interdisciplinary Studies) Interdepartmental	A&S
IN MED	Internal Medicine	MED
INTL S	(International Studies) Interdepartmental	A&S
ITAL	(Italian) Romance Languages and Literatures	A&S
JAPNSE	(Japanese) German and Russian Studies	A&S
JOURN	Journalism	JOURN
KOREAN	(Korean) German and Russian Studies	A&S
LAB ST	(Labor Studies) Interdepartmental	A&S
LAB AN	(Laboratory Animal Medicine) Interdepartmental	VET M
LATIN	(Latin) Classical Studies	A&S
LAW	Law	LAW
LINGST	(Linguistics) Interdepartmental	A&S
LTC	Learning, Teaching & Curriculum	EDUC
LTC V	Learning, Teaching & Curriculum - Vocational	EDUC
MANGMT	Management	BUS
MRKTNG	Marketing	BUS
MATH	Mathematics	A&S
MAE	Mechanical and Aerospace Engineering	ENGR
MPP	Medical Pharmacology and Physiology	MED
MED ID	Medicine – Interdisciplinary	MED
MIL SC	Military Science	A&S
MISC	Miscellaneous	MISC
MICROB	Molecular Microbiology and Immunology	MED
MUS APMS	Music-Applied Music	A&S
MUS ENS	Music-Ensemble Courses	A&S
MUS GENL	Music-General	A&S
MUS H LI	Music-Music History and Literature	A&S
MUS I VR	Music-Instrumental and Vocal Repertory	A&S
MUS I VT	Music-Instrumental and Vocal Techniques	A&S
MUS THRY	Music-Music Theory	A&S
MUSIC NM	Music-Courses for Non-Majors	A&S
NAT R	Natural Resources	NAT R
NAVY	Naval Science	ENGR
NEUROL	Neurology	MED

## Curriculum Designator Abbreviations (cont.)

Designator	Subject Area	Academic Unit
NEUROSCI	Integrative Neuroscience	A&S
NU ENG	Nuclear Engineering	GRAD
NUCMED	Nuclear Medicine	HP
NURSE	Nursing	NURS
NUTRIT	(Nutrition) Interdepartmental	CAFNR
NUTR S	Nutritional Sciences	H E S
OB GYN	Obstetrics – Gynecology	MED
OC THR	Occupational Therapy	HP
OPHTH	Ophthalmology	MED
P R TR	Parks, Recreation and Tourism	NAT R
PTH AS	Pathology and Anatomical Sciences	MED
PEA ST	(Peace Studies) Interdepartmental	A&S
PHIL	Philosophy	A&S
PM REH	Physical Medicine and Rehabilitation	MED
PH THR	Physical Therapy	HP
PHYSCS	(Physics) Physics and Astronomy	A&S
PLNT S	Plant Science	CAFNR
POL SC	Political Science	A&S
PORT	(Portuguese) Romance Languages and Literatures	A&S
PSCHTY	Psychiatry	MED
PSYCH	Psychology	A&S
PUB AF	Public Affairs	GRAD
P HLTH	Public Health	GRAD
RA SCI	Radiological Sciences	HP
RADIOL	Radiology	MED
REL ST	Religious Studies	A&S
RS THR	Respiratory Therapy	HP
RM LAN	Romance Languages and Literatures	A&S
RU SOC	Rural Sociology	CAFNR
RUSS	(Russian) German and Russian Studies	A&S
SCI AG J	Science and Agricultural Journalism	CAFNR
SOC WK	Social Work	HES
SOCIOL	Sociology	A&S
SOIL	(Soil Science) Soil, Environment and Atmospheric Sciences	NAT R
S A ST	(South Asia Studies) Interdepartmental	A&S
SPAN	(Spanish) Romance Languages and Literatures	A&S
SPC ED	Special Education	EDUC
STAT	Statistics	A&S

Designator	Subject Area	Academic Unit
SSC	Student Success Center	PRVST
ST ABRD	Study Abroad	MISC
SURGRY	Surgery	MED
T A M	Textile and Apparel Management	HES
THEATR	Theatre	A&S
V BSCI	Veterinary Biomedical Science	VET M
VMED I	Veterinary Medicine - Interdisciplinary	VET M
V M S	Veterinary Medicine and Surgery	VET M
V PBIO	Veterinary Pathobiology	VET M
WGST	Women's and Gender Studies	PRVST

*“All statements in this publication are announcements of present policies only and are subject to change without notice. They are not to be regarded as offers to contract.”*

## What catalog applies to whom under what circumstances

These policies concern the application of the University of Missouri's graduation, divisional and departmental degree requirements. MU students' academic requirements for graduation are typically met as follows:

University general education and other University-wide policies:

- Students must complete the graduation requirements in effect for the term that they first enroll at MU or they may choose those in effect for the term that their degree is awarded with the agreement of their academic unit.
- This policy applies to newly admitted freshmen as well as transfer students.
- Students who have a lapse in enrollment must meet the degree requirements in effect at the time the students are readmitted to MU.

Divisional, departmental and other degree requirements:

- Students must meet the specified divisional, departmental and major requirements for the degree(s) that were in effect when they were admitted as degree seeking to the program or may choose those in effect for the term in which they will graduate, with the agreement of their division or department.
- Students who have a lapse in enrollment must meet the standards of the degree requirements in effect when they return to MU.

After consulting with an advisor, students may appeal. Requests for exceptions to the above policy may be made to the academic dean for the academic unit in which the student is enrolled. Some academic units may have unique “grandfathering” policies that apply to changes in their programs and that supersede this policy. Students should consult with an advisor in all cases.

# Academic and Administrative Regulations

## Admission Information

### Admission Procedures

Students can apply via the World Wide Web at: <http://admissions.missouri.edu/apply/index.php>. Applicants should complete the application form and send it along with the application fee to the Director of Admissions, 230 Jesse Hall, Columbia, MO, 65211. Transcripts should be sent to the same address after submitting the application. The criteria described below are employed to determine admissibility to the University of Missouri. Meeting the minimum requirements, however, does not guarantee admission. The Office of Admissions will notify applicants in a timely manner whether they have been accepted, denied or placed on a waiting list. Students may be admitted as freshmen to the colleges of Agriculture, Food and Natural Resources; Arts and Science; Business; Education; Engineering; and Human Environmental Sciences and to the schools of Natural Resources, Nursing, Health Professions, Social Work and Journalism.

### Freshmen

Admission to the freshman class is based on a student's probability of success with MU course work. Admissions criteria are based on a combination of the student's class rank, standardized test scores and high school course work. The core high school work required by MU is listed below.

### Required high school core course work

- 4 units of math (Algebra I and higher)
- 4 units of English
- 3 units of science
- 3 units of social studies
- 2 units of the same foreign language, and
- 1 unit of fine art

### Test Score / Class Rank Requirements:

ACT	SAT	High School Class %Rank
23	1050-1080	48 (top 52%)
22	1020-1040	54 (top 46%)
21	980-1010	62 (top 38%)
20	940-970	69 (top 31%)
19	900-930	78 (top 22%)
18	860-890	86 (top 14%)
17	820-850	94 (top 6%)

Students whose ACT Composite score is 24 or higher or whose total of SAT verbal and math scores is 1090 or higher, and who have completed the required curriculum, meet the requirement for admission to Mizzou. Students whose ACT composite is 17 to 23 or whose total of SAT verbal and math is 820 to 1080, must meet the above-listed high school class rank level to be admitted to Mizzou. Students with ACT scores of less than 17 or SAT total scores of less than 820 are generally not admissible to MU.

### Roberts Scholars (School of Law)

The Judge Ross Roberts Scholars Program guarantees admission to the School of Law for an undergraduate student who enrolls at MU as a freshman under the program and who meets

the following criteria:

- An ACT composite score of 32 or an SAT score of 1410 or higher (verbal & math); AND
- Graduates from MU with a cumulative grade point average of 3.5 or higher (as calculated by LSDAS); AND
- Scores at the 75th percentile or higher on the LSAT (the actual score may vary from test to test, the 75th percentile is approximately a 157); AND
- Applies and is accepted to the Roberts Scholar Program BEFORE taking the LSAT; AND
- Enters law school in the fall semester immediately upon graduation from college.

Students must have a complete law school application by the Roberts Scholar application deadline. (The actual deadline date will vary depending on the year applying to law school, but is typically in January. Please see the law school application checklist by the MU school of Law Admissions Office. This includes all supporting documents and your LSDAS report.) Students who do not meet the required levels of performance for the Roberts Scholars Program may still apply for regular admission to the School of Law.

### Preveterinary Medicine Scholars Program

This program provides early assurance of admission to the MU College of Veterinary Medicine to selected students pursuing undergraduate studies at the University of Missouri. High school seniors and MU freshman with an ACT composite score of 30 or more, or an equivalent SAT score may apply. Students must maintain a cumulative GPA of at least 3.3, maintain an average course load of 15 hours per semester. Students must obtain observation hours with clinical veterinarians and be an active member in the Pre-Veterinary Medicine Club. A minimum program score must be obtained on either the Graduate Record Examination or the Medical College Admission Test.

For a complete description of the program and its requirements, please contact the Office of Academic Affairs at the College of Veterinary Medicine.

### AgScholars Program

This program provides early assurance of admission to the MU College of Veterinary Medicine to selected students pursuing undergraduate studies at the University of Missouri. High School seniors and MU freshman with an ACT composite of 27 or more, or an equivalent SAT score may apply. Students must maintain a cumulative GPA of at least a 3.30 and maintain an average courseload of 15 hours per semester while majoring in animal sciences. Students must obtain observation hours with clinical veterinarians and be an active member in the Pre-Veterinary Medicine Club. A minimum program score must be obtained on either the Graduate Record Examination or the Medical College Admission Test.

For a complete description of the program and its requirements, please contact the Office of Academic Affairs at the college of Veterinary Medicine.

### Nursing Scholars

Nursing scholars is a program for high school seniors that guarantees acceptance into the clinical nursing major. Students must be admitted to the Honors College before applying to Nursing Scholars. High School seniors must have an ACT composite of 29 or higher or equivalent SAT score and be in the top 10 percent of their graduating class to apply to the Honors

College and potentially be considered for Nursing scholars. High school seniors will be given nursing scholar information at Summer Welcome if they are honors eligible at that time, or may apply once on campus for their first semester. All Nursing Scholar students must maintain a 3.7 or higher cumulative GPA and a 3.0 term GPA. A grade of "B" or higher must be achieved on all honors coursework. Twelve honors credits must be completed before a student begins clinical coursework. Before applying for clinical admission, at least six of the twelve honors credits must be completed. The semester a Nursing Scholar applies for clinical admission, they must have any remaining honors credits in progress.

For more information, please visit the MU Sinclair School of Nursing website and/or the Honors College website.

## School of Health Professions Scholars

### General Information:

The School of Health Professions (SHP) offers a guaranteed admission program for high school seniors and first semester MU freshmen to the following degree programs: Clinical Laboratory Science, Communication Science and Disorders (guaranteed admission is for the Bachelor's Program only), Occupational Therapy, Physical Therapy (guaranteed admission to the DPT upon successful completion of a baccalaureate degree), Radiography, Nuclear Medicine, Diagnostic Medical Ultrasound, and Respiratory Therapy. Students selected as SHarP scholars are guaranteed a position into a School of Health Professions major by completing and maintaining the following requirements:

### Eligibility Requirements for the SHarP Scholar's Program:

- Currently enrolled as a high school senior or first semester MU student in the School of Health Professions.
- Minimum 30 composite ACT score (1320 SAT).
- Top 10% high school rank at the time of application. This is subject to interpretation regarding school and curriculum.
- Performance in college courses completed prior to high school graduation will be considered by the admissions committee.
- Completed application postmarked on or before December 1 of the senior year of high school to December 1 of the first semester freshman year at MU.
- Four (4) hours of clinical observation in the discipline of choice (documented on the SHarP application).
- All applications must include recommendations from a HS teacher and from a high school counselor or principal.

### Acceptance as a SHarP Scholar:

- Acceptance to the University of Missouri.
- Acceptance by the designated degree program as a SHarP Scholar; some departments may require an interview.
- Maintenance of a 3.3 term grade point average (on a 4.0 scale) during the senior year of high school.

### Maintaining Participant Status Requires:

- Continuous enrollment (excluding summers) at MU
- Maintain an MU cumulative GPA of 3.30.
- Enrollment in a SHarP faculty advisor approved, full-time schedule for Fall and Spring semesters.
- Minimum of "B-" grades on all required courses. Students are allowed one semester to rectify a deficient course grade or GPA; remediation must be accomplished at MU, effi-

ciently advance the student toward completion of prerequisites, and be approved by the SHarP faculty advisor.

- Comply with the academic and behavioral standards established by the department for pre-professional and professional students (i.e., prerequisite courses, additional clinical observation, meetings with a mentor).

## McNair Scholars Program

The McNair Scholars Program provides paid research opportunities to junior and senior MU students who meet federal income guidelines whose parents have not completed an undergraduate degree and/or students who are African American, Native American, or Hispanic. The purpose of the program is to prepare talented undergraduate students for doctoral study. In addition to the research internship, McNair Scholars travel to academic conferences with their faculty mentors. The program provides an extensive workshop series on how to get into and succeed in graduate school, GRE preparation, and preparation to be a teaching assistant. The program is funded by the U.S. Department of Education, Federal TRIO Programs, Ronald E. McNair Post-baccalaureate Achievement Programs.

Contact: NaTashua Davis, DavisNat@missouri.edu at 882-1962, 536 Clark Hall.

<http://mcnair.missouri.edu>

## Dual Credit and Advanced Placement (AP) Credit

MU gives credit for some Advanced Placement course work and for dual credit. Many students earn AP or Dual Credit while still enrolled in high school. AP minimum scores for awarding credit vary by department. Students may find that information on the MU web site. College credit also may be received for dual credit once the official college transcript is sent to MU. Dual credit, however, may not be used to become admissible to MU for a student who does not meet the regular admission requirements. (See Advanced Standing section of this catalog.)

*For FAQ on Dual Credit please visit:*

<http://admissions.missouri.edu/apply/ap-ib-and-college-credits/index.php>

## Transfer Admission Requirements

The following minimal requirements are established for general admission of transfer students. They do not include more stringent requirements that may be established by the faculties of the individual schools, colleges or campuses, or the requirements of special programs within some schools. It is the responsibility of the transfer student to check with the school, college, department or program concerning more specific requirements.

1. Transfer applicants to MU must have a 2.5 GPA in college level courses to be admissible. Transfer applicants who do not also meet MU's Freshman admission requirements must have completed at least 24 college level credits and must have completed one of the following:

- a. A college algebra course with at least a C- or better.
- OR
- b. The equivalent of MU's English 1000 with at least a C- grade.

2. Transfer students with an AA degree from a regionally accredited Missouri Community college are admissible to MU.

3. Full-time transfer students from other UM system campuses

who have completed at least 24 college level credits need only a 2.0 GPA to be eligible to transfer to MU.

Notes:

- a. Admission to MU does not guarantee admission to specific programs, as some are highly competitive. Please see our website at <http://admissions.missouri.edu/academics/schools-and-colleges.php> for specific program requirements.
- b. Students enrolling with an Associate in Arts degree with 60 or more transferable academic credits with a 2.0 GPA or better will be considered as having junior level standing and having completed the general education requirements.

Deadlines:

Students are urged to apply for transfer admission seven to nine months before the semester they wish to enter. This will allow time to determine out what is needed to submit or complete before the semester begins.

- Fall admission deadline: July 1
- Spring admission deadline: Dec. 1
- Summer admission deadline: May 1

### **Transfer from a Regionally Accredited Missouri College**

Students may transfer more than 64 credit hours of lower division courses from either Missouri associate degree-granting or baccalaureate degree-granting institutions. Any additional lower division course credits above 64 credit hours will be accepted in transfer if the credits are applicable to the baccalaureate degree or are prerequisites for an upper division course in the major, in accordance with the Missouri Coordinating Board's policy.

### **Articulation Agreements**

Contact departmental advisors for information on articulation programs and agreements.

### **Associate of Arts Degree**

An Associate of Arts degree (AA) is a two-year program that indicates the completion of a student's lower-division education. It also is a specific transfer degree for entry, at the junior level, into the general range of baccalaureate degree programs offered by the University.

Students transferring to MU from a regionally-accredited Missouri college or university with an associate of arts degree and a certified 2.0 GPA will be accepted with junior standing. They will also have completed lower-division, general-education requirements if the AA degree consisted of at least 60 credits of college-level work. These 60 credits must include completion of an institutionally-approved, general-education program of not fewer than 39 credits.

Students holding the AA degree are admissible to MU, but are not necessarily admissible to specific programs. Some of the specific programs with specialized lower-division requirements are the colleges of Business, Education, Human Environmental Sciences and the schools of Health Professions, Journalism, Nursing and Social Work. The transfer requirements for all academic units may be found in later sections of this catalog. Students applying with an AA degree from another state will have their courses reviewed for equivalency on an individual basis.

### **Associate of Science Degree**

An Associate of Science degree (AS) is a specialized degree intended for transfer into a specific, preprofessional program. Junior standing is guaranteed to the transfer student only if curricular details have been agreed on by MU and the institution granting the AS. Students who receive a specialized AS degree do not automatically qualify for junior standing in all MU programs. To enroll in some degree programs, students may have to take additional, general-education courses.

### **Students Without Associate Degrees**

Students transferring without associate degrees must meet regular MU transfer admission standards.

### **Transfer Within the UM System**

Students may transfer among campuses within the University of Missouri System. University of Missouri Policy states that "Any course that leads to an undergraduate degree on any campus of the University of Missouri shall be accepted in transfer toward the same degree on each campus of the University offering said degree." Students transferring within the UM system are still required to satisfy the course and residency requirements of the campus from which they wish to graduate. Grades, including D and F grades, and grade points earned will also transfer and be included in the cumulative UM grade-point average.

For more information contact the following offices –  
University of Missouri – Columbia Office of Admissions, 800-225-6075, [mu4u@missouri.edu](mailto:mu4u@missouri.edu)  
University of Missouri – Kansas City – Registration & Records Office, 816-235-1125, [registrar@umkc.edu](mailto:registrar@umkc.edu)  
Missouri University of Science and Technology – Registrar's Office, 573-341-4181, [registrar@mst.edu](mailto:registrar@mst.edu)  
University of Missouri – St. Louis - Office of the Registrar, 314-516-5545, [registration@umsl.edu](mailto:registration@umsl.edu)

### **Military Transfer Credits**

Military veterans, with at least two years of honorable service, are allowed to transfer military course credit. The transcript coursework must have been accredited by the American Council of Education (ACE). Veterans are advised to contact University Admissions regarding specific transfer credit policies. An exception to current transfer credit policies is that military veterans be allowed a maximum of 9 hours credit as general electives. This policy will begin with military veterans enrolled for the Fall 2010 semester.

### **International Students**

More than 1,000 students from more than 110 countries currently are enrolled at MU. All prospective undergraduate students who are neither US citizens nor permanent residents of the United States should contact the International Admissions Office, 230 Jesse Hall, Columbia, MO 65211.

In addition to the English language requirement for admission, all undergraduate international students are required to take the English Language Support Program Test prior to registering for courses.

### **Readmission of Previously Enrolled Students**

Students who are returning to MU after an absence of at least one semester must contact the Office of Admissions in 230 Jesse

Hall, Columbia, MO 65211 to apply for readmission.

### **Appeal of Admission Decisions**

Students who are denied admission as a freshman or transfer to the institution may write a letter of appeal to the Director of Admissions, 230 Jesse Hall, Columbia, MO 65211. Students who are denied readmission must direct their appeal to the appropriate dean's office of the school or college to which they were denied readmission.

### **Easy Access Program**

The Easy Access program is intended to serve non-degree-seeking individuals. Easy Access students may enroll only as part-time students (maximum of 6 credits each semester or 3 in the summer). Community residents who are high school graduates may register for any course on a space-available basis without providing previous transcripts. Compliance with course prerequisites is necessary and is the student's responsibility. Students who have completed work at another institution must provide evidence of eligibility to re-enroll. They do so by presenting a letter of good standing from the institution or completing a provisional form until a letter is received. Students on dismissal status from any institution, including MU, are not eligible to participate in this program until one year has elapsed since their dismissal.

Easy Access enrollment will not meet immigration guidelines for a non-citizen on a student visa. If a student has a visa that allows for part-time enrollment, a current TOEFL of at least 500/173 is required to enroll in courses.

Students enrolled through Easy Access are not eligible to receive Veterans Administration benefits or most financial aid. Easy Access students may elect to receive grades and undergraduate credit for their courses. Payment of fees is on the same basis as regularly-enrolled, undergraduate students.

If Easy Access students later decide to become regular students, they must apply to MU for a future semester. Credit received while enrolled in Easy Access will be evaluated by the division selected for enrollment. A student regularly enrolled in a division cannot transfer to Easy Access during the semester.

This program is administered by the Office of the University Registrar, 125 Jesse Hall. For more information on the Easy Access Program, please see <http://registrar.missouri.edu/registration-adddrop/easy-access.php>.

### **Reciprocal Agreements**

#### **Kansas - Missouri Agreement for Exchange of Students**

Reciprocal tuition agreement exists between the Kansas Board of Regents, the Missouri Coordinating Board for Higher Education, and the Curators of the University of Missouri for Missouri residents desiring to enroll in architecture, architectural engineering, landscape architecture or interior design programs at The University of Kansas and Kansas State University and for Kansas students desiring to enroll in the dentistry program at the University of Missouri-Kansas City or in optometry programs at the University of Missouri-St. Louis. For further information about these programs, contact the admissions office at the institution offering the program.

#### **Nebraska - Missouri Agreement for Exchange of Students**

By joint agreement of the Board of Regents of the University of Nebraska and the Board of Curators of the University of Missouri System, qualified Missouri students may enroll at the University of Nebraska in certain educational programs and be

charged fees at the rate paid by Nebraska residents. A qualified student is one who meets the residence requirements of MU and who meets the minimum academic admission requirements of the University of Nebraska. Undergraduate programs available for Missouri students include architecture, community and regional planning, construction management and actuarial science.

All graduate programs (not including professional degrees) at the University of Nebraska and the University of Missouri are available in a separate agreement under which eligible persons from either state are treated as residents. For further information, call or write the director of admissions at the institution offering the specific program.

#### **Midwest Student Exchange Program**

The Midwest Student Exchange Program is an interstate initiative established by the Midwestern Higher Education Commission (MHEC) to increase educational opportunities for students in its member states. This program enables residents of Kansas, Michigan, Minnesota, Missouri and Nebraska to enroll in designated institutions and selected programs at reduced tuition levels outside of their home state. For further information please visit [www.mhec.org/studentaccess\\_studentexchange.html](http://www.mhec.org/studentaccess_studentexchange.html).

#### **Mid-Missouri Associated Colleges and Universities (MMACU)**

MMACU was formed in 1964 to encourage the sharing of experiences and resources among its members. In addition to MU, consortium institutions include William Woods University, Stephens College, Westminster College and Lincoln University. Full-time undergraduate students of the five MMACU institutions may take courses for credit at any of the five campuses on a space-available basis with the permission of their home institution. The intent of cross-registration is to support students' educational needs when a desired course is unavailable at the home institution or when there are inherent schedule conflicts. To qualify for cross-registration, a student must be in good academic standing and enrolled full-time as an undergraduate on his/her home campus. (MU defines full-time as 12 or more credits during the fall and spring semesters and 6 or more credits during the summer, which includes credits taken at the cooperating institution.) Non-native English speakers must meet all English Language Proficiency requirements of the school in which they wish to enroll.

Forms and additional information are available from the Office of the University Registrar, 125 Jesse Hall, (573) 882-7881.

#### **Cooperative Agreement between MU and Columbia College**

Full-time, undergraduate students from one institution may enroll in undergraduate classes offered by the other institution if the course in which the student enrolls, or its equivalent, is not offered during the semester for which the student is enrolling in the schedule of courses of the home institution. (Students will be considered full time if they are taking a combination of 12 credits from both institutions.) Further information and regulations regarding this agreement are available in 125 Jesse Hall, (573) 882-7881.

## Registration

### Procedural Overview

The University of Missouri uses online (myZou) registration. Students learn the processes during Summer and Spring Welcome sessions. In addition, step-by-step instructions are available on the University Registrar's web site, which is linked to the MU home page, [www.missouri.edu](http://www.missouri.edu). Students must be admitted prior to being eligible to register for courses. Once a student is admitted, a myZou account is created for them. Students are also assigned a student identification number. Their myZou account is used to access the registration process and protect the student's private information. myZou may be accessed from <http://myzou.missouri.edu>. For more information, contact the Office of the University Registrar, 125 Jesse Hall, (573) 882-7881.

### Mizzou Online

(Formerly Center for Distance and Independent Study)

A broad curriculum of approximately 150 online university courses is available through self-paced independent study. Each online self-paced course is offered by an academic department at one or more of the campuses of the University of Missouri. Students can enroll in self-paced courses any time of the year and take anywhere from six weeks to nine months to complete each course.

The Board of Curators has stipulated that credit earned through independent study may be applied toward a bachelor's degree, subject to the approval of the college or division offering the degree. Students should consult their advisor or dean's office before enrolling in a self-paced independent study course. For more information see: <http://mizzouonline.missouri.edu>

The Mizzou Online self-paced course list is available in Ellis Library, the Office of Admissions at 230 Jesse Hall, and at Mizzou Online at 136 Clark Hall, Columbia, MO, 65211, (573) 882-2491 or 1-800-609-3727.

### Academic Procedures, Rules and Regulations

The academic rules and regulations of the University of Missouri are published in the *Rules and Regulations of the University of Missouri* and the *MU Faculty Council Academic Regulations*. (Both are available on the web from MU's home page.) The following are selected policies and procedures. Many are summarized as a guide for students. Students needing additional information on academic regulations in specific colleges and schools may obtain this information from their deans' offices.

### Absences

Students are expected to attend all scheduled class sessions. A student who does not complete assigned academic work because of absence from class is responsible for making up that work in accordance with instructions provided by the faculty member consistent with any policy established by the faculty of the respective department, school or college. A school or college faculty, a department faculty, a course director or an individual instructor may establish attendance standards and will determine whether a student will be permitted to make up work missed as a result of absence(s). There is no dean's excuse or official absence. (See *Satisfactory Academic Progress Policy for Financial Aid Eligibility for further absence considerations*.)

### Academic Dishonesty

Academic honesty is essential to the intellectual life of the

University. Thus, academic dishonesty, such as cheating and plagiarism, is a basis for disciplinary action. In all cases of academic dishonesty, the faculty member makes an academic judgment about the student's grade on that work and in that course and reports all incidents to the provost for disciplinary action. (See the *Student Responsibility* section later in this catalog.)

### Academic Renewal

Students who are returning to the University of Missouri to pursue an undergraduate degree after an extended absence may request permission to remove one or more complete academic terms from future degree and GPA considerations.

**Eligibility:** To be eligible for academic renewal consideration, students must meet these requirements:

- Students must not have enrolled as degree-seeking at the University of Missouri for four or more consecutive years.
- Students must not have graduated from the University of Missouri- Columbia.
- Students must either:
  - be admitted as degree-seeking and have earned a minimum of 12.0 credits with at least a 2.5 GPA of record for those credits at the University of Missouri within the past 12 months; OR
  - have attempted, as a non-degree-seeking student, and have earned thereby a minimum of 12.0 credits with at least a 2.5 GPA of record for those credits at the University of Missouri within the past 12 months and subsequently have been admitted as degree-seeking by the University.

**Conditions:** Academic renewal is based on the following conditions:

- All courses and credits taken during the chosen terms will be removed from consideration for GPA and degree requirements. Students may not combine individual courses from multiple terms to comprise the semester(s) dropped.
- All courses and grades for the chosen terms will remain on the student's academic record.
- Renewal may be applied only to academic terms completed prior to the student's extended absence.
- Students may be granted only one academic renewal.
- Students who choose academic renewal must meet the degree requirements of the University of Missouri undergraduate catalog at the time of their readmission.
- Degree requirements met during the dropped terms must be repeated.
- To be eligible for a degree, students must complete a minimum of 24 credits at the University of Missouri after the granting of academic renewal.

**Procedures:**

- Students should discuss their desire to pursue academic renewal with an academic advisor in the college they wish to enter.
- Students should submit an application for academic renewal to the Office of the University Registrar.
- For each term approved for academic renewal, a note will appear on the transcript.

Questions may be directed to the Office of the University Registrar, 125 Jesse Hall, (573) 882-7881.

## Academic Standing

Academic performance is represented by academic standing, according to the *Faculty Handbook*, of which there are three levels: regular, academic probation, and ineligible to enroll. For the purposes of this policy, “term” may refer to a semester or summer term.

**Regular Academic Standing:** Students whose term and cumulative GPAs are 2.0 or higher are in regular academic standing.

**Probation:** Students in regular standing whose term GPA subsequently falls below 2.0, but is 1.0 or above are placed on probation. Students on probation must establish a 2.0 cumulative GPA within two successive terms of enrollment; otherwise they are ineligible to enroll.

Any beginning student admitted to the University of Missouri who does not meet the minimum entrance standards as specified in the *Faculty Handbook*, Article II, Admissions, Advanced Standing, and Classification will enter on scholastic probation and will have one semester in which to remove probation.

**Ineligible to enroll:** Students whose term GPA falls below 1.0 are ineligible to re-enroll. Students on probation must establish a 2.0 cumulative GPA within two successive terms of enrollment; otherwise they are ineligible to enroll.

In the application of the foregoing rules, the dean or faculty committee of the division concerned will determine how an incomplete grade in a course will be considered in determining a student’s academic standing. A student who has been ineligible to enroll for a period of one year may be readmitted only upon the approval of the dean of the school or college in which the student desires to enroll. If a readmitted student again becomes ineligible to enroll, his or her ineligibility is normally considered permanent. These regulations are the prescribed minimal standards but do not limit the authority of the faculty of any school or college to adopt and enforce additional regulations affecting students enrolled therein.

## Active Military Duty

Enrolled students called into active service in the armed forces of the United States prior to the completion of the semester, whether voluntarily or involuntarily, but not including active service for training, shall be eligible for either of the options listed as follows: **NOTE:** Students must choose either option 1 or 2

### Option 1 - Withdrawal from all courses for semester

They may choose to withdraw from all classes. In such cases, a student may request either:

- **A)** That the official transcript indicate the courses from which he or she has withdrawn, the date of withdrawal and the reason for withdrawal. Students choosing this option will have their tuition and fee charges and their student financial aid eligibility calculated effective with their official withdrawal date.
- **B)** Or the student may request that all courses for that semester be expunged from the student’s academic record. Students taking this option will receive a complete refund of all educational and incidental fees paid by the student for enrollment for that semester. However, students who have received federal, state or institutionally funded financial aid

must return all aid disbursed to them for the semester **NOTE:** Students must see their Academic Advising Unit to withdraw and return the form to Office of the University Registrar, 125 Jesse Hall.

Refunds will not be immediately available. Refunds are based on your last method of payment (i.e. credit card, check, etc). Refund checks will be sent to your mailing address unless a forwarding address is left with the University.

### Option 2 - Receive Incompletes in all courses for the semester

The student may choose to receive an incomplete in all courses not yet completed for the semester. In that case the following rules apply:

- The student must complete all course work for the semester to the satisfaction of the instructor(s), and the time a student spends on active military duty shall not be counted against time allowed for the completion of an “Incomplete” grade.
- **I to F policy:** Students called to active military duty will be exempted from the one-year automated changes of I to F grades for the term of deployment and the year prior to deployment. In accordance with State statute, students may complete work upon their return from duty or may choose to maintain the I grade. Therefore, I grades for students called to active military duty will remain listed as “I” until a change of grade is submitted by the faculty member, or indefinitely, if so desired by the student.
- **NR to F Policy:** Military duty will be exempted from the one -year automated changes of NR to F grades for the term of deployment and the year prior to deployment. In accordance with State statute, students may choose to maintain the NR grade. Therefore, NR grades for students called to active military duty will remain listed as “NR” indefinitely, if so desired by the student.

Upon completion of all course work for the semester, the student may choose either to:

- A) Have the grade earned for the course and have the “Incomplete” expunged from his or her official record
- OR
- B) Have the “Incomplete” grade remain as the final grade with reason for the “Incomplete” noted on his or her official record

**NOTE:** No refunds will be given for option 2.

**Residential life:** Residential life will be contacted and informed of your intent to exit the University. Room, board and social fees will be prorated and applied to your University student account based on the effective date of your official check out from the residence hall or other University accommodations.

**Financial Aid:** The Office of Student Financial Aid will be informed of your student status and your official withdrawal date and may make adjustments according to federal, State of Missouri and institutional guidelines.

**Scholarships:** Scholarships may or may not be applicable upon the student’s return to the University. For example, Section 41.948.2, RSMo, provides that if a student has been awarded a scholarship to be used to pursue an academic program in any higher education institution in Missouri and he or she is not able to complete the term for which the scholarship was

granted, the student shall be awarded that scholarship at any subsequent academic term provided the student returns to the academic program at the same institution at the beginning of the next academic term after the completion of active military service. If a student has any scholarships or other aid or award, he or she should contact the issuer to determine whether it will be applicable on his or her return and whether he or she will need to satisfy any other conditions.

**Contact:**

Office of the University Registrar  
125 Jesse Hall  
The University of Missouri - Columbia  
Columbia, MO 65211  
Office: (573) 882-7881  
Fax: (573) 884-4530

**The Office of the University Registrar will require the following information:**

- A copy of your military orders, as soon as possible
- Forwarding Address
- Name, address and phone number of a contact or your representative
- Your name as it is on MU records
- MU ID number
- Which option student wishes to choose for classes

This information may be brought to 125 Jesse Hall or faxed to (573) 884-4530.

**Re-admission of Previously Enrolled Students**

Students who are returning to MU after an absence of at least one semester must complete Request to Re-enroll in Undergraduate Studies form (PDF) and return it to the Office of Admissions, 230 Jesse Hall, Columbia, MO 65211-1300 or fax to (573) 882-7887.

To view Missouri Revised Statutes Chapter 41 (41.948): <http://www.moga.mo.gov/statutes/c000-099/0410000948.htm>

This policy is implemented to assure that students called to active duty prior to the end of a term receive fair and just treatment, both financially and academically. **Contact the Office of the University Registrar-Registration for more information at (573) 882-7881.**

**Advanced Standing Options-Credits by Examination**

MU offers the opportunity for advanced credit by examination to any student with fewer than 90 credits. Credit may be awarded, but no grades or honors points are recorded. General eligibility to receive advanced standing at MU does not guarantee its applicability to a degree program. Advanced standing credit in a foreign language may be earned by successfully completing a college course in the language. The amount of credit that may be earned in this way depends on the level of the college course that is completed. For example, if a student skips Spanish I and enrolls in Spanish II, he or she will be entitled to receive five credits for Spanish I. A student who has received credit for any portion of a lower level course will not receive advanced standing credit for that same course. More information can be found at <http://admissions.missouri.edu/apply/ap-ib-and-college-credits/index.php>. The programs described below are used to award credit.

**Advanced Placement Program**

The Advanced Placement Program of the College Board is accepted by MU. The examinations are prepared and graded by national committees, and the results are furnished to MU on request of the student. Students who receive a sufficiently high score are eligible for college credit. Students should contact their academic units if they have questions.

**College Level Examination Program**

The College Level Examination Program of the College Board provides general examinations and subject examinations. Credit may be awarded for CLEP subject exams only. Credit must be applicable in students' programs of study. (Refer to the appropriate section in this catalog for the school or college, or contact the academic unit to ascertain the specific limitations for CLEP examinations.)

**Credit by Examination for Mathematics Courses**

It is possible to receive credit in the following math courses by passing the appropriate examination:

- MATH 1100: College Algebra (3)
- MATH 1140: Trigonometry (2)
- MATH 1160: Precalculus Mathematics(5)
- MATH 1360: Geometric Concepts (3)
- MATH 1500: Analytic Geometry and Calculus I (5)
- MATH 1700: Calculus II (5)

To inquire about these examinations, contact either the Group Testing Program, 220 Parker Hall, (573) 882-4801, or the departmental representative on testing for advanced placement. Credit for a course by examination is not available to students who have essentially covered the material of the course in college or university courses.

**Departmental Examinations**

Departmental examinations are limited to students with fewer than 90 credits and with no official record of previous enrollment in the course(s) in which credit is to be received. Departmental examinations are comparable to final examinations given in the various courses offered on campus. The examinations are objective or essay formats and are prepared and graded by the faculty of the department concerned and MU Testing Services. Arrangements for departmental examinations should be made through Testing Services. (Also see the College of Arts and Science information on departmental exams.)

**International Baccalaureate**

MU recognizes the International Baccalaureate Program. Students may receive credit and/or advanced standing for proficiency on the higher-level subject examinations. No credit is granted for subsidiary-level examinations.

**Additional College Course Work**

MU recognizes college course work completed before high school graduation if the college attended provides an official transcript of the course work.

**Freshman Placement Tests**

Placement in English is based on ACT score in English. Math placement is based on ALEKS Exam score or prior course credit. (See [mathplacement.missouri.edu](http://mathplacement.missouri.edu) for more details)

**Subject Examinations**

Subject examinations are limited to students with fewer than 90 credits. The subject examinations are generally accepted by

most schools and colleges but may not be considered for credit in all degree programs.

### Application for Degree

Students should contact their academic unit at least a full semester before they anticipate graduating to complete the appropriate steps and paperwork to apply for receiving their degree. The University does *not* automatically anticipate or calculate who will be degree candidates each term.

### Auditing a Course (Hearer)

Students who wish to obtain knowledge from a course, but do not need or want the credit for graduation, may enroll in the course(s) as auditors/hearers.

- Hearers receive no credit toward a degree and an H grade appears on the transcript.
- Students pay standard fees for the course(s).
- Students' academic advising unit must approve and change their grading option in myZou for the change to become official. Students may not change their registration status (hearer vs. credit) after the expiration of two weeks following the first day of classes in regular session or the equivalent thereof in a shorter session. See the University Registrar's website at <http://registrar.missouri.edu/dates-deadlines.php> for deadlines for each semester.
- Students who fail to meet class requirements *may* be dropped from the course by their academic advising unit upon request of their instructor and with the dean's stamp.
- Normally, a hearer will attend the course on a regular basis; either the department or an individual instructor will stipulate the requirements for enrollment in a course as a hearer.

### Completion of a Course

A course is considered complete if the student earns a grade of A, B, C, D, F or U, and the "+" or "-" sign if appropriate, or S for the course. A course in which the student receives a grade of W, NR, or I is not considered a completed course.

- The faculty of the division concerned will determine how the grade of I in a course and a grade in a repeated course will be considered in determining a student's academic standing. However, for financial aid purposes the grade of I is not considered a completed course and a repeated course will be counted as additional credits attempted.
- The dean of the relevant division may, after consulting with relevant faculty, waive any of the regulations governing a student's eligibility to re-enroll. However, the Financial Aid Advisory Committee shall have authority concerning students' satisfactory progress toward their educational objectives and eligibility to receive federal, state and institutional student financial aid.

### Distance Education Courses

See Mizzou Online.

### Course Repeat Policy

The course repeat policy will not be applied automatically to a student's GPA. After completing the second attempt of a course, a student must submit a request for GPA adjustment form to the University Registrar's Office 125 Jesse Hall.

When the grade received in an initial attempt, for an undergraduate course at University of Missouri-Columbia, or any University of Missouri System Campus, is a "C-", "D+", "D", "D-", "F" or "WF", the grade will be replaced in the calculation of the GPA by the grade received in any second attempt of the

same course at the University of Missouri-Columbia (unless the repeat grade is an I or W). All grades received in second and subsequent attempts will be included in GPA calculations. No more than 15 semester hours will be dropped from the calculation of the student's GPA. All attempts of a given course will appear on the official transcript with the grade(s) earned. The transcript will have an explanation that the GPA is calculated using all grades earned in a course except the initial attempt when a course has been repeated. This policy is effective with course work where the initial enrollment and completion of the course was fall semester 2000 and thereafter.

Any course being repeated may not be taken on an S/U basis. This policy does not imply a guarantee that openings will be available in courses if and when students wish to retake them, and instructors will not ordinarily know whether a student is enrolled in a course for the second time. When a course is repeated, all applicable tuition and required fees apply.

Degree credit may be earned only once for a particular course unless a department or division has, in other policies, allowed for multiple credit from that course.

Students are strongly encouraged to visit with an advisor to determine whether re-enrollment is advisable (certain department or divisional policies may be important in this connection). Further, students should be aware that repeating a course may have an impact on financial aid, insurance, entrance to professional schools, participation in athletics, immigration status, and other non-academic matters.

The academic status of a student in a given semester will not change as a result of repeating a course. The policy is applicable to undergraduate students only.

### Clarifying comments

Students should not re-enroll in a course for which they have been assigned a grade of "I".

Students may not apply the course repeat policy to courses once they have graduated. This also applies to students who are seeking a second undergraduate degree.

For the purposes of this policy, an undergraduate course is any course an undergraduate student attempts for undergraduate credit regardless of the course level. A student may not apply the course repeat policy to a course repeated as an undergraduate student for graduate credit.

If the department or course number has changed since the student completed the first attempt of a course, the department offering the course will verify that the subsequent course is substantially the same and the course repeat policy may apply. If the initial course is a cross-listed course, a student may apply the course repeat policy if the student subsequently completes the cross-listed course offered by the alternate department. Courses for which a NR, W or a grade of I are assigned are not considered attempts since no final grade has been recorded. If the initial attempt of a course contained an attribute such as; honors, writing intensive, math reasoning proficiency, service learning, or computer proficiency, the second attempt is not required to contain the same course attribute for the purpose of the course repeat policy. Students should be aware that if the second course does not have the same attribute as the initial course they will no longer be allowed to count the initial attribute toward any graduation requirement.

Grades of C or greater may not be repeated under the course repeat policy because these grades are considered acceptable work and would not prevent a student from graduating from MU.

Students may replace the grade earned from the course at the University of Missouri-Columbia or any other University of Missouri campus with a grade earned in an equivalent course at University of Missouri-Columbia campus. Courses for which a W or a grade of I are assigned are not considered attempts since no final grade has been recorded.

### **Credit by Exam**

See Advanced Standing.

### **Dual Enrollment**

#### ***Dual Enrollment for Senior Undergraduates***

Beginning Fall 2012, qualified undergraduate students will be eligible to enroll in up to 12 hours of graduate credit during the last 30 hours of their undergraduate program. The eligibility requirements are listed below.

#### ***Eligibility Requirement***

With the approval of the undergraduate advisor, the undergraduate divisional dean, the Director of Graduate Studies, and the Graduate Dean, eligible seniors may dually enroll as an undergraduate for up to 12 semester hours of graduate credit.

To qualify, seniors must:

1. Rank in the upper half of their class.
2. Have a B average in the most recent 45 semester hours of credit.
3. Be within 30 hours of completing graduation requirements for the first bachelor's degree.

**Note:** Graduate degree programs may establish their own policies with regard to enrollment in and the applicability of senior dual enrollment credits.

Dual enrollment forms (PDF) must be completed and approved by the Graduate School prior to registering for the graduate level courses.

This program also is available to seniors in other Missouri colleges. Additional information may be obtained from the Graduate School.

#### ***Undergraduate/Law Enrollment (90-Credit Program)***

With prior written approval, select undergraduate MU Arts and Science students may have up to 30 credits in courses from the School of Law, which are acceptable to the faculty of the College of Arts and Science, applied toward a Bachelor of Arts degree. This combined curriculum enables students to obtain both the Bachelor of Arts (BA) and the Juris Doctor (JD) degrees in six years.

Other university divisions, and some colleges and universities other than MU, accept the Juris Doctorate in lieu of the fourth year of college and award a baccalaureate degree upon graduation from MU's Law School. Students interested in this program should check with the dean of their college early in their undergraduate careers to ensure compliance with all requirements.

The undergraduate degree is a requirement for the Juris Doctor degree. Students entering law school under this combined degree program must make arrangements with their undergraduate schools to complete all requirements for their undergraduate degree.

Students with Bright Flight or MU awarded scholarships, such as Curators, Excellence, and Diversity, may use these awards in the law school. Check with the Office of Financial Aid.

*Please note: While not a problem in the state of Missouri, prior to participating in the 90-credit program, students should determine whether participation would adversely affect admission to the bar in the jurisdiction in which they expect to practice. Some states will not admit to their bar persons with fewer than 14 semesters of university work or who did not have their bachelor's degree before entering law school.*

### **Full-time/Part-time Status**

A minimum of 120 credits is required for graduation, regardless of the number of terms attended. See degree requirements and definitions below for details.

• **Full-time, undergraduate student:** A full-time, undergraduate student is enrolled in at least 12 credits during the fall and spring semesters or an equivalent number of hours during summer session. The typical course load for a full-time student is 13 to 16 credits. Students wishing to drop below 12 credits after enrollment should contact their academic unit. Dropping below 12 credits may negatively affect financial aid, athletic eligibility, and certification for insurance purposes. Students may not enroll for more than 18 credits without permission from their academic units.

• **A 3/4-time, undergraduate student:** A 3/4-time, undergraduate student is enrolled in at least 9 credits during the fall and spring semesters or an equivalent number of credits during summer session.

• **A 1/2-time, undergraduate student:** A 1/2-time undergraduate student is enrolled in at least 6 credits, during the fall and spring semesters or an equivalent number of credits during summer session.

### **Grades**

#### ***GPA of Record***

The grade point average for any period is obtained by dividing the quality points earned by the total number of credits for which the student was enrolled during that period. Grades of S, U, H, W, NR, or I are not included in determining the grade point average.

The undergraduate CUM GPA is the University of Missouri GPA, which will include all grades, credits, and honor points attempted at any University of Missouri campus, including all grades and credits. In computing the undergraduate GPA the grade points assigned to students' transfer work are the grade points that would have been assigned if the courses had been taken on the University of Missouri System campus, including any adjustments made under policies related to course repeats and/or Academic Renewal/Forgiveness.

#### ***GPA Calculator Web Site***

To calculate a grade point average, go to the GPA Calculator Web Site at <http://registrar.missouri.edu/grades-transcripts-records/gpa-calculator.php>

#### ***Plus-Minus Grading System***

The purpose of the grading system is to provide a framework in which the faculty can report evaluation of student performance and achievement. For undergraduates, all teachers are expected to use the grading scale approved by the faculty. This precludes any department or unit from opting to use a modification of the scale.

The A through F grading system is appropriate for those subjects and situations that allow discrimination in quality of achievement and performance. The S/U grading system is more appropriate for students wishing to take elective courses in a subject matter field in which they will be competing with majors, for mastery learning situations, and for courses graded primarily on the basis of attendance.

Grades carrying credit are: A+/-, B+/-, C+/-, D+/-, and S. Grades calculated in the grade point average are A+ (4.00), A (4.00), A- (3.7), B+ (3.3), B (3.00), B- (2.7), C+ (2.3), C (2.00), C- (1.7), D+ (1.3), D (1.00), D- (0.7), and F (0). The grades of S, U, NR, and W are not incorporated in the grade point average. Students must have a cumulative GPA of 2.00 to remain in good academic standing.

All regulations currently applicable on a course-by-course basis and currently tied to a specific letter grade would be interpreted to mean a specific letter grade range. Hence, if a student must achieve a C in one course in order to proceed to another course, under the plus-minus grading system, that student must achieve a grade in the "C range," which would include the grade of C-.

All regulations currently tied to a specific grade average are interpreted to mean the numerical average currently associated with that specific grade. Hence, the required "C average or better" on all courses is a "2.00 average or better."

The grade of S (on S/U basis) is defined as equivalent to the letter grade of C- or higher.

### **Satisfactory/Unsatisfactory Grading System**

Students may elect to take courses under the S/U (pass/fail) grading system in several MU colleges and schools. Before electing to take a course on a pass/fail basis, the student should evaluate the advantages and disadvantages of the S/U grading system. The S/U grading status is indicated in the appropriate column on the registration or add/drop form. Students may change to or from the S/U status only through the tenth day of classes in a semester.

In general, the teacher of a course does not know which students, if any, are enrolled on the S/U system, and a grade of A-/+ , B-/+ , C-/+ , D-/+ or F for each student is reported to the Office of the University Registrar. The Office of the University Registrar staff members ascertain which students are enrolled on the S/U system and assign a grade of U to those reported for grades of D-/+ or F, and a grade of S for those reported A-/+ , B-/+ or C-/+ . Grades of S and U are not included in the computing of grade point averages.

Enrollment in courses under the S/U system is subject to the following restrictions by the University faculty:

- Students cannot change from one grading system to the other after the tenth day of classes in the fall or spring semesters, or the equivalent thereof in a shorter session.
- Students cannot elect to enroll in more than one course on an S/U basis in a given semester. This excludes courses taught only with the S/U grading system.
- First-semester freshmen and students on scholastic probation are not eligible to enroll in courses on an S/U system. This excludes courses taught only with the S/U grading system.
- A+/-, B+/-, and C+/- grades are recorded on the transcript as an S. S grades are not included in the semester or cumulative grade point average on the transcript. Full credit is earned for courses completed with a grade of S.

- D+/- and F grades are recorded on the transcript as a U. U grades are not included in the semester or cumulative grade point average on the transcript and no academic credit is awarded for courses completed with a grade of U.
- Courses completed with a grade of S may be accepted in an area of concentration only with the prior approval of the area advisor.

Courses completed with a grade of S may constitute no more than 20 percent of the total credits for the baccalaureate degree.

- Taking S/U courses may affect eligibility for Latin or other graduation honors for undergraduate students. Contact the academic advising unit for information.
- Some specified courses may not be taken on S/U basis to meet graduation or degree program requirements. Contact the academic advising unit for S/U approval.

### **Selecting Grading Options (S/U vs. A through F)**

Students must choose to change their grading option no later than after the expiration of two weeks following the first day of classes in regular session or the equivalent thereof in a shorter session. Students' academic advising unit must approve and change their grading option in myZou for the change to become official. See the University Registrar's website at <http://registrar.missouri.edu/dates-deadlines.php> for deadlines for each term.

### **How Dropping/Withdrawing from a Class Affects the GPA**

Students may drop a course through the end of the business day of the fifth week or the 25<sup>th</sup> class day of the semester. It will have no effect on the grade point average. After the 25<sup>th</sup> class day, students must begin in their academic advising unit and receive approval from their academic advising unit. After the last day to drop, students are "withdrawing" from a course if they choose to leave the course. Students may withdraw from a course through the end of the business day of the 10<sup>th</sup> week or 50<sup>th</sup> class day of the semester. At this point a grade of W for withdraw is recorded if the student was passing at the time of withdrawal. If the student was failing at the time of withdrawal, the course grade is F. The instructor determines which grade to assign. A "W" grade does not affect the grade point average, while a grade of F does. The grade generally will not appear until all grades for the course are submitted at the end of the semester.

### **Grades for Students Who Officially Withdraw from the University**

No grade will be assigned to a student who officially drops prior to the 26<sup>th</sup> day of the fall or spring semester or an equivalent period in a summer session (other non-standard classes are also adjusted accordingly).

Students who officially withdraw from a standard 16-week course on or after the 26<sup>th</sup> day may be required to obtain the signature of the course instructor on the Course Withdrawal Form, available from the academic advising unit. This will inform the student of the grade (W or F) that will be submitted to the Office of the University Registrar at the end of the semester. A grade of F is assigned if the student is judged to be failing at the time of the withdrawal and will be calculated into the grade point average. Once the course withdrawal form is completed, students should return the form to their academic advising unit to obtain the dean's signature (stamp of approval) on an add/drop form. The add/drop form is submitted to 125

Jesse Hall for processing.

Dropping or withdrawing from all classes for a term is considered withdrawing from the University. If done after the first day of standard classes the student remains eligible to pre-register for the following term. If a term elapses (other than summer) between enrollments, the student must apply for readmission. NOTE: Refund dates are different from withdrawal dates. (See Withdrawal from the University section on the University Registrar's website: <http://registrar.missouri.edu/policies/withdrawal-university.php>.)

### **Grade Appeal**

Guidelines for grade changes are as follows:

- Students who believe that they have been graded unfairly or incorrectly should see the course instructor.
- If still dissatisfied, the student may appeal to the chair of the department. (If the course has a large number of sections, it may have a course director. If so, the student should see the director before appealing the grade to the department chair.)
- The chair of the department will conduct an investigation. The chair cannot substitute his or her judgment for that of the instructor concerning the quality of the student's work.
- If the instructor of the course also is the department chair, the dean of the school or college will handle grade appeals.
- No one may substitute personal judgment for that of the instructor concerning the quality of the student's work. However, mathematical or mechanical errors in scoring examinations may be corrected.
- No grade shall be otherwise changed unless there is clear, convincing and unequivocal evidence that it was a direct result of arbitrary and capricious conduct by the instructor.

### **Incomplete Grades (Grade of I)**

Whenever students cannot be assigned a grade at the end of a course in which they have been enrolled because their work is for good reason incomplete, the instructor will postpone the grades, reporting I grades to the University Registrar.

An I grade may be assigned only when:

- 1) The completed portion of the student's work in the course is of passing quality AND
- 2) There is such evidence of hardship as to make it unjust to hold the student to the limits previously fixed for the completion of the work.

Each department of the schools and colleges maintains a record of I grades in courses of that department. (Exemptions are made for research courses and problems courses related to research assignments.) This record, kept in the electronic student information system, will include:

- The name of the student
- The course number, title and credits
- Semester and year of enrollment
- A brief statement of the reason for delaying the grade
- An adequate guide for the removal of the I grade along with a suggested final grade in the event of the departure or extended absence of the instructor from the campus

An undergraduate student who receives an "I" grade must complete the course requirements either:

- (1) within one year from the date it was recorded (unless the course is numbered 4950-4959 or 4995), OR
- (2) before the date of graduation (whichever comes first).

When an incomplete is satisfactorily resolved, the faculty member responsible for the grade change will notify the

Registrar of the revised grade.

Otherwise, the Registrar will remove the "I" and record a grade of "F" in classes graded A-F or a grade of "U" in classes graded S/U. Any student planning to graduate with an unresolved "I" grade should be aware that translation to an "F" could drop the GPA below the requirements for graduation. As with any academic deficiency, the low GPA would delay the student's graduation until all requirements for graduation are met.

Note:

- A grade of I is not figured into the grade point average.
- Students should not re-enroll in a course for which they have been assigned a grade of I.
- For further information, see the *Faculty Handbook*, Academic Regulations.
- Exceptions to unresolved incomplete grades changing to an "F" are as follows:
  - Courses taken for graduate level credit
  - Courses taken prior to Fall 2003
  - Undergraduate research, honors research or problems courses that are approved for multiple terms of continuous research
- Grades of "I" and the reason for the delay of grade may also be entered directly into myZou.  
Questions may be directed to the Office of the University Registrar, (573) 882-4249.

### **Unassigned or Erroneous Grades**

To correct a grade erroneously reported, proper notification is sent from instructors and their department chairs to the Office of the University Registrar on a form provided for that purpose. Note: Grade corrections must be processed within one year of the original reporting date.

In situations when there is a failure to record a grade on the official grade sheet, the University Registrar will record a NR (not reported) and send a written notification of this action to the faculty member and relevant department chair. The faculty member is responsible for submitting a corrected entry. After 12 months NR will change to an F.

No student may be re-examined for the purpose of changing a grade after a final grade has been reported to the University Registrar. For further information see the *Faculty Handbook*, Academic Regulations. Questions may be directed to the Office of the University Registrar, (573) 882-4249.

### **Hearer**

See Auditing a Course.

### **Holds**

There are several types of holds, which are restrictions that may block registration. Students are notified on myZou if they have a hold. They should go to the office indicated on the individual hold to resolve the hold.

### **Student Level**

Students are assigned to a particular class level based upon the number of credits they have completed in accordance with the following limitations:

<b>Freshman</b>	0 to 29 credits
<b>Sophomore</b>	30 to 59 credits
<b>Junior</b>	60 to 89 credits

**Senior** 90 or more credits

For registration purposes, student level will be determined by earned credits plus those credits in progress at MU. Undergraduate students pursuing degree programs at other institutions who enroll at MU as visiting students will generally be considered as freshmen, non-degree students. They are not assigned to a school or college. This applies to students who enroll under agreements with the Mid-Missouri Associated Colleges and Universities as well as those from other colleges and universities.

### University of Missouri Course Work Required

MU requires that 30 of a student's last 36 credits must be MU course work. Mizzou Online-Self Paced courses authored by MU faculty are acceptable as are courses offered for credit through Mizzou Online. (NOTE: This policy has replaced the requirement for courses to be taken "in residence.")

### Withdrawing from a Course

If a student wishes to drop a course after the last day to drop a course without a grade, the process is referred to as "withdrawing" from a course. To withdraw from a course, students must begin in their academic advising unit. Following the approval from the academic advising unit, the student takes the form for processing to the Office of the University Registrar, 125 Jesse Hall. (See the section under Grades on withdrawing from a course)

*NOTE: Students may not withdraw from all courses or their last course via myZou after the tenth day prior to the start of the semester or term. This must be done in the academic advising unit.*

## Financial Aid

### Applying for Aid

To apply for financial aid, students must complete a Free Application for Federal Student Aid (FAFSA). Students must complete the application by March 1 to receive priority consideration for the following academic year. The FAFSA can be filed online at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). For assistance while using FAFSA on the Web, call the Federal Student Aid Information Center at 1-800-4-FED-AID (1-800-433-3243). If you are hearing-impaired and have questions, contact the TTY line at 1-800-730-8913.

Graduating high school seniors may apply for endowed and departmental scholarships by completing the Online Scholarship Application at <https://sfa.missouri.edu/scholarshipapps/>. Due date for this application is December 1st of the student's high school senior year. Undergraduate continuing MU students and new MU transfers may also complete the Online Scholarship Application at <https://sfa.missouri.edu/scholarshipapps/> to be considered for endowed/departmental scholarships. The due date for the continuing/transfer student scholarship application is February 1, of each academic year.

Incoming freshmen and new to MU transfer students are automatically considered for certain MU academic based scholarship awards. Freshmen eligibility qualifications and renewal criteria is available at [https://sfa.missouri.edu/Prospective\\_Students/scholarships/pro-scholarships.php](https://sfa.missouri.edu/Prospective_Students/scholarships/pro-scholarships.php). Transfer student eligibility qualifications and renewal criteria is available at [https://sfa.missouri.edu/Prospective\\_Students/scholarships/pro-scholarships.php#transfer](https://sfa.missouri.edu/Prospective_Students/scholarships/pro-scholarships.php#transfer).

## Satisfactory Academic Progress Policy for Financial Aid Eligibility

To receive financial aid, you must be making satisfactory academic progress per financial aid guidelines. In general, there are three basic requirements:

1. Students must pass 75 percent of credit hours attempted.
2. Students must have attempted fewer than 181 credit hours.
3. Students must have the following minimum cumulative MU GPA:
  - 1.67 if fewer than 60 credit hours attempted.
  - 2.00 if 60 credit hours or more attempted.

In order to receive Federal Title IV Aid, students must be able to document attendance in at least one day of class for each course of enrollment. Failure to provide this documentation may result in the reduction/cancellation of Federal Title IV Aid.

## Fee Assessment

To review the MU statement of financial responsibility and its terms visit: <http://cashiers.missouri.edu>. This statement allows students to confirm their understanding of financial implications of registering each semester. Information on all current fee rates may be found on the MU Cashiers web site. <http://cashiers.missouri.edu/costs/index.html>.

## Refund of Fees Policy

Fees subject to the refund schedule include the Educational Fee, Student Activities Fee, Information Technology Fee and any related miscellaneous fees that may be assessed.

Students who have registered for credit courses and made payment of fees and who subsequently choose to cancel their registration before the first day of classes are eligible for a full refund. Students who withdraw from the University, reduce course loads, or are cancelled for non-payment after classes have begun, are subject to the following refund schedule:

### REFUND PERCENTAGES

<b>Full refund:</b>	Before classes begin
<b>90 percent refund:</b>	10% of class length
<b>50 percent refund:</b>	10%-25% of class length
<b>25 percent refund:</b>	25%-50% of class length
<b>No refund:</b>	50% of class length

Class days are counted by including Saturdays, Sundays and holidays. For courses that do not run for the full 16 weeks of the semester, the refund percentage periods are adjusted to be proportionally similar to the regular refund periods. The Cashiers Office web site lists the specific dates of the refund percentage periods for each term or semester.

The date to be used in determining the amount of the refund shall be the date shown on the add/drop or other applicable form, the postmarked date if the drop or withdrawal is by mail, or the system generated date if the drop is through myZou. You cannot withdraw from all your classes through myZou.

Refunds are subject to the following conditions:

- No refund shall exceed the amount of fees paid
- Refunds based on credit card payments will be electronically refunded to the credit card.
- Financial Aid and other non-credit card refunds are mailed to the student's local address, or may be direct deposited into the student's bank account. Non-credit card refunds

and refunds due to withdrawal from the University are subject to various conditions. Deductions may be made from the refund amount for any other financial obligations to the University of Missouri. Contact Cashiers: Refunds at (573) 882-3745 with refund questions.

- Students can manage their direct deposit online through the student center in myZou. Contact Cashiers at (573) 882-6351 for more information concerning setting up and managing direct deposit.
- Students who withdraw from a study abroad program will be refunded only those costs that can be recovered by MU or the MU Partner Program.
- In exceptional cases, such as the death of a student, a 100% refund may be authorized at any time during the semester. For further details please see the following policy information: <http://registrar.missouri.edu/policies/refund-of-fees.php>
- A student who believes a greater refund should be authorized than provided for in the established schedule may fill out a Refund Appeal Form in the Office of the University Registrar, 125 Jesse Hall. All appeals of refunds must be submitted within 90 days of the withdrawal date of the course work in question. The form may be found online at: <http://registrar.missouri.edu/forms/fee-adjustment-appeal-form.pdf>

### ***Return of MU Student Aid Funds***

Recipients of MU funded scholarships, grants and loans who withdraw from the University are required to return the unearned portion of aid received. The unearned percentage of aid is equal to the refund percentages shown in the Refund of Fees Policy and applied to individual aid recipients. The calculation of the return of these funds may result in the student owing a balance to the University.

### ***Return of Federal and State Student Aid Funds***

Recipients of federal and state funded grants and loans who withdraw from MU or stop attending classes before 60 percent of the semester has passed, are required to return any unearned portion of federal Title IV and State of Missouri student aid received.

Examples of aid programs included in this policy are: Federal Pell Grant, Federal Supplemental Education Opportunity Grant, Federal Perkins Loan, Ford Federal Direct Loan, Federal PLUS Loan, Missouri Access Grants. The calculation of the return of these funds may result in the student owing a balance to the University, the State of Missouri and/or the federal government. All or a portion of the required repayment may come from a refund of fees. Refer to the Refund of Fees Policy. For purposes of refunds of federal and state aid, if a student does not formally withdraw from the University, the official withdrawal date is the midpoint of the semester or the last date the student engaged in an academically related activity, whichever is later. Therefore, it is extremely important that students who cease attending classes initiate formal withdrawal from the University by filing a withdrawal form available in the academic unit advising office of the school or college in which they are registered.

For more information about fees, billing and refunds, contact the Cashiers Office, 15 Jesse Hall, (573) 882-3097, or visit <http://cashiers.missouri.edu>

# Academic Programs and University Requirements

## **Student Responsibility**

Academic honesty is fundamental to the activities and principles of the University. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting or collaboration, consult the course instructor. Refer to the *Collected Rules and Regulations*, Section 200.010, Standard of Conduct, and Section 200.020, Rules of Procedures in Student Conduct Matters for more specific details. (The *Collected Rules* are available on the University of Missouri System web site.) According to the UM Rules of Procedures in Student Conduct Matters, when they suspect that academic dishonesty has occurred, faculty members have an obligation to report an incident to the Office of the Vice Provost for investigation.

## **Payment of Fees**

All fees are due and payable to the University and are the student's responsibility to pay as the result of registration or other activity that incurred as charges to the student. A minimum payment option is available for students unable to complete their financial arrangements at the time of registration. Students with delinquent accounts will NOT be allowed to register in subsequent semesters. All payments received are final, no changes or adjustments allowed to the payment amount once the payment has been processed. Reassessment of fees will still occur based on the established refund schedule.

## **Late Payment Fees**

Student accounts will be subject to a late fee of \$10.00 when payment is not received and processed by the scheduled due date as communicated on the student's Monthly Billing Statement.

## **Finance Charges**

The University will assess a 1% per month finance charge on any account that remains unpaid after the payment due date. A finance charge is always assessed on the unpaid balance that has been billed after the payment due date; therefore, it is to the advantage of the student to avoid finance charges by paying the account in full.

## **Returned Checks**

Any check not honored by the bank will result in a \$20 returned check fee. If the returned check, including e-check payments was attempting to pay a prior term balance, the student's classes may be canceled.

## **Delinquent Indebtedness**

The University will pursue any and all collection efforts and practices including referring the account to a collection agency and/or attorney and reporting to the credit bureau. The account will be assessed all additional collection charges associated with the collection of the debt including but not limited

to: collection agency fees, reasonable attorney's fees, court costs and all other charges allowed by law not to exceed 50% of the total charges.

### **Right to Modify**

The University reserves the right to modify by increase or decrease the fees charged for attendance and other services at the University, including but not limited to educational fees, at any time when in the discretion of the governing board the same is in the best interest of the University, provided that no increases can or will be effective unless approved by the governing board not less than thirty (30) days prior to the beginning of the academic term (semester, etc.) to which the fees are applicable, with all modification of fees to be effective irrespective as to whether fees have or have not been paid by or on behalf of a student prior to the effective date of the modification.

### **Withdrawal**

It is the student's responsibility to formally notify the Office of the University Registrar and to follow proper procedures when withdrawing from the University. Failure to pay fees, failure to receive financial aid, failure to attend class or refusing financial aid does NOT constitute an official withdrawal from the University of Missouri.

### **Important Change for Credit Card Users:**

Effective December 29, 2005 credit card payments are only available online. A service charge of 2.75% will apply. For further information, see <http://cashiers.missouri.edu> (MasterCard, Discover and American Express only.)

### **Personal Banking Online Payments**

Payments made with your online banking service may result in a significant delay in the processing. We make no guarantees that your payment can be received and processed by the due date.

### **Fee Reassessment for Dropping Classes or Withdrawal From School**

Fees will be reassessed for students who officially withdraw from the University or drop classes. Fees included in this reassessment are the Tuition Fee; Non-Resident Fee; Student Activity Fee; Information Technology Fee; Course Fee (if applicable). Such fees are reassessed and reduced in accordance with the refund schedule for each term found on the Cashier's website: <http://cashiers.missouri.edu/refunds/schedule.html>

### **Email and Online Statements**

Email is the official method of communication by the Cashier's Office. It is the student's responsibility to check and responsibly manage their email account so that important information can be received. As billing statements are available online, your failure to receive a billing statement does not constitute a valid reason for not paying a bill in a timely manner. Actions and charges that result from failure to pay charges on time or to respond to a Cashier's Office message are the student's responsibility.

### **Bankruptcy**

Educational and related fees are generally non-dischargeable in bankruptcy and will survive after the bankruptcy has closed. Except in certain limited situations, this means that a student will still owe the debt to the university after the bankruptcy.

### **Payment Options**

The student's account is billed for the full account balance for each payment date; however, a minimum payment amount is allowed. The minimum payment amount is derived by dividing the current term charges by the number of scheduled payment dates remaining in the semester, and adding the total of any previous semester remaining balance. The Fall (August-December) and Spring (January-May) Semesters each have 5 months of payments. The Summer Session (May-July) has 2 months of payments.

The required minimum payment must be made by the due date to avoid having classes cancelled. You may also pay the total due or any amount greater than the required minimum. Any payment amount less than the total due results in a 1% monthly finance charge on the unpaid billed balance. Enrollment is not complete until the minimum payment is made.

### **Financial Aid and Scholarships**

Financial aid and scholarships ("aid") that have been approved, but have not yet paid to the student account, are considered to be "anticipated." Anticipated aid is deducted from the current term balance in the Billed Balance Calculation area of your monthly billing statement. The balance remaining will be billed to the student and the minimum payment must be paid by the due date to avoid having classes cancelled. The remaining balance will also be subject to the 1% monthly finance charge. When the aid is received, it will be applied to the student account but there will be no reduction in the amount due since the aid was already taken into consideration and deducted from the current term balance. Current term aid should not be used to pay past term balances. Aid is intended to be used for the semester for which it was applied.

### **Third Party Sponsorship**

If the Cashiers Office has valid approval from the Third Party Sponsor prior to the student registering in classes, then the sponsor credit will calculate and show on the student's account once they have selected classes. If the credit does not show once the student has selected classes, then the student should contact Sponsor Billing at: Cashiers Office, University of Missouri-Columbia, 15 Jesse Hall, Columbia, MO 65211; Attn: Sponsor Billing; 573-882-9138.

If students who do not have full sponsorship for all fees, must make at least the minimum payment in order to hold their classes. If a student makes the minimum payment, they will be subject to a 1% monthly finance charge on the unpaid billed balance. If they owe a past term balance, it must be paid in full.

### **If a Payment Due Date is Missed**

A late fee of \$10.00 will be added to all student accounts if at least the minimum payment is not received by the due date shown on the Monthly Billing Statement.

If MU does not receive this payment, students may also be subject to sanctions, including denial of access to the Student Recreation Center, elimination of student charge privileges, and inability to add/drop classes. Failure to pay will also result in denial of future registration access and withholding of transcripts or diplomas.

If a student account continues to be delinquent, classes will be subject to cancellation. Students will have to re-enroll in classes after the required payment is received. Registering after classes have begun, is considered a "late registration" and students will incur a late registration fee equal to one credit hour of tuition

at the Undergraduate rate. If classes are cancelled due to non-payment, any refund will be subject to the University's refund schedule.

Past due amounts owed the University must be satisfied by payment in full. If necessary, the University will pursue appropriate collections practices, which may include referrals to a collection agency for accounts that remain past due. The account will be assessed all additional collection charges associated with the collection of the debt including, but not limited to, collection agency fees, reasonable attorney's fees, court costs and all other charges allowed by law (not to exceed 50% of the total charges.)

### Payment Methods

Cashier's checks, money orders, and travelers checks are acceptable payment methods.

Personal checks: the amount of the personal check may not exceed the amount due from the student. A student whose checks are returned from the bank unpaid will incur a \$20 service charge per check. A student presenting a check for fees to the University that is returned unpaid and remains unpaid after the close of the regular registration period will be considered a late registrant and will be subject to the late registration fee. The enrollment may also be subject to cancellation.

MasterCard, Discover and American Express: The Cashiers Office accepts payment on the student's account up to the credit limit of the cardholder. The charge amount may not exceed the amount due. Credit card payments may only be made through MU's third party vendor which can be accessed through myZou. Note: a 2.75% service charge will apply. Refunds based on credit card payments will be refunded to the credit card.

### Late Registration Fee

Any student registering on or after the first day of classes will be assessed a late registration fee equal to the cost of one credit hour of tuition at the undergraduate rate.

**NOTE:** Students registering in a Problems, Special Readings, Research, Internship or Graduate Exam course(s) after the first day of classes will not be charged a late registration fee.

### Academic Assessment

All students are required to participate in the University's processes/program for assessing student learning in general education and in the major fields. The purpose of assessment at MU is to provide faculty and administrators with the information they need to ensure high levels of student learning. The key goal is to improve how and what students learn in their programs and to increase how much they learn. At the same time, the process provides documentation of student learning to help programs and the University meet external requirements, including those of accreditation organizations.

Faculty members develop assessment strategies specific to each degree program and conduct assessments at appropriate points in their students' undergraduate careers. Each program at the University has defined learning objectives for their students that form the basis of assessments. Students participate in assessments of discipline-specific learning objectives and of learning objectives aligned with the University's learning objectives for all students.

In order to meet the needs of the people of the State of Missouri, the nation and the global society, the University of

Missouri shall provide its baccalaureate graduates with a sound intellectual foundation in the liberal arts and sciences and in the student's chosen major fields of study. Toward that end, in addition to having every bachelor's degree recipient fulfill appropriate course work requirements for general education and for degree programs, MU strives to have all students achieve the following goals:

#### **Goal 1: Graduates of MU will be able to identify and evaluate new information in light of previous knowledge.**

MU graduates will be able to:

- Identify issues and problems important to society, define their scope, and identify information needed to address them.
- Find existing sources of information on a topic.
- Evaluate the accuracy, validity, and reliability of information presented in a wide variety of media.
- Conduct appropriately focused library, field or laboratory research.
- Analyze and synthesize information gathered, demonstrating strategic and logical reasoning skills.
- Demonstrate understanding of costs, benefits, and/or consequences of proposed resolutions of issues and problems important to society.
- Organize information, data and ideas for further analysis and/or presentation.

#### **Goal 2: Graduates of MU will possess the knowledge, abilities, and skills necessary to communicate effectively.**

MU graduates will be able to:

- Communicate information to a variety of audiences and purposes.
- Revise and edit their presentations to improve clarity and accuracy.
- Engage in the healthy and positive exchange of ideas.
- Apply communication skills in furthering their post-MU careers.
- Use multiple formats and technologies to communicate ideas effectively.

#### **Goal 3: Graduates of MU will possess the knowledge, abilities, and skills necessary to serve society responsibly.**

MU graduates will be able to:

- Understand the duties of being a responsible citizen.
- Identify and analyze the requisite behaviors for carrying out their academic and professional lives with integrity.
- Work collaboratively with others where appropriate.

#### **Goal 4: Graduates of MU will possess knowledge to observe and critically analyze the diverse human experience.**

MU graduates will be able to:

- Engage in life-long learning.
- Appreciate fine art and literature.
- Understand the contributions of diverse groups and experiences to life at the individual, community, national, and the world levels.
- In addition, some students will be required to take standardized tests in their major field and/or for general education.

### University General Education Assessment

Each year, a sample of seniors will participate in a University general education assessment examination known as the CAAP Exam, which addresses University general education competencies of MU students in the areas of mathematics, science reasoning, reading, writing and critical thinking.

## Major Field Assessment

Prior to graduation, all seniors will participate in assessment of their mastery of course work in their major field. The assessment program is determined by the faculty of each department to measure the extent to which students are achieving instructional goals and outcomes for graduates in that field. The methods of assessment are appropriate to the educational goals for students in their respective major fields. Information on subject field assessment is included with the college and school sections of this catalog. Methods may include:

- Nationally-normed examinations
- Portfolio review
- Performance review
- Capstone project
- Faculty-developed exit examinations
- Exit interviews University

## University Requirements

Students must complete all University requirements as well as all requirements specified for the degree(s) and major(s), and requirements of the college or school, and department offering the degree.

### University Graduation Requirements

All students must complete University graduation requirements beyond the University general education requirements. These include the following:

- A second MU Writing Intensive course<sup>1</sup> must be completed in a student's major. It needs to be a 3000/4000 level MU WI course approved as part of the curriculum by the faculty of a student's major.
- Complete an approved capstone course<sup>1</sup> with MU course work in the student's major
- Complete 30 of the last 36 credits with MU authored courses
- Students may transfer more than 64 credit hours for lower division courses from either Missouri associate degree-granting or baccalaureate degree-granting institutions. Any additional lower division course credits above 64 credit hours will be accepted in transfer if the credits are applicable to the baccalaureate degree or are prerequisites for an upper division course in the major
- Complete all University, general-education requirements (See the University General Education Requirements section in the catalog.)
- Earn no less than a 2.00 GPA, as defined by the GPA of Record
- Complete any additional divisional, degree or major requirements as specified by the academic unit offering the degree

<sup>1</sup>Must be completed with a grade of C - or better.

## Common Credit Limitations

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

### Chemistry

- A student can earn a maximum of 10 hours of credit towards graduation from the following courses: CHEM 1310: General Chemistry I, CHEM 1320: General Chemistry II with Lab, CHEM 1330: General Chemistry III with Lab.

### Economics

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

### History

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

### Mathematics

- Students can only have a total of 5 hours of credit towards graduation from the following courses: MATH 1320: Elements of Calculus, MATH 1400: Calculus for Social and Life Sciences I, MATH 1500: Analytic Geometry and Calculus I.

### Physics

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

### Psychology

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

### Statistics

- Students may not receive credit towards graduation for more than one of the following courses: STAT 1200: Introductory Statistical Reasoning, STAT 1300: Elementary Statistics, or STAT 1400: Elementary Statistics for Life Sciences.
- Students may not receive credit towards graduation for more than one of the following courses: STAT 2500: Introduction to Probability and Statistics I or STAT 2530: Statistical Methods in Natural Resources.
- Students may only receive a maximum of 4 hours of credit towards graduation from the following courses: STAT 1200: Introductory Statistical Reasoning, STAT 1300: Elementary Statistics, STAT 1400: Elementary Statistics for Life Sciences, STAT 2200: Introductory Statistical Methods, STAT 2500: Introduction to Probability and Statistics I, or STAT 2530: Statistical Methods in Natural Resources.

## General Education Requirements

General education requirements are the foundation of knowledge upon which all University of Missouri degrees are built. They are specifically intended to prepare students as citizens who must make informed judgments about issues that

go beyond the narrow area of their academic specialization. Students must complete the University General Education Requirements listed below. With careful planning, some courses may be chosen to meet both University General Education Requirements and one or more of the divisional, degree and major requirements. Students are strongly encouraged (and in some divisions they are required) to meet with an academic advisor to ensure adequate progress towards the selected degree and major. More information can be found at: <http://generaleducation.missouri.edu/about/>.

### Common University General Education Requirements for all MU degrees:

- College Algebra (MATH 1100) or transferable equivalent<sup>1</sup> (3 credits). Students may satisfy this requirement by:
  - Completing an appropriate math course (MATH 1100 or 1160),
  - Completing a calculus course at MU (MATH 1320, 1400, 1500, 1700, or 2300)<sup>1</sup>, which provides back-credit for MATH 1100 (or 1160),
  - Passing the Proctored ALEKS Exam with a sufficient score, thereby demonstrating proficiency in College Algebra, or
  - Possessing the minimum ACT or SAT Math sub-scores, thereby providing an exemption  
(See [mathplacement.missouri.edu](http://mathplacement.missouri.edu) for further details)
- English Exposition and Argumentation (ENGLSH 1000 or 1000H) or transferable equivalent<sup>1</sup> (3 credits)
  - This course in expository prose, which stresses writing as a process involving critical reading and thinking skills, should be taken during your freshman year.
- Writing Intensive course<sup>1 2 3</sup> (6 credits, 2 courses)
- American History or Government<sup>2 5</sup> (3 credits)
- Math Reasoning Proficiency Course<sup>1 2</sup> (these courses must state that College Algebra is a prerequisite)
- Distribution Requirement (27 credits) providing a breadth and depth of knowledge in three broad areas of study. The course work must include at least one course numbered 2000 or higher in two of the areas of distribution as described below.
  - Must include 9 credits in these sciences: biological science, physical science, and / or mathematical science<sup>4</sup>
    - including at least one biological or physical science and its related laboratory component<sup>6</sup>
    - representing two different areas of science
  - Must include 9 credits of behavioral and/or social science
    - Courses must be from at least two different departments in these areas
  - Must include 9 credits of humanities and/or fine arts
    - including courses from at least two different departments in these areas
- Of special note related to the humanities and or fine arts distribution:
  - Only one course of specified of Humanities and Fine Arts courses can be counted.
  - For specified courses, the category will be designated per section per semester.
  - Students in CAFNR, Engineering, SHP, HES, SNR, and Nursing may use this course towards fulfillment of the humanities distribution requirement, but only if the entire 12-13 hour elementary language sequence is completed. This course may NOT be used to fulfill the humanities requirement in A&S,

Business, Education, Journalism and Social Work.

•For the full list of courses that fulfill this distribution and the noted exceptions, go to:

<http://generaleducation.missouri.edu/courses/>

- <sup>1</sup> Must be completed with a grade of C- or better.
- <sup>2</sup> Designated courses may also be used toward the distribution requirement.
- <sup>3</sup> Course must be taken at MU unless requirement is waived via completion of an AA degree from a regionally-accredited, Missouri institution.
- <sup>4</sup> Must be courses in mathematics or statistics with College Algebra as a prerequisite.
- <sup>5</sup> Fulfills State Law Requirement.
- <sup>6</sup> The term “laboratory” is used in reference to courses or portions of courses that satisfy the following criteria:
  - They provide students with an opportunity for the active collection and/or analysis of data from real-world observations and experiments. These activities need not take place in a conventional “laboratory” setting but may be undertaken anywhere that an appropriate experiment or observation can take place (e.g., in the field).
  - They promote scientific literacy and critical thinking/problem solving skills.
  - Whenever possible, they include opportunities for students to design experimental or observational protocols.
  - If the laboratory is directly associated with a specific lecture course or is included as part of a course that also includes lecture, the laboratory activities promote understanding of the content presented in the lecture.

### Transfer Students and University General Education Requirements

All University, general-education requirements are considered completed for students who transfer to MU with an AA degree from a regionally-accredited Missouri institution. Transfer credits for other students are evaluated on a course-by-course basis. All students must complete University graduation requirements beyond the University general education requirements.

NOTE: Many departments, degrees and majors have more specific requirements for foundation course work in addition to the University, general-education requirement. However, the reverse is *not* true. Departments or academic units may *not* have fewer general education requirements than described by the University general education requirements. Careful planning will allow students to simultaneously meet University, general-education requirements and prepare for many of the more specific foundation courses required by their field of study.

# Student Services

## Academic Retention Services

Academic Retention Services (ARS) is a comprehensive retention support unit that enhances the success of under-represented, ethnic, minority students, from the time of their transition from high school to the first year of college and until the completion of an undergraduate degree. Highly beneficial programs are offered that are centrally coordinated with other campus programs and services to enhance personal and academic success. The programs and services provided by ARS are designed to promote student involvement in the many opportunities at MU. ARS hallmark programs include Summer Transition, MAP, STARS Leadership, and much, much, more. Through many informal, co-curricular activities, such as orientation, intersession advising, mid-semester progress checks, walk-in services and academic recognition activities, students can receive invaluable information to assist them in reaching their fullest potential and maximizing their undergraduate experience. There are two office locations, 101 Student Success Center and 508 Clark Hall. For additional information, stop by or call (573) 882-9208 or visit <http://ars.missouri.edu>.

## Campus Writing Program (CWP)

Writing Intensive (WI) courses help students reason critically and communicate with clear and effective language. The writing requirement at MU consists of ENGLSH 1000 and two WI courses. One WI may be taken anywhere in the curriculum. The other WI must be an upper division (3000 or 4000 level) course in the student's major. More than 150 WI courses are offered each semester. For current information about available WI courses, on the myZou webpage, limit your search with the class-attribute values "Writing Intensive course" or "Writing Intensive section" under the Additional Search Criteria. For current information about available WI courses visit <http://cwp.missouri.edu>. For further information, contact the Campus Writing Program, Conley House, (573) 882-4881.

## Counseling Center

The Counseling Center, 119 Parker Hall, provides a variety of services to MU students including counseling and psychotherapy, crisis intervention, education programming, and consultation. The center offers confidential individual, couples, and group therapy. Crisis walk-in service is available during regular office hours. Services are available to all MU students currently enrolled in on-campus courses.

Call (573) 882-6601 for Counseling Center information. For additional detailed information, please go to: <http://counseling.missouri.edu>.

## Disability Services

Reasonable accommodations, auxiliary aids and support services are provided by the Office of Disability Services to ensure that students with disabilities have equal access to the educational programs and activities at the University. To qualify for reasonable accommodations there must be a logical connection between the functional limitation of a disability and the accommodation(s) requested. Accommodations may include:

- Extended time on exams
- Distraction-reduced testing rooms
- Alternative formats for texts

- Note takers
- Lab or class assistants
- Adaptive equipment
- Interpreters or captioning

For more information, visit the Office of Disability Services website at <http://disabilityservices.missouri.edu>, call (573) 882-4696 or (TTY) (573) 882-8054, or send an email to [disability-services@missouri.edu](mailto:disability-services@missouri.edu).

## Division of Information Technology

The Division of Information Technology (DoIT) provides high-speed Internet service (wired and wireless), telecommunications, computing sites, free IT training courses and support services. For IT help, visit <http://help.missouri.edu> or contact the IT Help Desk at (573)882-5000. To learn more about IT at Mizzou, visit [doit.missouri.edu](http://doit.missouri.edu).

## Intensive English Program and English Language Support Program

The Intensive English Program (IEP) offers international students opportunities to acquire the language proficiency and study skills needed to function successfully in an American university environment. The IEP offers 25 hours of instruction each week in reading, composition, grammar, pronunciation, vocabulary, note-taking, and oral presentation skills. Simultaneous enrollment in academic course work is not permitted.

The English Language Support Program (ELSP) offers supplemental English language courses for MU's international students and visiting scholars. Instruction emphasizes reading, writing and speaking skills. Placement in language course work is based on the results of the MU English Language Test administered at the beginning of every academic term. For additional information on either program, write or call: IEP/ELSP, 208 McReynolds Hall, (573) 882-7523, email [iepmu@missouri.edu](mailto:iepmu@missouri.edu) or visit the web site: <http://iep.missouri.edu>

## International Students and Scholars

International Student and Scholar Services (ISSS) is the office within the International Center that provides comprehensive support services to international students, faculty, staff and their dependents representing more than 100 different nationalities. ISSS orients students and scholars to the MU community and American culture, informs them of changes in University policies and procedures, advises them on a variety of immigration, academic, financial and personal issues and advocates on their behalf to ensure a positive and fulfilling educational experience.

ISSS oversees University compliance with federal immigration laws pertaining to student and scholar non immigrant status, including electronic reporting requirements stipulated by the Student Exchange Visitor Information System (SEVIS). ISSS provides tailored support services to international sponsored students and their sponsoring agencies, including U.S. federally-funded Fulbright, Muskie, Forecast and Global Undergraduate Fellows. ISSS promotes intercultural understanding within the MU community through a variety of programs, including American LIFE, Kaleidoscope, Spouse Network, special events and collaborative projects with other departments and student/scholar organizations. For more information, call (573) 882-6007.

## **Student Health Center**

Student Health Center (SHC) is an integrated service promoting students' physical and mental health and wellness. Students receive care from board certified physicians, nurse practitioners, psychiatrists, licensed psychologists, registered nurses and LPNs. Health promotion professionals educate students about tobacco cessation, sexual health, nutrition, stress management and many other topics.

### *Immunizations and TB Screening Requirements*

Proof of two doses of MMR, and completed TB screening questionnaire must be submitted to SHC before students may pre-register for their second semester. In addition, all students living in University-owned housing must show proof of vaccination against meningitis or sign a waiver indicating understanding possible health risks of not being vaccinated.

Students should bring their insurance cards to their appointments. Visits are by appointment only. Call 573.882.7481 [www.studenthealth.missouri.edu](http://www.studenthealth.missouri.edu)

## **Student Success Center**

The Student Success Center is a central place that provides academic support as well as connections to the total campus. The Student Success Center is home to Academic Exploration and Advising Services, Academic Retention Services, the Career Center and the Learning Center. Through these four services, the Student Success Center helps students make academic and career transitions, provides support systems to enhance academic success, enables students to make informed choices regarding academic programs and career services, and assists students in securing meaningful employment and/or admission to graduate or professional schools. For more information, go to the web site at <http://success.missouri.edu/>.

### **Academic Exploration and Advising**

Students who have not yet declared a major and students who want to explore majors other than or in addition to their current majors are encouraged to meet one-on-one with academic advisors in this office.

Relationships between students and their advisors are focused on helping students assess their own values and their academic and career goals and then developing a plan for accomplishing those goals. Discussions during advising appointments are focused on identifying MU majors that will match students' strengths and interests and will help them to achieve their goals. Topics covered include exploration of extracurricular opportunities, preparing for study abroad, gaining experience in a research laboratory, taking classes to sample different majors, and referrals to additional resources on campus. In addition, like all academic advisors on campus, those in the Student Success Center can help students understand how to navigate the University, avoiding obstacles and pitfalls and getting the most out of opportunities and resources. To schedule an appointment, stop by M110 Student Success Center or call (573) 884-9700.

The Student Success Center courses are listed in the course section of the catalog.

### **Academic Retention Services**

See Academic Retention Service information at the beginning of this section.

## **Career Center**

The MU Career Center provides walk-in assistance to all MU students through a variety of career services. The Career Center staff can help students explore career and major possibilities through extensive printed resource information, Internet information, career assessments, and referrals to appropriate people including career counselors. Students can get assistance at the Career Center to gain experience in their chosen field through part-time jobs, work study jobs, internships and co-ops, volunteer and community services opportunities and informational interviewing. The Career Center staff can also aid students in preparing for the next steps after graduation through resumes and cover letters writing guidance, mock interviews, discussing job search strategies, information about applying to graduate school, and on-campus recruiting through Placement Services. To schedule an appointment go to the MU Career Center, main floor of the Student Success Center or call (573) 882-6801.

## **Learning Center**

Learning Center programs support MU's goal of maintaining a strong focus on student learning by providing instructional activities that reinforce and support many University, general-education courses required of freshmen and sophomores. More than 60 percent of all freshmen and 35-40 percent of all undergraduates participate in Learning Center activities during a typical academic year. Working with Learning Center tutors encourages students to become active, effective, independent and collaborative learners.

Regularly scheduled tutoring sessions are available for many introductory courses in mathematics, the sciences and foreign languages. The Writing Center and the Online Writery serve as resources for students at any point in their writing process, from interpreting texts and information to composing, organizing, revising and editing.

The reading and study skills program provides workshops and classroom presentations on note-taking, note-handling and text-handling strategies, and strategies in preparing for and taking different kinds of quizzes and examinations. In addition, The Learning Center administers MU's Student Support Services (SSS or TRiOCATS) grant, funded by the US Department of Education. The goal of the SSS/TRiOCATS Program is to offer services that increase the retention and graduation rates of low-income, first-generation college students and students with disabilities. To schedule an appointment, go to 100 Student Success Center or call (573) 882-2493.

## **Testing Services**

Testing Services, located in the MU Counseling Center, offers graduate and professional admissions tests; placement tests; credit-by-examination; the Residual ACT (scores sent to MU only); licensure and credentialing exams; high school equivalency tests and other examinations, on both paper and computer. The Computer-Based Testing facility at MU is the designated Columbia-area location for students wishing to take the computer-based GRE, TOEFL, MCAT and other tests, which may be scheduled at convenient individual appointment times year-round, subject to availability and testing company policies. Testing Services also administers interest, personality and ability tests related to counseling, by psychologist referral only. Effective January 1, 2010; Testing Services now has online scheduling and payment available. The Testing Services' main office is located at 4 Parker Hall; (573) 882-4801. Computer-Based

Testing is at 1 Parker Hall; (573) 884-0911. For more information and/or to schedule an exam, go to the web site at <http://testing.missouri.edu>.

## Women's Center

The Women's Center offers programs, services and resources addressing the changing roles of women and men in today's society. The Center provides opportunities for discussion, education and involvement, including employment and volunteer opportunities for students. The Women's Center resource collection includes books, periodicals and educational DVD's. Information about campus and community events and resources is also available. The Women's Center is an office of the Department of Student Life. Call (573) 882-6621 or visit [womenscenter.missouri.edu](http://womenscenter.missouri.edu) for more information. The Women's Center is a family friendly environment.

## Academic Enrichment

### International Center

The Center provides coordination of study abroad, international student and scholar advising, international fellowships and special-event programming. The Study Abroad Office offers information and advising on programs throughout the world. Center staff members also coordinate applications for Fulbright, Fulbright-Hayes, DAAD, Marshall, Gate Cambridge and other fellowships for international graduate study.

The Center supports Pangaea House, a residential learning community of international and domestic students in Laws Hall. The Office of International Student and Scholar Services provides comprehensive, non-academic advising to MU's international community of 2,000 students, faculty, staff and visiting scholars from 100 countries. The Center administers Curators Grant-in-Aid awards for undergraduate and graduate international students. The Center coordinates the campus-wide Council on International Initiatives, Global Scholars Program, Internationalizing the Curriculum awards and Study Abroad Advisory Committee. MU's Intensive English Program (IEP) and English Language Support Program (ELSP) provide English language instruction.

Additional information is available from the center at N52 Memorial Union, (573) 882-6007 or at <http://international.missouri.edu/>.

### Internships/Cooperative Education

Internships/Cooperative Education offers qualified students the opportunity to explore majors and careers through employment in business, industry, government and other organizations. Employment is directly related to the student's academic major and career objective. In addition to Internships/Cooperative Education, students may also find academic and career-related experience through other Career Center programs like part-time jobs, volunteering, service learning, summer camps, work abroad, and work study.

The Career Center is located in the Student Success Center on Lowry Mall. Stop by, call (573) 882-6801 or (573) 882-JOBS or visit the web site at <http://career.missouri.edu/>.

## Oak Ridge Associated Universities (ORAU) Consortium

Since 1981, students and faculty of the University of Missouri have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 96 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at <http://www.ornl.gov/orise/educ.htm>, or by calling either of the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:  
Robert V. Duncan  
Vice Chancellor for Research  
ORAU Councilor for University of Missouri  
Monnie E. Champion  
ORAU Corporate Secretary (865-576-3306); or  
Visit the ORAU Home Page (<http://www.ornl.gov>)

## Libraries

The collections of the MU libraries include more than 3 million volumes, 7.5 million microforms and more than 44,700 journal titles in both paper and electronic formats. Services include the reserve desk and electronic reserves (ERes), recorded sound collection, reference assistance, instruction in the use of library resources, library services for persons with disabilities, laptop check-out, wireless access, group study rooms, and more than 224 public-use computers.

Included in the MU Libraries are Ellis Library (the main library), the University Archives, and the following seven branch libraries: Columbia Missourian Newspaper Library, engineering, geological sciences, health sciences, journalism, mathematical sciences and veterinary medicine. There is also the MU Law Library in the School of Law.

MERLIN (Missouri Education and Research Libraries Information Network) is the online catalog of materials owned by the

four campus libraries of the University of Missouri System. The MU Libraries' web site (<http://mulibraries.missouri.edu>) provides access to many databases and other electronic resources.

### Special Collections of the MU Libraries

- Government Documents
- Microform Collection
- Newspaper Collection
- Rare Book Collection
- Comic Art Collection

MU Libraries does not oversee the following units. Information about their collections and services should be obtained directly from each unit.

- **The National Freedom of Information Coalition** serves as the organizational and program headquarters for state freedom on information groups nationwide. Founded in 1989, its mission is to foster the organization and growth of state Freedom of Information groups.
- **Freedom in Information Center** maintains files on the actions of the government, media and society that affect the movement and content of information. Founded in 1958, and dedicated to the people's right to know, the FOI center provides reference and referral services.

The NFOIC and the FOI are housed in the School of Journalism, 101 Reynolds Journalism Institute. **For more information, call (573) 882-4856.**

- **Library of the State Historical Society**, in Ellis Library, has an extensive collection of Missouriana and early West documents and memorabilia. **Call (573) 882-7083 for more information.**

## Study Abroad

The International Center supports the University's mission of scholarship, research, and service by developing and coordinating academically-challenging study abroad programs for over 1100 MU students each year. These programs are designed to complement and enhance the curriculum. The International Center works closely with the Financial Aid Office and outside funding agencies in an effort to make study abroad affordable for all MU students. The Center is located in N52 Memorial Union, (573) 882-6007.

## Museums and Exhibits

**The Museum of Art and Archaeology** is the third largest visual arts museum in the state and is accredited by the American Association of Museums. The scope of the museum's collections spans seven millennia and six continents. As a teaching museum, its more than 15,000 objects provide an excellent opportunity for graduate and undergraduate study. The many artworks and the large amount of material from the University's excavations provide research opportunities for students. A non-circulating library in the museum office is open to the public. The museum is located in Pickard Hall on Francis Quadrangle (Ninth Street and University Avenue). For further information, call (573) 882-3591. <http://maa.missouri.edu>

**The Museum of Anthropology's** permanent exhibit hall focuses on Native American cultures from across North America and Missouri history from 11,200 years ago to the present. Objects from the Grayson archery collection are on display at the Museum Support Center on Rock Quarry Road. Collections are available for study by faculty, students and other qualified

researchers. The exhibit hall is located at 100 Swallow Hall, (573) 882-3573.

**Entomology Museum** is the largest university insect collection in the world. The collection is primarily for research and teaching. Tours are by appointment. Call (573) 882-2410 for more information.

**Fisheries and Wildlife Collections** provide teaching and research collections of birds, mammals and fish of Missouri and surrounding states as well as notable collections of waterfowl, African large mammals, and freshwater and saltwater fish. Call (573) 882-3436 for more information.





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# **Honors College**

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# Honors College

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## Contact Information

Stuart Palonsky, Director  
Julie Melnyk, Associate Director  
Ines Segert, Associate Director  
(573) 882-3893  
<http://honors.missouri.edu>  
211 Lowry Hall

## Honors College

The Honors College is a community of motivated, high-ability students from all the undergraduate colleges at the University of Missouri. It is designed to offer an enriched academic experience and personal support. The Honors College gives students maximum flexibility in order to serve their individual interests. Honors courses, taught by many of the University's best professors, encourage interaction between students and faculty and allow students to experience a small-college atmosphere within a large university.

Opportunities in the Honors College are described below.

- **Honors Courses** (GN HON) are limited to honors-eligible students. (All courses are listed in *Laurels*, the Honors College newsletter.) Honors courses fall into three categories:
  - Honors sections of regularly offered courses
  - Departmental honors and research courses
  - Special Honors College courses
- **The four-semester Humanities Sequence**, an academic centerpiece of the college, provides an integrated approach to literature, philosophy, art history and music.
- **The four-semester Human Sciences Sequence** is designed to engage students in the seminal insights of the social and behavioral sciences as they are embedded in the development of identity.
- **The two-semester Science Sequence** is a hands-on laboratory science course for non-science majors designed to introduce students to the methods and range of scientific knowledge.
- **Honors Discussion Groups** are small, informal discussion groups.
- **Independent Study** opportunities allow students to study one-on-one with a faculty member.
- **Honors Preceptorships** provide special student-faculty research opportunities. The Honors College helps arrange special research relationships between talented students and professors.
- **Learning by Contract** allows honors students to take a non-honors course for honors credit. The student enters into a contract with the professor to complete work beyond the course requirements. Forms are available online.

## Honors College Admissions

### Fully-Admitted Incoming Freshmen

Incoming freshmen are eligible for automatic admission to the Honors College upon submission of an application, if they have 29 or higher on the ACT or 1280 on the SAT and are in the top 10 percent of their high school graduating class. Students from high schools that do not rank will be automatically eligible if their core GPA is greater than 3.75. Incoming freshmen who do

not meet both of the admissions criteria are required to submit an essay as part of their application. Essays are evaluated on an individual basis. Specific information on the requirements for the essay can be found on the website ([honors.missouri.edu](http://honors.missouri.edu)).

### Provisionally-Admitted Incoming Freshmen

Incoming freshmen who apply to the Honors College but who do not meet the automatic eligibility requirements may be given the opportunity to take one honors course during their first semester. Provisionally-admitted students may request permission to enroll in one additional honors course during the Early Registration period for spring semester. Students wishing to exercise this option should schedule an appointment to meet with the director of the Honors College during Early Registration.

Provisionally-admitted students cannot live in the Honors Learning Community or participate in honors Freshmen Interest Groups in student housing and are not assigned to the Honors College for advising until they are given full admission. Provisionally-admitted students are automatically given full admission to the Honors College if they have a 3.5 MU GPA at the end of their first semester. Provisionally-admitted students who do not make a 3.5 the first semester may remain enrolled in the early registered course for the following semester. These students can apply for admission any time after they have completed 30 credits and have a 3.5 MU GPA.

### Transfer Students

Transfer students are eligible to apply if they have at least 30 credits and a 3.5 cumulative GPA. The cumulative GPA, for the purpose of applying to the Honors College, is the calculated average of transfer work from all institutions the student has attended.

## Special Programs

### Service Learning

The Honors MU Community Engagement Project is a service-learning outreach program designed to assist members of the community and offer students problem-solving and leadership experiences. Service projects include mentoring at-risk adolescents, working with low-income preschool children, and investigating and providing service for local public health agencies. Students perform community service, participate in a seminar and complete research projects.

### Honors Housing

The Honors Learning Community brings together honors students of various academic orientations into intellectually and socially stimulating settings. Honors Students are not required to live in Honors Housing.

### Laurels

Available online before registration each semester, the *Laurels* provides descriptions of classes offered.

## **Student Services**

The Honors College offers one-on-one academic advising for all honors students on a drop-in basis. Students planning a career in medicine or other health professions (such as dentistry, optometry, podiatry or pharmacy) can discuss requirements and different options for graduate study with the pre-health professions advisor. This advisor will also arrange an interview session for aspiring health professions candidates and write a composite letter for each student. The Honors College Health Professions Advisory Committee interviews and prepares the composite evaluations required by most institutions.

## **Program Requirements**

### **Maintaining Honors Eligibility**

#### **GPA Requirement**

Students must maintain a 3.0 MU GPA to remain in the Honors College. Students whose MU GPA is below 3.0 after fall semester receive a warning letter. Students whose MU GPA is below 3.0 after spring semester lose honors eligibility. Students wishing to reapply to the Honors College must meet the eligibility requirements for current students.

#### **Initial Course Requirements**

Students are required to complete two honors courses per year for the first two years. Students who are admitted for the second semester of their first year at MU must complete one course during the spring semester, and two courses the following year. All honors-designated courses will count toward this requirement including honors sequence courses, colloquia, honors sections of regularly offered courses (see departmental offerings), GN HON 1080H/ 2085H and 2950H/ 4950H, and Learning-by-Contract (up to 6 hours). The requirement is modified as follows for transfer students and MU students admitted after first semester.

#### **Continuing Course Requirements**

Students admitted after their first year must complete two courses the second year.

Students admitted after their second year must complete one course at any time before graduation.

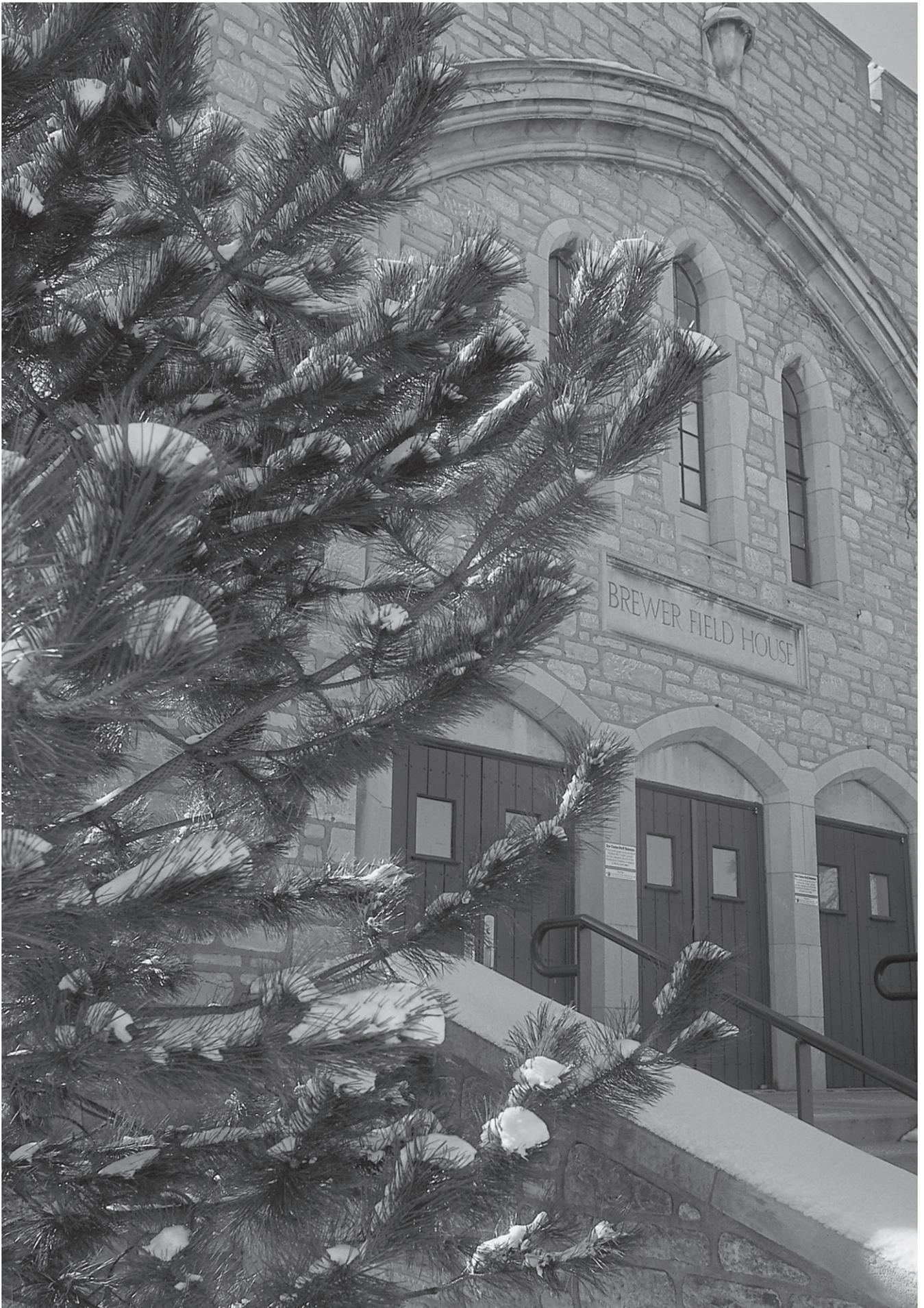
Successful completion of this requirement is verified at the end of each spring semester. Students who have not taken the required number of courses lose honors eligibility.

#### **Honors Certificate Requirements**

Students who complete 20 credits in honors courses and have a 3.3 cumulative GPA are eligible for an Honors Certificate, which is also noted on their permanent transcript. All honors course work must be completed in the semester prior to graduation for a student to be eligible to participate in the Honors Commencement Ceremony.

#### **University Honors Designation**

Students who complete the Honors Certificate and a qualified departmental honors program will be eligible for this designation, which will be noted on their permanent transcript (see your department or the Honors College for information about departmental honors programs).



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**College of  
Agriculture  
Food and  
Natural  
Resources**

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# College of Agriculture, Food and Natural Resources

*\*Includes the School of Natural Resources*

## Degrees Offered

### **Bachelor of Science (BS)** with majors in:

Agribusiness Management  
Agricultural Economics with optional emphasis areas  
in *Financial Planning; Public Policy*  
Agricultural Education with emphasis areas in  
*Leadership; Teacher Certification*  
Agricultural Systems Management  
Agriculture with an optional emphasis area in  
*Sustainable Agriculture*  
Animal Sciences  
Biochemistry  
Food Science and Nutrition  
Hospitality Management with emphasis areas in  
*Conference and Event Planning Management, Food and  
Beverage Management, Lodging Management,  
Sport Venue Management*  
Parks, Recreation and Tourism with emphasis areas  
in *Leisure Service Management; Natural Resource  
Recreation Management; Sport Management;  
Tourism Development*  
Plant Sciences with emphasis areas in  
*Crop Management, Horticultural Science and Design,  
Breeding Biology and Technology, Turfgrass Science*  
Science and Agricultural Journalism  
Soil, Environmental and Atmospheric Sciences with  
emphasis areas in *Atmospheric Science; Environmental  
Science; Environmental Soil Science; Soil Resource  
Management*

**Bachelor of Science in Fisheries and Wildlife (BSFW)** with  
a major in Fisheries and Wildlife Sciences

### **Bachelor of Science in Forestry (BSF) with a major in Forestry with emphasis areas in**

*Forest Entrepreneurship and Business; Forest Resource  
Management; Individualized Studies; Urban Forestry*

### **Minors**

Agricultural Economics  
Agricultural Education  
Agricultural Leadership  
Agricultural Systems Management  
Animal Sciences  
Captive Wild Animal Management  
Food Science  
Forestry  
Hospitality Management  
International Agriculture  
Natural Resources  
Plant Sciences  
Rural Sociology  
Soil, Environmental and Atmospheric Sciences  
Sustainable Agriculture  
Youth Services

## Administration

Thomas L. Payne, Vice Chancellor and Dean/Director, MO  
Agriculture Experiment Station  
Bryan Garton, Associate Dean and Director, Academic  
Programs  
Marc Linit, Associate Dean, Research, Outreach, Associate  
Director Agriculture Experiment Station  
Sharyn Freyermuth, Assistant Dean, Academic Programs  
Dave Baker, Assistant Dean/Director, Ag Extension  
Matt Pourney, Director of Study Abroad

College of Agriculture, Food and Natural Resources  
Office of Academic Programs  
Dickinson Student Achievement Center  
2-64 Agriculture Building  
(573) 882-8301

The School of Natural Resources  
Undergraduate Studies Office  
124 Anheuser-Busch Natural Resources Building  
(573) 882-7045  
[www.cafnr.missouri.edu](http://www.cafnr.missouri.edu)

The mission of the College of Agriculture, Food and Natural Resources (CAFNR) includes excellence in teaching and advising, cutting-edge research and the dissemination of that research to the people of Missouri.

From entering freshmen to postdoctoral scientists, students receive personal attention in preparing for a wide range of careers. Professional development through campus organizations and special interaction with business and industry prepares graduates to have an impact in the food system, business, government policy, environmental awareness, conservation, law, medicine and other areas.

The Missouri Agricultural Experiment Station develops life science technologies in animal, biochemical, plant, food and natural resource sciences to keep the state's agribusiness system competitive in world markets and to provide consumers with a safe, low-cost food supply. Science research faculty lead our state and nation in debate and development of science-based policies for agriculture and natural resources.

Finally, the college helps the global community more fully develop their economies through improved agriculture. This global mission provides a valuable exchange of knowledge and understanding among students, teachers and scientists from many cultures.

The College of Agriculture, Food and Natural Resources was established at the University of Missouri in 1870 as the state's land-grant university in response to the need for agricultural teaching and research in Missouri. The four major divisions in the college, the Agricultural and Natural Resources Experiment Station, Academic Programs, Agricultural Extension and International Programs, continue to have a great influence on Missouri's economy.

## Admissions

Students admitted to the University of Missouri are encouraged to enter the College of Agriculture, Food and Natural Resources, including The School of Natural Resources, as freshmen.

### Special Programs

#### Preveterinary Track

Students wishing to prepare for application to the College of Veterinary Medicine may enroll in the College of Agriculture, Food and Natural Resources under the programs that emphasize science, such as animal sciences or fisheries and wildlife sciences. In satisfying the science program requirements, the requirements for entering veterinary medicine also may be satisfied.

A minimum of 60 credits is required for admission to the College of Veterinary Medicine. Before applying, a student should make certain that the requirements listed below have been satisfied. Questions concerning required admission credits should be directed to the College of Veterinary Medicine. (Note: Tracks are not listed on transcripts or diplomas.)

Composition or courses in communication skills .....	6 credit hours
College Algebra or more advanced mathematics.....	3 credit hours
Inorganic Chemistry .....	8 credit hours
Organic Chemistry (requires laboratory)..	5 credit hours
Biochemistry (requires organic chemistry prerequisite) .....	3 credit hours
Physics (comprehensive introductory course or courses)** .....	5 credit hours
Biological Science.....	10 credit hours
Social Science and/or Humanistic Studies .....	10 credit hours
Electives.....	10 credit hours
	60 credit hours

\*\*5 hrs. in only the first of a companion series in introductory physics will not suffice.

#### Premedical Track

Students interested in a medical career may choose from a variety of science-based majors. The most common choice of students is biochemistry because it is a common program between CAFNR and the School of Medicine. Questions concerning required admission credits should be directed to the School of Medicine. (Note: Tracks are not listed on transcripts or diplomas.) The following course work is required for admission:

English composition (may include writing-intensive courses).....	2 semesters
College-level mathematics (or calculus eligibility).....	1 semester
General biology, including laboratory.....	8 credits
Inorganic chemistry, including laboratory .....	8 credits
Organic chemistry, including laboratory.....	8 credits
General physics, including laboratory .....	8 credits

## Degree Options

In many majors, students are allowed to tailor the program of study to their professional goals. Students may choose courses that provide them with strong technical expertise or select those that provide business expertise. Others who are preparing for graduate or professional schools may be interested in a strong science education. All of these options are available within the majors.

### Major Program Requirements

Students must complete a minimum of 120 credits. In addition to University general education and graduation requirements, the College of Agriculture, Food and Natural Resources requirements are below. (See The School of Natural Resources requirements later in this catalog for specific requirements.)

#### Major core requirements

<b>Communications .....</b>	<b>9</b>
ENGLISH 1000 a grade of C- or better is required.....	3
COMMUN 1200: Public Speaking.....	3
OR AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources.....	3
Communication Elective (selected from).....	3
ENGLISH 2010: Intermediate Composition	
ENGLISH 2030: Professional Writing	
AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources	
SCI AG J 3210: Fundamentals of Communication	
SCI AG J 3240: Communicating on the Web	
COMMUN 1200: Public Speaking	
COMMUN 3441: Nonverbal Communication	
COMMUN 3572: Argument and Advocacy	
COMMUN 3575: Business and Professional Communication	
THEATR 1400: Acting for Non-Majors	
RU SOC 2225: Science, Technology, and Society	
C S D 1110: Manual Communication I	
Foreign language	
<b>Mathematics .....</b>	<b>3</b>
MATH 1100 or higher level mathematics course. C- or better required.	
Math Reasoning Proficiency course. C- or better.	
<b>Physical and biological sciences.....</b>	<b>11</b>
CHEM 1100: Atoms and Molecules with Lab .....	3
OR CHEM 1310: General Chemistry I.....	2
OR CHEM 1320: General Chemistry II with Lab.....	3
CHEM 1330: General Chemistry III with Lab.....	3
OR BIOCHM 2110: The Living World: Molecular Scale .....	3
OR BIOCHM 2112: Biotechnology in Society.....	3
OR a higher-level Biochemistry course .....	3
BIO SC 1010: General Principles and Concepts of Biology .....	3
AND BIO SC 1020: General Biology Laboratory..	2
OR BIO SC 1030: General Principles and Concepts of Biology with Laboratory .....	5
OR BIO SC 1200: General Botany with Laboratory.	5
OR BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
<b>Social and behavioral sciences .....</b>	<b>9</b>
AG EC 1041: Applied Microeconomics	

- OR ECONOM 1014: Principles of Microeconomics 3
- AG EC 1042: Applied Macroeconomics
- OR ECONOM 1015: Principles of Macroeconomics 3
- Elective selected from one course that meets State Law Requirement:
- HIST 1100, 1200, 2210, 2440, 4000, 4220 or 4230
- OR POL SC 1100 or 2100 ..... 3

**Humanities and/or fine arts.....9**

Select courses from the list approved by the Committee for Undergraduate Education located on the following website: <http://generaleducation.missouri.edu/requirements>.

**Additional CAFNR Requirements**

A minimum of 48 credits must be completed in courses numbered 2000 or above; a minimum of 24 of the 48 credits must be in courses numbered 3000 or above. Students must complete a minimum of 32 credits in disciplines within the College of Agriculture, Food and Natural Resources. A minimum of 20 CAFNR credits must be completed in residence (on the MU campus).

Transfer students must complete 30 credits in residence. At least 20 of these credits must be taken in the College of Agriculture, Food and Natural Resources. A maximum of 18 credit hours of course work in CAFNR disciplines may be transferred from a community college and applied toward departmental degree requirements. Additional credit hours may be applied toward general education requirements or electives.

Of the credits taken during the last year for a BS degree in the College of Agriculture, Food and Natural Resources, a maximum of 6 credits can be taken at another accredited institution. These 6 credits are to be electives only. Approval of advisor, advisor-chair and associate dean must be obtained prior to enrolling in courses taken at another accredited institution. Detailed information about each major may be found in this catalog.

**Interdivisional**

*For additional details on division specific minors, see individual division's page.*

**Minor in International Agriculture**

The college offers an interdisciplinary minor in International Agriculture. This unique offering is an excellent addition to any major. It provides insight into the ever-increasing interconnectedness of world communities. The minor in International Agriculture consists of a minimum of 15 credits. Nine of the 15 credit hours must be in approved CAFNR courses at the 3000 level or above. No more than nine credits will be accepted from courses taken in formal study abroad programs. Up to two courses (6 credit hours) approved by the student's advisor and the international agriculture advisor chair in a geographic area of interest may be used towards a minor.

**Minor in Agricultural Leadership**

The minor in Agricultural Leadership is for students interested in enhancing their public speaking, analytical reasoning, critical thinking, effective writing and teamwork skills. A student must complete 15 credit hours of coursework related to leadership and personal development from the list of approved courses. The Coordinator of the Minor in Agricultural Leadership must

approve courses not on the list. With appropriate approval, an internship with a focus upon providing the student practical experiences in leadership and supervisory roles can be counted toward the 15-hour requirement.

**Approved Courses**

- AG ED 2250: Introduction to Leadership..... 3
- AG ED 2220: Verbal Communication in Agriculture, Food, and Natural Resources ..... 3
- AG ED 2260: Team and Organizational Leadership..... 3
- AG EC 2223: Agricultural Sales ..... 3
- AG EC 3241: Ethical Issues in Agriculture..... 3
- AG EC 3283: Fundamentals of Entrepreneurship ..... 3
- P R TR 3210: Personnel Management and Leadership in Leisure Services..... 3
- RU SOC 2010: Leadership in Today's World..... 3

**Minor in Sustainable Agriculture**

The minor in sustainable agriculture is for students interested in exploring agriculture and food systems that promote profitability, steward our natural resources, and provide enhanced quality of life for farmers, citizens and communities. This minor will prepare students to face one of the critical challenges of the 21st century - producing enough food to meet world demand while conserving natural resources and enhancing sustainable livelihoods. A student must complete 15 hours of coursework that introduces concepts of sustainable agriculture, provides practical information on natural resources and food production, and investigates the impact of different philosophical and scientific frameworks on food and agriculture.

**Required coursework includes:**

- AFNR 2215: Introduction to the Theory and Practice of Sustainable Agriculture ..... 3
- AFNR 3215: Community Food Systems ..... 3
- SOIL 2100: Introduction to Soils..... 3
- AG EC 3241: Ethical Issues in Agriculture..... 3
- OR BIOCHM 2112: Biotechnology in Society..... 3

**Choose one of the following;**

- PLNT S 1125: People, Plants and the Environment.... 3
- PLNT S 2110: Plant Growth and Culture..... 3
- PLNT S 2075: Environmental Horticulture ..... 3
- AN SCI 2165: Introduction to Ruminant Livestock Production..... 3
- AN SCI 2175: Introduction to Monogastric Production..... 3

**Minor in Youth Services**

Every person has gone or will go through a period when they are establishing their identity and moving from childhood toward being an adult. This minor includes courses from a variety of fields including Human Development, Social Work, Rural Sociology, and Parks, Recreation and Tourism. The goal of the minor is to help individuals prepare for a career related to youth service work such as with 4-H, Boy and Girl Scouts, Big Brothers, Big Sisters, and many other youth service agencies.

**CAFNR Honors Requirements**

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

Students must be admitted to the honors program prior to the first day of classes for the last semester they are enrolled in residence in the College of Agriculture, Food and Natural Resources. No student is admitted retroactively. The student is officially admitted to the program upon approval of the associate dean.

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

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

In CAFNR, the BS with honors requires 128 credits. However, CAFNR Honors students may apply for dual enrollment with the Graduate School during the final semester and receive graduate credit for up to 6 credits. Students must fulfill University general education and major requirements.

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

Changes in the program of study must be signed by the student, each advisory committee member, the undergraduate advisor chair and associate dean before they are officially approved.

### **Probation, Suspension and Dismissal**

In addition to the policies of the University, the College of Agriculture, Food and Natural Resources' academic policies can be located at <http://CAFNR.missouri.edu>. (See *Academic Standing* in the front section of this catalog.)

## **Student Services**

### **Advising**

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

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

Questions dealing with advisement should be directed to Student Services, Dickinson Student Achievement Center, 2-64 Agriculture Building, (573) 882-8301.

### **Career Services and Professional Opportunities**

Graduates find rewarding careers in private industry and with state and federal agencies. Many own their own businesses. Some graduates enter production agriculture while many others enter professions that develop, support or market various products and technologies.

The CAFNR Career Services Office provides students with current information on career areas that are expanding and offer outstanding potential. The staff helps students analyze their skills and encourages them to explore employment opportunities in a variety of career areas. Career development services include career days, one-on-one help sessions, workshops, resumé writing, mock interviews, job-seeking tactics, and an online job and employer database ([HireMizzouTigers.com](http://HireMizzouTigers.com))

Each year, the Career Services Office schedules on-campus interviews for graduating seniors and intern candidates to enable representatives from local and national businesses and state and national government agencies to meet prospective employees. The office also assists alumni involved in career changes and undergraduates looking for part-time and summer employment. For more information, write or call the Career Services Office, Dickinson Student Achievement Center, 2-64 Agriculture Building, (573) 882-0088 or [CAFNRcareerservices@missouri.edu](mailto:CAFNRcareerservices@missouri.edu).

### **Study Abroad**

The College of Agriculture, Food and Natural Resources provides students with opportunities to study abroad on academic year, semester, summer, short term and winter break programs. Study Abroad compliments and enhances a student's academic program. On these programs, students gain maturity and self confidence, broaden their horizons to the larger world around them and earn academic credit. Increasingly, employers are looking for students who have increased their skill set through study abroad.

For more information about CAFNR study abroad programs, contact the Study Abroad Office, Dickinson Student Achievement Center, 2-64 Agriculture Building, at (573) 882-8301.

### **Student Activities**

The College of Agriculture, Food and Natural Resources offers a variety of extracurricular student activities that contribute to a student's education and professional development. Clubs and organizations sponsor activities related to professional interests as well as social events. Involvement in extracurricular activities fosters leadership development. Involvement in activities outside the classroom also may prove beneficial when applying for scholarships or jobs. Many organizations and companies look favorably on a student who has received good grades while being involved in clubs and other University organizations. Each class and club elects a representative to the CAFNR Student Council.

For more information go to: <http://www.cafnrcornerpost.com>

## On-Campus Internships

On-campus internships provide students with professional growth experiences and close associations with faculty members as they work together on projects approved by an internship selection committee. Students can increase their communication skills, problem-solving abilities and technical expertise through an individualized internship experience that takes place on campus. Students complete regular course work in addition to participation in the internship. Students may receive a stipend.

## Internships

To gain relevant career experience, most CAFNR students participate in internship programs. Students intern with government agencies, employers or organizations that furnish facilities and instruction to increase knowledge and strengthen leadership and communication skills.

Academic credit may be given for an internship. Students eligible for internship credit through a CAFNR department must be in good academic standing in a degree program with adequate prerequisite qualifications. For more information on internships, write or call the Career Services Office, 2-64 Agriculture Building, (573) 882-0088 or CAFNRcareerservices@missouri.edu.

# *Division of Applied Social Sciences*

## Department of Agricultural and Applied Economics

Michael Monson, Chair  
Agricultural and Applied Economics  
College of Agriculture, Food and Natural Resources  
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(573) 882-3545  
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MonsonM@missouri.edu

## Faculty

**PROFESSOR EMERITUS** M. E. Bredahl, G. A. Grimes, N. A. Hein, J. E. Ikerd, S. F. Matthews, D. D. Osborn, A. A. Prato, V. J. Rhodes, D. L. VanDyne, P. F. Warnken, A. W. Womack,

**PROFESSOR** M. L. Cook, B. J. Deaton, T. Johnson, N. Kalaitzandonakes, W. H. Meyers, R. Plain, J. I. Stallman, H. Williamson Jr., R. E. Westgren, P. Westhoff

**ASSOCIATE PROFESSOR** M. S. Kaylen, L. M. J. McCann, M. J. Monson, H. S. James, K. C. Moore, J. Parcell, M. E. Sykuta, P. G. Klein, C. B. Valdivia

**ASSISTANT PROFESSOR** F. Chaddad, W. Thompson, Y. Xia

**EXTENSION PROFESSOR** R. Massey

**EXTENSION ASSOCIATE PROFESSOR** V. Pierce

**ASSOCIATE TEACHING PROFESSOR** J. L. Dauve

**ASSISTANT TEACHING PROFESSOR** C. R. Boessen

**RESEARCH ASSISTANT PROFESSOR** D. S. Brown

**INSTRUCTOR** L. F. Sowers, M. Rodriguez Alcalá

The Department of Agricultural and Applied Economics offers undergraduate degrees in agribusiness management and in agricultural economics as well as a minor in agricultural economics. The department is home to several programs and research centers:

- Agricultural Electronic Bulletin Board, a clearinghouse for information related to farming and production agriculture
- Agribusiness Research Institute, an agribusiness research program that focuses on interactive problem solving and learning
- Center for Applied Research and Environmental Systems, an intercollegiate research and education center.
- Community Policy Analysis Center, providing research, outreach and training that supports improved policy decisions in Missouri communities
- Contracting and Organizations Research Institute, dedicated to enabling and encouraging interdisciplinary empirical research on contracting and organizational structure
- Economics and Management of Agrobiotechnology Center, a research institute with a focus on applications of biotechnology on agriculture and food production and distribution
- Food and Agricultural Policy Research Institute, a Congressionally-enacted institute whose mission is to provide objective analysis of food, agricultural, nutritional and environmental issues

- McQuinn Center for Entrepreneurial Leadership, promotes research, teaching, and outreach on the nature, causes, and consequences of entrepreneurship.

The department offers a BS degree with a major in Agribusiness Management and BS, MS and PhD degrees with a major in Agricultural Economics. A minor is also available.

## Department Requirements

Core department requirements must be completed in addition to all major, degree, CAFNR and University graduation requirements, including the University general education requirements. The following courses are required for both agribusiness management and agricultural economics majors:

### Department core requirements.....18

- AG EC 1041: Applied Microeconomics..... 3
- AG EC 1042: Applied Macroeconomics ..... 3
- AG EC 2123: Quantitative Applications in Agricultural Economics ..... 3
- AG EC 2183: The Agricultural Marketing System ..... 3
- AG EC 3251: Agricultural Prices ..... 3
- AG EC 3282: Agribusiness Finance ..... 3
- STAT 2500: Introduction to Probability and Statistics I OR AG EC 2225: Statistical Analysis..... 3

### Supporting courses.....27

- AFNR 1120: Computing and Information Technology 2
- AND AFNR 2120: Working with Data Using Excel .... 1
- OR CMP SC 1020: Introduction to Computing OR ACCTCY 2258: Computer Based Data Systems ..... 3
- MATH 1400: Calculus for Social and Life Sciences I... 3
- ACCTCY 2036: Accounting I OR ACCTCY 2136H: Honors Accounting I..... 3
- ACCTCY 2037: Accounting II OR ACCTCY 2137H: Honors Accounting II ..... 3
- ECONOM 3229: Money and Banking and Financial Markets..... 3
- PLNT S: Any course in Plant Sciences..... 3
- AN SCI: Any course in animal sciences ..... 2-3

### Agricultural production .....3

Courses in biological engineering; agricultural systems management; animal sciences; entomology and pest management; fisheries and wildlife; food science; forestry; hospitality management; natural resources; parks, recreation and tourism; plant pathology; plant science (includes agronomy and horticulture); and soil and atmospheric science

### Electives ..... 28-30

## Major Program Requirements – Agribusiness Management

The degree in agribusiness management offers the student a general business background while emphasizing applications to various types of food and agricultural businesses. This program prepares students to assume leadership roles in business. The broad background allows maximum flexibility when entering the job market.

Students transferring into agribusiness management from other departments at MU or from other colleges must have a 2.7 cumulative GPA for all work attempted.

Core department requirements must be completed in addition to all major, degree, CAFNR and University graduation requirements, including the University general education requirements.

### Major core requirements .....12

- AG EC 3256: Agribusiness and Biotechnology Law .... 3
- AG EC 3286: Economics of Managerial Decision Making..... 3
- AG EC 4971: Agribusiness Management Strategy (capstone)..... 3
- AG EC 4972: Agri-Food Business and Cooperative Management (capstone)..... 3

### Business management electives .....9

- AG EC 2223: Agricultural Sales ..... 3
- AG EC 3150: International Agribusiness ..... 3
- AG EC 3224: New Products Marketing ..... 3
- AG EC 3283: Fundamentals of Entrepreneurship ..... 3
- AG EC 3294: Agricultural Marketing and Procurement..... 3
- AG EC 4295: Agricultural Risk Management ..... 3

And with permission, ACCTCY 2258 and business courses 3000+

## Major Program Requirements – Agricultural Economics

Programs in agricultural economics focus on understanding and solving problems in the production, distribution and use of agricultural goods, services and natural resources. The focus is on courses in management, marketing and production, as well as on courses covering economic principles and computer skills.

Students transferring into agricultural economics from other departments at MU or from other colleges or universities must have a 2.7 cumulative GPA for all work attempted.

Substantial career opportunities exist in food processing and manufacturing, international production, development and trade, biotechnology, agricultural and natural resource management, as well as aspects of agribusiness.

Core department requirements must be completed in addition to all major, degree, CAFNR and University graduation requirements, including the University general education requirements.

## Emphasis Areas

The Agricultural Economics degree offers 2 emphasis areas.

### Public Policy Emphasis

In addition to the course requirements for the College of Agriculture, Food and Natural Resources and the Department of Agricultural and Applied Economics, the following courses are required within this emphasis:

### Emphasis core requirements .....24

- AG EC 2070: Environmental Economics and Policy.... 3
- AG EC 3230: Agricultural and Rural Economic Policy ..... 3
- AG EC 3271: International Agricultural Development OR AG EC 3272: International Food Trade and Policy ..... 3
- RU SOC 1000: Rural Sociology

OR POL SC 1100 American Government.....	3
AG EC 4990 Agricultural Economics	
Capstone Seminar .....	3
Public Policy Electives.....	9

### Financial Planning Emphasis

The Financial Planning emphasis area prepares undergraduates with the tools necessary for placement in the agricultural finance sector with an emphasis on family financial planning. In addition to the course requirements for the College of Agriculture, Food and Natural Resources and the Department of Agricultural and Applied Economics, the following courses are required within this emphasis:

<b>Emphasis core requirements .....</b>	<b>28</b>
AG EC 3256: Agribusiness and Biotechnology Law .....	3
ACCTCY 4353: Introduction to Taxation.....	3
FINPLN 2083: Financial Planning Careers.....	1
FINPLN 2183: Personal and Family Finance.....	3
FINPLN 3283: Financial Planning: Computer Applications.....	3
FINPLN 4382: Financial Planning: Risk Management	3
FINPLN 4383: Financial Planning: Investment Management.....	3
FINPLN 4386: Financial Planning: Employee Benefits & Retirement Planning .....	3
FINPLN 4393: Financial Planning: Estate and Gift Planning .....	3
FINPLN 4380: Assessing the American Dream.....	3

### Options and Tracks

The Agricultural Economics degree offers 1 option. (Note: Options and Tracks are not listed on transcripts or diplomas.)

### Farm and Ranch Professional Option

In addition to the course requirements for the College of Agriculture, Food and Natural Resources, the following courses are required within this option.

<b>Option core requirements .....</b>	<b>12</b>
AG EC 3257: Rural and Agricultural Law .....	3
AG EC 3260: General Farm Management .....	3
AG EC 3294: Agricultural Marketing and Procurement .....	3
AG EC 4962: Planning the Farm Business (capstone) ..	3

### Agricultural production .....

12 Courses in biological engineering; agricultural systems management; animal sciences; entomology and pest management; fisheries and wildlife; food science, forestry; hospitality management; natural resources; parks, recreation and tourism; plant pathology; plant science (includes agronomy and horticulture); and soil and atmospheric science.

### Departmental Honors

An honors program is available through the College of Agriculture, Food and Natural Resources.

### Minor in Agricultural Economics

A minor in agricultural economics requires 18 credits in agricultural economics with at least 9 credits at the 3000 level or above. A student earning an agribusiness management major is not eligible for an agricultural economics minor.

## Division of Applied Social Sciences

### Department of Agricultural Education

Anna L. Henry, Associate Professor and Chair  
College of Agriculture, Food and Natural Resources  
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Administrative assistant: swaimc@missouri.edu  
<http://aged.missouri.edu>

### Faculty

**PROFESSOR** B. L. Garton  
**ASSOCIATE PROFESSOR** A. L. Henry, T. J. Kitchel  
**ASSISTANT PROFESSOR** J. C. Simonsen  
**INSTRUCTOR** J. D. Tummons  
**SPECIALIST** N. F. Rohrbach, R. Scheiderer  
**PROFESSOR EMERITUS** R. E. Linhardt, B. R. Stewart

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

Students pursuing a degree in agricultural education choose between two emphasis areas. The leadership emphasis focuses on developing students' leadership, communication and human relation skills. Students learn how to plan, manage and disseminate information in educational settings outside of a formal classroom. Teacher certification emphasis prepares students to meet state teacher licensure requirements and teach agriculture, food and natural resources to secondary and adult learners through Missouri public schools. Students in both the teacher certification and leadership emphasis areas have the opportunity to specialize in an area of interest by completing course work in one or more agriculture, food or natural resource disciplines.

Students transferring into agricultural education from academic degree programs within the University of Missouri must have at least a 2.3 GPA for all course work attempted.

The department offers the BS with a major in Agricultural Education. A minor is also available.

### Major Program Requirements - Agricultural Education

Students must complete the University of Missouri's general education requirements and the course requirements established by the College of Agriculture, Food and Natural Resources (CAFNR) to earn the Bachelor of Science degree. Approximately one-third of the course work for the degree is completed in agricultural education or professionally related courses. In addition, the curriculum includes courses in

agriculture, food and natural resource disciplines including agricultural economics, agricultural systems management, animal science, food science, horticulture, plant science and natural resources.

### Major Core Requirements

See university general education and graduation requirements as well as the College of Agriculture, Food and Natural Resources listings. The requirements specific to agricultural education are also available at <http://aged.missouri.edu>.

### Emphasis Areas

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

#### Leadership Emphasis

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

#### Emphasis core requirements

<b>Agricultural education.....</b>	<b>20</b>
AG ED 1000: Orientation to Agricultural Education ...	1
AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources.....	3
AG ED 2250: Introduction to Leadership.....	3
AG ED 2260: Team and Organizational Leadership.....	3
AG ED 4340: Designing and Delivering Nonformal Educational Programs.....	4
AG ED 4993: Internship in Agricultural Education.....	3
Additional AG ED Leadership Course .....	3
<b>Additional requirements. ....(minimum 13)</b>	
PSYCH 1000: General Psychology.....	3
H D FS 2400: Principles of Human Development .....	4
ENGLSH 2030: Professional Writing.....	3
SCI AG J 3210: Fundamentals of Communications.....	3
SCI AG J 3240: Communicating on the Web.....	3
Diversity Elective .....	3
<b>Focus Area (as approved by advisor).....(minimum 9)</b>	
<b>Agricultural economics .....</b>	<b>6</b>
Elective .....	3
AG EC 2223: Agricultural Sales .....	3
<b>Animal science.....</b>	<b>3</b>
Animal Science Elective.....	3
<b>Plant and soil science.....</b>	<b>3</b>
PLNT S 2110: Plant Growth and Culture .....	3
OR Elective.....	3
<b>Natural resources.....</b>	<b>3</b>
SOIL 2100: Introduction to Soils	
OR Natural Resources Elective .....	3
<b>Electives.....</b>	<b>33</b>
CAFNR Electives.....	18
General Electives .....	15

#### Teacher Certification Emphasis

The teacher certification emphasis prepares students to meet

state teacher licensure requirements to teach agriculture in Missouri public schools at the secondary and adult levels. In addition to courses in agricultural education, the curriculum includes a diverse selection of courses in agriculture, food and natural resources and professional teacher certification courses offered through the College of Education. The capstone experience involves a semester-long teaching internship in a selected secondary agriculture program.

#### Emphasis core requirements.....28

AG ED 1000: Orientation to Agricultural Education ...	1
AG ED 3310: Teaching Financial Management and Economics .....	2
AG ED 4310: Rationale and Structure of Agricultural Education Programs .....	3
AG ED 4311: Integrated Field Experience I.....	1
AG ED 4320: Designing Curriculum and Instruction in Agriculture .....	3
AG ED 4321: Integrated Field Experience II .....	1
AG ED 4330: Teaching Agriculture Subjects .....	3
AG ED 4087: Internship Seminar in Agricultural Education.....	3
AG ED 4995: Student Teaching Internship in Agriculture .....	12

#### College of Education.....13

ESC PS 2010: Inquiry into Learning I .....	3
ESC PS 2014: Inquiry into Learning I: Field Experience .....	1
LTC 2040: Inquiring into Schools, Community and Society I .....	3
LTC 2044: Inquiry into Schools, Community and Society: Field Experience .....	1
SPC ED 4020: Inquiry into Learning II .....	3
LTC 4560: Teaching Reading in the Content Areas ....	2

#### Agricultural economics .....

AG EC 2183: The Agricultural Marketing System .....	3
OR AG EC 3224: New Products Marketing.....	3
OR AG EC 2223: Agricultural Sales.....	3

#### Animal science.....9

AN SCI 2165: Introduction to Ruminant Livestock Production.....	3
AN SCI 2175: Introduction to Monogastric Livestock Production.....	3
AN SCI 2114: Live Animal and Meat Evaluation .....	3
OR Elective.....	3

#### Agronomy .....

PLNT S 2110: Plant Growth and Culture.....	3
OR SOIL 2100: Introduction to Soils.....	3
OR PLNT S 3275: Grain Crops .....	3
OR PLNT S 3270: Forage Crops.....	3

#### Leadership .....

AG ED 2250: Introduction to Leadership.....	3
OR AG ED 2260: Team and Organizational Leadership .....	3

#### Agricultural systems management.....6

AG S M 1020: Introduction to Agricultural Systems Management .....	3
AG ED 3320: Metal Fabrication and Laboratory Management.....	3

#### Horticulture.....6

PLNT S 2075: Environmental Horticulture.....	3
PLNT S 3230: Plant Propagation.....	3

PLNT S 3260: Greenhouse Management.....	4
PLNT S 2220: Floral Design I.....	2
AND PLNT S 3220: Floral Design II.....	2
PLNT S 4365: Greenhouse Crops Production.....	4
<b>Electives</b> .....	<b>18</b>
CAFNR electives.....	15
General Electives .....	3

### Minor in Agricultural Education

The agricultural education minor focuses on learning, teaching and the dissemination of information about agriculture, food and natural resource topics. The minor requires 15 credits of agricultural education course work with a minimum of 6 credits at the 3000 level or above.

## *Division of Applied Social Sciences*

### **Science and Agricultural Journalism Program**

Sharon Wood-Turley, Program Chair  
 112 Gentry Hall  
 (573) 882-7645  
 Fax: (573) 884-4444  
 swt@missouri.edu

#### **Faculty**

**ASSISTANT TEACHING PROFESSOR** W. Allen,  
 S. Wood-Turley  
**INSTRUCTOR** L. Sowers

The College of Agriculture, Food and Natural Resources, in cooperation with the Missouri School of Journalism, offers a degree program in Science and Agricultural Journalism. This curriculum prepares students to communicate about issues related to science and agriculture, including: the food system (including everything from traditional production agriculture to grape and wine production), natural resources, the life sciences, the environment, and medical and agricultural biotechnology.

Graduates are prepared to enter a wide variety of media professions including: public relations, marketing, multimedia/web production, photography, magazine writing, reporting and broadcast.

Students must meet all GPA requirements of the Missouri School of Journalism. Check with your advisor for details. The department offers the Bachelor of Science with a major in Science and Agricultural Journalism.

#### **Major Program Requirements and Options in Science and Agricultural Journalism**

When you major in science and agricultural journalism, you gain access to the strengths of two nationally renowned programs: the Missouri School of Journalism and the MU College of Agriculture, Food and Natural Resources.

The Science and Agricultural Journalism Program provides you with five career tracks to select from:

(Note: Tracks do not appear on transcripts or diplomas.)

- Agricultural Marketing
- Agricultural Science
- Conservation and Environmental Sciences
- Food and Wine
- Science Journalism

In addition, you can focus on one of the following emphasis areas in the Journalism School, or select courses from a combination of:

- Convergence Journalism (a combination of media skills)
- Magazine Journalism
- Photojournalism
- Print and Digital News
- Radio-Television Journalism

- Strategic Communications (Advertising and Public Relations)

All students must complete 42 hours of Journalism coursework, 6 hours of Science and Agricultural Journalism courses, and 18 hours in one of the Science and Agricultural Journalism tracks. In addition, internship experience is strongly encouraged.

**Major core requirements .....66**

**Journalism .....42**

JOURN 1100: Principles of American Journalism.....	3
JOURN 2000: Cross-Cultural Journalism.....	3
JOURN 2100: News.....	3
JOURN 2150: Fundamentals of Multimedia Journalism .....	3
JOURN 4000: Communications Law.....	3
JOURN 4200: Principles of Strategic Communication	3
JOURN 4400: Introduction to News Editing.....	2
JOURN 4406: News Editing.....	3
OR JOURN 4408: Magazine Editing.....	3
JOURN 4450: News Reporting .....	3
Journalism electives.....	16

**Science and Agricultural Journalism.....6**

SCI AG J 1160: Introduction to Science and Agricultural Journalism .....	3
SCI AG J 4970: Agriculture and the Media Senior Seminar Capstone (spring only) .....	3
OR SCI AG J 4414: Field Reporting on the Food System and Environment (capstone).....	3
OR SCI AG J 4940: Internship in Science and Agricultural Journalism (capstone) .....	3

**Science and Agricultural Journalism Tracks.....18**

(Note: Tracks are not listed on transcripts or diplomas.)

**Agricultural Marketing Track**

The Agricultural Marketing Track prepares students for careers in the agribusiness, government and other sectors where the specialized skills of writing, multimedia, marketing and strategic communications are in high demand. This track includes courses within the College of Agriculture, Food and Natural Resources in the Ag Marketing System, Ag Sales, Fundamentals of Entrepreneurship, New Products Marketing, International Food Trade and Policy, Agribusiness Finance and Agribusiness Management Strategy.

**Agricultural Science Track**

The Agricultural Science Track prepares students for careers in the news media, agricultural industry, government and other sectors where an in-depth knowledge of plant, animal and food science is in high demand along with specialized skills in writing, multimedia and other forms of communication. This track includes courses within the college of Agriculture, Food and Natural Resources in Plant Growth and Culture; Genetics of Ag Plants and Animals; Animal Science; Global Animal Agriculture; Food Science and Nutrition; Meat Classification, Grading and Judging; Elements of Food Microbiology; and Principles of Meat Science.

**Conservation and Environmental Sciences Track**

The Conservation and Environmental Sciences Track prepares students for careers writing about the environment, energy, conservation and nature. From climate change, endangered species and clean water to wildlife, forestry and outdoor activities - students in this track will gain an understanding of the complex

issues on these beats and the complex job of communicating about them. This track includes a specialized course in Field Reporting and can include a trip to the annual national meeting of the Society of Environmental Journalists, a non-advocacy group. Other courses within the College of Agriculture, Food and Natural Resources in this track include Introduction to Environmental Science, Ecology and Renewable Resource Management; Introduction to Meteorology; Climates of the World; Soils and the Environment; Environmental Economics and Policy; and Water Quality and Natural Resources Management.

**Food and Wine Track**

Interest in food and wine is growing among consumers and the news media industry. Also, dairy, meat and wine are major industries in Missouri. This track prepares students for journalism and strategic communications careers in this increasingly important sector. The Food and Wine Track includes a specialized course in covering food and wine. Other courses within the College of Agriculture, Food and Natural Resources in this track include Introduction to Food Science, Elements of Food Microbiology, Introduction to Viticulture (grape production) and Enology (wine production), Grapes and Wines of the World, Principles of Wine Production and Principles of Wine Cellar Operation.

**Science Journalism Track**

The Science Journalism Track prepares students for careers covering news and information on the frontiers of science - from biotechnology and nanotechnology to astronomy, climate, geology and the human brain. Students in this track will gain an understanding of the scientific, social, political and economic forces that shape the world of science and technology today, a world that increasingly affects the way we live and learn. This track includes such courses as Explaining Research; Earth Systems and Global Change; Introduction to Meteorology; Physics for Poets; Mind, Brain and Behavior; Science, Technology and Society; and Readings in Science Journalism. This track will enable excellent preparation for students in both journalism and strategic communications.

# Division of Food Systems and Bioengineering

## Agricultural Systems Management Program

Leon G. Schumacher, Chair  
 College of Agriculture, Food and Natural Resources  
 Division of Food Systems and Bioengineering  
 207 Agricultural Engineering Building  
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 ASM@missouri.edu

### Faculty

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**ASSOCIATE PROFESSOR** D. Baker, S. Borgelt,  
 K. Sudduth, A. Thompson  
**ASSISTANT PROFESSOR** B. Broz, B. Koc, T. Lim,  
 J. Zulovich  
**RESEARCH ASSOCIATE** K. Funkenbuch  
**EXTENSION ASSOCIATE** D. Downing  
**PROFESSOR EMERITUS** D. Currence, J. Frisby, B. Hires,  
 J. Hoehne, D. Pfof

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

### Major Program Requirements - Agricultural Systems Management

In addition to university, college and degree requirements, students must complete the following:

<b>Major core requirements</b> .....	<b>31</b>
<b>Required courses</b> .....	<b>9</b>
AG S M 1020: Introduction to Agricultural Systems Management.....	3
AG S M 1040: Physical Principles for Agricultural Applications.....	3
AG S M 4970: Agricultural Systems Management - Capstone .....	3
<b>At least three courses from the following</b> .....	<b>9</b>
AG S M 2220: Agricultural/Industrial Structures.....	3
AG S M 2360: Fluid Power .....	3
AG S M 4020: Agricultural Safety and Health .....	3
AG S M 4220: Material Handling and Conditioning....	3
AG S M 4140: Electricity: Wiring and Equipment.....	3
AG S M 4320: Agricultural Equipment and Machinery	3
<b>At least one course from the following</b> .....	<b>3</b>
AG S M 4420: Surface Water Management.....	3
AG S M 4460: Irrigation and Drainage .....	3

Select from the following to accumulate a minimum of 31 hours:

AG S M 2320: Internal Combustion Power .....	3
AG S M 2340: Pesticide Application Equipment .....	3
AG S M 2345: Chemical Application Systems.....	2-3
AG S M 3350: Problems in Agricultural Systems Management.....	up to 6
AG S M 4150: Biorenewable Systems Technology.....	3
AG S M 4225: Preservation of Grain Quality .....	2
AG S M 4360: Precision Agriculture Science and Technology .....	3
AG S M 1002: Topics in Agricultural Systems Management.....	3
AG S M 1120: Agricultural/Industrial Materials and Processes.....	3
AG S M 4120: Advanced Agricultural/Industrial Materials and Processes .....	2-3
AG S M 4350: Problems in Agricultural Systems Management .....	1-3
AG S M 4940: Agricultural Systems Management Internship .....	2-5
<b>Supporting courses</b> .....	<b>6</b>
PLNT S or SOIL 2100: Introduction to Soils.....	3
OR PLNT S 2110: Plant Growth and Culture.....	3
OR AN SCI 1065: Animal Science Laboratory Practicum.....	2
AFNR 1120: Computing and Information Technology	2
OR AFNR 2120: Working with Data Using Excel ....	1
OR equivalent .....	3
<b>Business/economics (suggested courses)</b> .....	<b>15</b>
ACCTCY 2036: Accounting I (Required).....	3
MANGMT 3000: Principles of Management .....	3
AG EC 2183: The Agricultural Marketing System .....	3
AG EC 3282: Agribusiness Finance	
OR FINANC 1000: Principles of Finance (Recmnd.)	3
AG EC 3256: Agribusiness and Biotechnology Law	
OR AG EC 3257: Rural and Agricultural Law.....	3
AG EC 3260: General Farm Management .....	3
<b>Electives</b> .....	<b>18</b>

In consultation with their advisor, students may select elective courses to bring their total credit hours to the 128 hour minimum. Typically electives are chosen to provide emphasis in one of the following areas:

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

### Agricultural Equipment Dealership Management Program

Students who participate in the Agriculture Equipment Dealership Management program take a comprehensive sequence of courses in agricultural systems management and agricultural business management. Each student plans and completes an internship with a sponsoring dealer. Up to 6 credits may be earned through an Internship.

### Minor in Agricultural Systems Management

15 hours of Agricultural Systems Management coursework. Of the 15 hours, 9 hours must be 3000 level or above.

# Division of Animal Sciences

## Animal Sciences

William R. Lamberson, Director  
College of Agriculture, Food and Natural Resources  
S108 Animal Sciences Center  
(573) 882-1381  
Fax: (573) 882-6827  
<http://animalsciences.missouri.edu>

### Faculty

**CURATORS PROFESSOR** R. S. Prather, R. M. Roberts

J. F. Taylor

**PROFESSOR** J. D. Firman, K. Fritsche, G. W. Jesse,  
R. D. Geisert, D. H. Keisler, M. S. Kerley, W. R. Lamberson,  
D. R. Ledoux, C. Lorenzen, M. C. Lucy, D. J. Patterson,  
R. E. Ricketts, M. F. Smith, J. N. Spain, D. E. Spiers

**ASSOCIATE PROFESSOR** C. Elsik, J. A. Green,

T. J. Safranski, M. C. Shannon, P. Sutovsky, B. Wiegand

**ASSISTANT PROFESSOR** G. Conant, R. Rivera, J. Sexten,  
T. Strauch, M. Waldron, K. Wells

### INSTRUCTOR

M. Crosby, D. J. Kemp

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

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

The department offers BS, MS and PhD degrees with majors in Animal Sciences. A minor is also available.

### Major Program Requirements – Animal Sciences

In addition to University, college and degree requirements, students must complete the following:

<b>Division course requirements.....</b>	<b>51</b>
AN SCI 1011: Animal Science.....	3
AN SCI 1065: Animal Science Laboratory Practicum ..	2
AN SCI 2111: Sophomore Seminar: Societal Issues Facing Animal Agriculture .....	3
AN SCI 2165: Introduction to Ruminant Livestock Production.....	3
AN SCI 2175: Introduction to Monogastric Production.....	3
AN SCI 3254: Physiology of Domestic Animals .....	3
AN SCI 3255: Physiology of Domestic Animals Laboratory .....	2

AN SCI 3212: Principles of Animal Nutrition.....	3
AN SCI 3232: Animal Feeds and Feeding .....	3
AN SCI 3213: Genetics of Agricultural Plants and Animals.....	3
AND AN SCI 4323: Applied Livestock Genetics .....	2
Animal science production systems (select two courses) ....	6
AN SCI 4975: Beef Production and Management .....	3
AN SCI 4976: Dairy Production.....	3
AN SCI 4977: Horse Production.....	3
AN SCI 4978: Swine Production .....	3
AN SCI 4979: Poultry Production.....	3
Animal science products course (select one course).....	3
AN SCI 2114: Live Animal and Meat Evaluation .....	3
AN SCI 3214: Principles of Meat Science.....	3
AN SCI 3231: Principles of Dairy Foods Science.....	3
AN SCI 4354: Physiology and Biochemistry of Muscle as Food.....	3
Animal science senior electives (select from) .....	12
AN SCI 4312: Monogastric Nutrition .....	3
AN SCI 4314: Physiology of Reproduction.....	3
AN SCI 4332: Ruminant Nutrition .....	3
AN SCI 4384: Reproductive Management .....	3
AN SCI 4387: Equine Breeding Management .....	5
Animal Science Production Systems Course(s) (4975, 4976, 4977, 4978, 4979).....	3
Animal Science Products Course (3214, 3231, 4354)....	3
AN SCI 4940: Internship in Animal Science and Technology .....	(maximum of 3 credits)
AFNR 2190: International Agriculture and Natural Resources or approved international study program (maximum of 3 credits)	
Approved undergraduate research (junior or senior status; maximum of 3 credits)	
<b>Electives.....</b>	<b>29-35</b>

### Curriculum Options

(Note: Options are not listed on transcripts or diplomas.) In addition to the general Animal Sciences Curriculum the Division of Animal Science offers four specialized curriculum options which include: Animal Products, Biotechnology, Prevet and Production/Business. These options differ slightly in general education requirements and different substantially in departmental requirements. These specific curriculum requirements are available on the division's website (<http://animalsciences.missouri.edu>)

#### Animal Products Option

This option works very well for the student who wishes to obtain a minor in Food Science.

#### BioTechnology Option

This option applies biological and engineering techniques to the production of animals and animal products. This option should be of interest to students with a sincere interest in research.

#### Prevet Option

This option includes all of the courses required for admission to the College of Veterinary Medicine.

#### Production/Business Option

Students interested in returning to the farm or possibly

managing a farm or pursuing a career in agribusiness will find this option of interest.

### **Departmental Honors Program**

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

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

### **Minor in Animal Sciences**

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

- A minimum of 15 credits in animal sciences
- A minimum of 9 credits in animal sciences courses numbered 3000 or above.
- A maximum of 6 hours of transfer credit will be accepted as less than 3000 level.

Students may select any combination of animal sciences courses excluding problems and internships to meet the above requirements. All students are expected to meet prerequisites of animal sciences courses.

### **Ag Scholars Program**

This program provides early assurance of admission to the MU College of Veterinary Medicine for selected animal science majors on the University of Missouri campus.

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

Students must have demonstrated experience or interest in livestock production and health. Examples of appropriate experience may include participation in a livestock enterprise as either a family member or an employee; enrollment in at least two years of high school agricultural coursework; and participation in FFA, 4H or equivalent organizations with projects directly related to livestock production or health. Students who do not meet the standards of demonstrated experience or interest will be admitted if they agree to complete an internship in the summer between their freshman and sophomore years. This internship must entail at least 250 hours of supervised experience in livestock production or a livestock health enterprise.

For additional information, contact  
Preveterinary Medical Scholars and Ag Scholars Programs  
W-203 Veterinary Medicine Bldg.  
College of Veterinary Medicine  
University of Missouri  
Columbia, Missouri 65211  
(573) 884-6435

### **Equine Minor**

MU students majoring in Animal Sciences can take equestrian

science courses at Stephens College to obtain an Equestrian Science Minor from Stephens College.

### **Captive Wild Animal Management Minor**

Students majoring in Animal Science can obtain a minor in captive wild animal management by taking courses in Animal Science, Natural Resources, and Fisheries & Wildlife that focus on captive wild animals.

### **Agreement with the College of Veterinary Medicine**

The Division of Animal Sciences and the College of Veterinary Medicine have an articulation agreement which enables MU Animal Science majors who are admitted to the College of Veterinary Medicine before completing their B.S. degree to earn a B.S. degree in Animal Sciences during their days as a professional veterinary medicine student. In order to earn a B.S. degree in Animal Sciences the following requirements must be met:

- The student will successfully meet all General Education requirements established by the University of Missouri campus.
- The student will meet any additional college or divisional requirements.
- The student will be required to complete all MU Animal Sciences requirements except for 9 hours of Animal Science Senior electives.
- The student will also be able to substitute up to 20 hours completed in the College of Veterinary Medicine in lieu of general electives in order to complete the total number of student credit hours necessary for a B.S. degree in Animal Sciences.
- The B.S. degree in Animal Science will be granted after successful completion of the first year of Veterinary Medicine.

# Division of Biochemistry

Gerald Hazelbauer, Chair  
 College of Agriculture, Food and Natural Resources  
 117 Schweitzer Hall  
 Phone: (573) 882-4845  
 Fax: (573) 882-5635

## Faculty

**PROFESSOR** S. J. Chen, S. Deutscher, D. Emerich, W. Folk, K. Gates, T. Guilfoyle, M. Hannink, G. Hazelbauer, M. Henzl, D. Lubahn, T. Mawhinney, B. McClure, T. Quinn, L. Randall, R. M. Roberts, F. Schmidt, K. Sharma, G. Stacey, G. Sun, J. Tanner, P. Tipton, R. Tsika, S. Van Doren, W. Volkert, J. Wall, G. Weisman, S. Zhang  
**ASSOCIATE PROFESSOR** L. Beamer, D. Burke, M. Martin, S. Peck, B. Peculis, M. Petris, C. Phillips, J. Thelen, X. Zou  
**ASSISTANT PROFESSOR** P. Cornish, A. Heese, C. Lee, M. Pennella, M. Siegel  
**RESEARCH PROFESSOR** G. Hagen  
**RESEARCH ASSOCIATE PROFESSOR** L. Erb, A. Simonyi  
**RESEARCH ASSISTANT PROFESSOR** B. Mooney, V. Mossine,  
**RESEARCH MOLECULAR BIOLOGIST** J. Miernyk  
**ASSOCIATE TEACHING PROFESSOR** S. Freyermuth  
**ASSISTANT TEACHING PROFESSOR** C. Lee, M. Pennella  
**PROFESSOR EMERITUS** B. Campbell, M. Feather, R. Hillman, R. Morris, E. Moscatelli, J. Polacco, B. O'Dell, B. Ortwerth, V. Peterson, E. Pickett, D. Randall,

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

## Dual Degree Biochemistry-Environmental Sciences Program

The Division of Biochemistry and the Department of Soil, Environmental and Atmospheric Sciences offer a dual BS degree in Biochemistry and in Soil, Environmental and Atmospheric Sciences with an Environmental Science emphasis. For more information, contact Sharon Freyermuth in the Division of Biochemistry or the Department of Soil, Environmental and Atmospheric Sciences (SEAS). In addition to the University general education and the Biochemistry department requirements are the following courses:

<b>Soil, Environmental and Atmospheric Science</b> .....	<b>43</b>
<b>Biological Science</b> .....	<b>14</b>
BIO SC 3650: General Ecology .....	5
OR FOREST 4320: Forest Ecology.....	5
<b>Geology</b> .....	<b>4</b>
GEOL 1100: Principles of Geology with Laboratory... 4	
OR GEOL 1200: Environmental Geology with Laboratory.....	4

<b>Physics</b> .....	<b>10</b>
PHYSCS 2750: University Physics I.....	5
PHYSCS 2760: University Physics II .....	5
<b>Statistics</b> .....	<b>3</b>
STAT 2530: Statistical Methods in Natural Resources .	3
<b>Atmospheric Science/Soil Science</b> .....	<b>8</b>
ATM SC 1050: Introductory Meteorology.....	3
SOIL 2100: Introduction to Soils.....	3
SOIL 2106: Soil Science Laboratory .....	2
<b>Environmental Science Requirements</b> .....	<b>9</b>
ENV SC 1100: Introduction to Environmental Science.....	3
ENV SC 3290*: Soils and the Environment.....	3
ENV SC 4320*: Hydrologic and Water Quality Modeling .....	3
<b>Water Quality and Land Management</b> .....	<b>9</b>
ENV SC 3330*: Environmental Land Use Management .....	3
ENV SC 3500*: Pollutant Fate and Transport .....	3
F W 3400*: Water Quality and Natural Resource Management.....	3
OR FOREST 4390*: Watershed Management and Water Quality.....	3
<b>Capstone Experience</b> .....	<b>9</b>
NAT R 4970: Resource Practicum in Natural Resources.....	3
BIOCHM 4974: Biochemistry Laboratory.....	5
BIOCHM 4970: Senior Seminar in Biochemistry.....	1

\*Advanced Standing Elective Credits

## Major Program Requirements - Biochemistry

In addition to university general education and graduation requirements, the department requires the following courses.

### Major core requirements

<b>Biochemistry</b> .....	<b>20</b>
BIOCHM 1090: Introduction to Biochemistry.....	3
BIOCHM 1094: Introductory Biochemistry Laboratory.....	2
BIOCHM 4270: Biochemistry .....	3
BIOCHM 4272: Biochemistry .....	3
BIOCHM 4300: Physical Chemistry of Biological Systems .....	3
BIOCHM 4974: Biochemistry Laboratory.....	5
BIOCHM 4970: Senior Seminar in Biochemistry.....	1
<b>Biology</b> .....	<b>9</b>
BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
BIO SC 2200: General Genetics .....	4
OR AN SCI 3213/PLNT S 3213: Genetics of Agricultural Plants and Animals .....	3
<b>Chemistry</b> .....	<b>20</b>
CHEM 1310: General Chemistry I .....	2
CHEM 1320: General Chemistry II with Lab .....	3
CHEM 1330: General Chemistry III with Lab.....	3
CHEM 2100: Organic Chemistry I .....	3
CHEM 2110: Organic Chemistry II.....	3
CHEM 2130: Organic Laboratory I.....	2
CHEM 3200: Quantitative Methods of Analysis with Lab .....	4

<b>Mathematics</b> .....	<b>10</b>
MATH 1500: Analytic Geometry and Calculus I .....	5
MATH 1700: Calculus II .....	5
<b>Physics</b> .....	<b>8</b>
PHYSICS 1210: College Physics I .....	4
AND PHYSICS 1220: College Physics II .....	4
<b>Advanced science</b> <b>(biochemistry, biology and chemistry)</b> .....	<b>9</b>

Science courses numbered 2000 or above that are not used to fulfill other requirements; typically chosen from animal science, biochemistry, biology, chemical engineering, food science, chemistry, microbiology, nutrition, pharmacology, physiology or plant science (other courses may be accepted)

## *Division of Food Systems and Bioengineering*

### **Food Science and Nutrition Program**

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 Food Science  
 256 William Stringer Wing  
 (573) 882-6746  
 Fax:(573) 884-7964  
 grueni@missouri.edu  
 (573) 882-4113  
<http://foodscience.missouri.edu>

#### **Faculty**

##### **FOOD SCIENCE AND NUTRITION PROGRAM**

**PROFESSOR** F. H. Hsieh  
**ASSOCIATE PROFESSOR** A. D. Clarke, I. U. Gruen,  
 A. Mustapha  
**ASSISTANT PROFESSOR** M. Li Calzi, M. Lin,  
 J. Perfield, B. Vardhanabhuti

Typical employment areas for graduates of food and hospital-ity systems include quality assurance, quality control, product development, sensory science and flavor chemistry. The food science curriculum meets the standards established by the Institute of Food Technologists. The department offers the Bachelor of Science degree with a major in Food Science and Nutrition within four tracks, namely Food Science, Food Business, Enology and Culinary Sciences. A minor is available. (Note: Tracks do not appear on transcripts or diplomas.)

#### **Major Program Requirements - Food Science and Nutrition**

All requirements listed below are in addition to University and College requirements, including University General Education.

<b>Major Core Requirements</b>	
<b>Biological and Physical Science</b> .....	<b>22</b>
General Chemistry and Laboratory .....	6
<b>Math and Statistics</b> .....	<b>9-12</b>
Calculus .....	3-5
<b>English and Communications</b> .....	<b>9</b>
<b>Social and Behavioral Sciences</b> .....	<b>12</b>
Microeconomics .....	3
Macroeconomics .....	3
Social Science Elective.....	3
State Law Requirement Course.....	3
<b>Core Courses for All Tracks</b> .....	<b>18</b>
F S 1030: Food Science and Nutrition.....	3
AFNR 2115: College to Career: Strategies for Success	1
F S 2172: Elements of Food Microbiology.....	3
F S 4199: Food Industry Senior Seminar.....	1
F S 4310: Food Chemistry and Analysis .....	4
F S 4370: Food Microbiology.....	3
<b>Capstone Courses</b> .....	<b>3</b>
F S 4970: Food Product Development .....	3

F S 4980: Food Quality Assurance ..... 3

## Food Science Track

(Note: Tracks are not listed on transcripts or diplomas.)

### Food Science Track Core Courses .....26

NUTR S 2340: Human Nutrition I..... 3  
F S 3250: Physical Principles for Food Processing ..... 3  
Food Commodity Electives (3 courses)..... 7-10  
F S 4311: Investigation of Food Properties ..... 3  
F S 4315: Food Chemistry and Analysis Laboratory..... 3  
F S 4344: Processing Muscle Foods ..... 3  
OR F S 4331: Technology of Dairy Products  
and Ingredients..... 3  
F S 4375: Food Microbiology Laboratory ..... 2

## Food Business Track

(Note: Tracks do not appear on transcripts or diplomas.)

### Food Business Track Core Courses..... 7-10

Food Electives - 3 courses from the following:

HSP MGMT 1995: Culinary Fundamentals ..... 3  
F S 2114: Live Animal and Meat Evaluation ..... 3  
F S 2131: Dairy Product Evaluation ..... 2  
F S 2195: Grapes and Wines of the World ..... 3  
NUTR S 2340: Human Nutrition I..... 3  
F S 3190: Study Abroad: International Meat, Dairy  
and Enology ..... 3  
F S 3214: Principles of Meat Science..... 3  
F S 3231: Principles of Dairy Foods Science..... 3  
F S 3250: Physical Principles for Food Processing ..... 3  
F S 4311: Investigation of Food Properties ..... 3  
F S 4315: Food Chemistry and Analysis Laboratory..... 3  
F S 4354: Physiology and Biochemistry of Muscle  
as Food ..... 3  
F S 4375: Food Microbiology Laboratory ..... 2  
F S 4390: Optimization and Management of Food  
and Agricultural Systems ..... 3

### Business Courses.....24

ACCTCY 2036: Accounting I ..... 3  
AND ACCTCY 2037: Accounting II..... 3  
AG EC 3282: Agribusiness Finance ..... 3  
AG EC 3260: General Farm Management..... 3  
AG EC 3224: New Products Marketing..... 3  
AG EC 3256: Agribusiness and Biotechnology Law ..... 3  
AG EC Electives ..... 6

## Enology Track

(Note: Tracks are not listed on transcripts or diplomas.)

### Enology Track Core Courses..... 28-33

F S 1010: Introduction to Viticulture and Enology..... 1  
F S 2195: Grapes and Wines of the World ..... 3  
F S 4315: Food Chemistry and Analysis Laboratory..... 3  
F S 4375: Food Microbiology Laboratory ..... 2  
F S 4380: Sensory Analysis of Food and Beverages..... 3  
F S 4440: Principles of Winemaking and Wine  
Chemical Analysis ..... 4  
F S 4441: Cellar Operations and Special Vinifications.. 3  
F S 3240: Principles of Viticulture I..... 4  
F S 4340: Principles of Viticulture II ..... 4  
F S 4941: Internship in Food Science ..... 1-6

## Culinary Science Track

(Note: Tracks are not listed on transcripts or diplomas.)

### Culinary Science Track Core Courses .....35

NUTR S 2340: Human Nutrition I..... 3  
F S 3250: Physical Principles for Food Processing ..... 3  
F S 4380: Sensory Analysis of Food and Beverages..... 3  
F S 3214: Principles of Meat Science..... 3  
OR F S 3231: Principles of Dairy Foods Science..... 3  
F S 4390: Optimization and Management of Food  
and Agricultural Systems ..... 3  
HSP MGMT 1043: Introduction to the Hotel and  
Restaurant Industry..... 3  
HSP MGMT 1133: Hospitality Law ..... 3  
HSP MGMT 1991: Food Service  
Sanitation Management..... 1  
HSP MGMT 1995: Culinary Fundamentals ..... 3  
HSP MGMT 2123: Food Service  
Operational Fundamentals ..... 2  
HSP MGMT 2143: Introduction to Food  
Production and Service Fundamental..... 2  
HSP MGMT 3153: Food Service Operations Mgmt. .. 3  
Internship ..... 3  
**Additional Capstone Course (optional).....5**  
HSP MGMT 4985: Commercial Food Production  
Management..... 5

## Program Requirements for a Minor in Food Science and Nutrition

Food Science Courses (minimum)..... 15

F S 1030: Food Science and Nutrition..... 3

One of the following disciplinary courses:

F S 3250: Physical Principles for Food Processing ..... 3

F S 4310: Food Chemistry and Analysis ..... 4

F S 4370: Food Microbiology..... 3

F S 4380: Sensory Analysis of Food and Beverages..... 3

One of the following capstone courses:

F S 4970: Food Product Development ..... 3

F S 4980: Food Quality Assurance ..... 3

Two other Elective Courses in Food Science ..... 3

9 of the 15 credits need to be fulfilled with 3000-level or higher Food Science courses.

Cross-listed courses can be taken in either the home program or the cross-listed program.

# Division of Food Systems and Bioengineering

## Hospitality Management Program

James L. Groves, Undergraduate Advisor and Program Chair  
Hospitality Management Program  
122 Eckles Hall  
(573) 882-4114  
Fax: (573) 882-0596  
grovesj@missouri.edu  
http://hrm.missouri.edu

### Faculty

#### HOSPITALITY MANAGEMENT PROGRAM

ASSOCIATE PROFESSOR S. Cho, J. Groves

ASSISTANT PROFESSOR D. Kim

ASSISTANT TEACHING PROFESSOR J. Hosmer, L. Jett,  
L. Hatfield

INSTRUCTOR J. Guinn

The curriculum leading to the BS in Hospitality Management educates students for leadership in the global hospitality industry. The program has a food-service facility that houses demonstration kitchens, a multi-purpose dining room that plays host to the student-run Cafe at Eckles Hall, and a weekly fine dining evening experience. The program cooperates with the college in operating the Gathering Place Bed and Breakfast which serves as a training operation for lodging management and conference and event planning management students.

### Major Program Requirements - Hospitality Management

Students selecting a major in Hospitality Management are required to take a wide variety of courses that provide basic knowledge of human understanding, a theoretical knowledge of basic business principles, and an understanding of business principles as applied in the hospitality industry. Students further select an emphasis area which provides them more in-depth knowledge of leadership application in a Hospitality career area. In addition, each student completes a 15 hour block of professional electives which allows them to gain additional expertise.

Students choose an emphasis in *Conference and Event Planning*, *Food and Beverage Management*, *Lodging Management*, or *Sport Venue Management*. In the Conference and Event Planning Management emphasis, students develop knowledge and skills in planning and conducting a large variety of events from wedding, to small business meetings, to routine events that occur on a regular basis, to large one-time events. Students with this emphasis find employment in a variety of businesses, hotels, associations, and private event companies.

Students choosing the Food and Beverage Management emphasis acquire skills and knowledge in managing a variety of food and beverage operations both small and large scale. These students find employment in a variety of restaurants, lodging

food operations, and catering venues. Many students in this area go on to own their own restaurant operations.

Students choosing the Lodging Management emphasis acquire skills and knowledge in managing a variety of lodging operations from mega resorts with thousands of hotel rooms, to small inns or bed and breakfast operations. These students find employment in small, medium, and large lodging operations. Some will go on to own and operate their own Bed and Breakfast operation.

Students choosing the Sport Venue Management emphasis acquire skills and knowledge in managing a variety of conference and events centers that have sports as one of their operations. These students will be qualified to operate large and small venues that cater to sports teams, concerts, and a variety of other functions. This is a good emphasis area for a student who wants to stay connected to the world of sports.

### Major core requirements

In addition to all University, College, and degree requirements students must complete the following:

#### Degree core requirements

Psychology or Sociology .....	3
<b>Business .....</b>	<b>18</b>
Accounting .....	3
Leadership .....	3
Finance .....	3
Management.....	3
Marketing .....	3
Business Elective .....	3

#### Hospitality Management Core .....

<b>HSP MGMT 1043: Introduction to Hospitality Management.....</b>	<b>3</b>
HSP MGMT 1133: Hospitality Law .....	3
HSP MGMT 4191: Seminar in Professional Development.....	1
HSP MGMT 4253: Hospitality Human Resources Management.....	3
HSP MGMT 4273: Hospitality Sales and Marketing Management .....	3
HSP MGMT 4941: Internship in Hospitality Management.....	3

### Emphasis Areas

Students select one of the following emphasis areas:

#### Conference and Event Planning Management .....

<b>HSP MGMT 3153: Food Service Operations Management.....</b>	<b>3</b>
<b>OR HSP MGMT 4353: Hotel Finance Management</b>	<b>3</b>
HSP MGMT 3410: Conference and Meeting Management.....	3
HSP MGMT 3415: Current Issues in Meeting and Event Management.....	1
HSP MGMT 4320: Destination Management.....	3
HSP MGMT 4980: Special Events Management .....	3
Hospitality Professional Electives .....	15

#### Food and Beverage Management.....

<b>HSP MGMT 1991: Food Service Sanitation Management.....</b>	<b>1</b>
HSP MGMT 1995: Culinary Fundamentals.....	3

HSP MGMT 2123: Food Service Operational Fundamentals .....	2
HSP MGMT 2143: Introduction to Food Production and Service Fundamental .....	2
HSP MGMT 3153: Food Service Operations Management.....	3
HSP MGMT 4985: Commercial Food Production Management.....	5
Hospitality Professional Electives .....	15
<b>Lodging Management .....</b>	<b>27</b>
HSP MGMT 3343: Hotel Operations and Management.....	3
HSP MGMT 4343: International Hotel Management	3
HSP MGMT 4353: Hotel Finance Management .....	3
HSP MGMT 4994: Lodging Management Leadership	3
Hospitality Professional Electives .....	15
<b>Sport Venue Management.....</b>	<b>33</b>
HSP MGMT 1505: Fundamentals of Sport Venue Management.....	3
HSP MGMT 2550: Practicum in Sport Venue Management.....	3
HSP MGMT 3510: Guest Service Management: Delivering the Fan Experience.....	3
HSP MGMT 3515: Sport Venue Operation Management.....	3
HSP MGMT 4520: The Business of Sport Venue Management .....	3
HSP MGMT 4525: Sport Venue Design and Risk Management .....	3
Hospitality Professional Electives .....	15

A grade of C- or higher is required for all hospitality core, emphasis area, and professional elective courses.

### Minor in Hospitality Management

A minor in hospitality management may be earned by completing:

#### Minor Course Requirements:

HSP MGMT 1043: Introduction to Hospitality Management .....	3
HSP MGMT 1505: Fundamentals of Sport Venue Management.....	3
HSP MGMT 3153: Food Service Operations Management.....	3
HSP MGMT 3343: Hotel Operations Management....	3
HSP MGMT 3410: Conference and Meeting Management.....	3
A HSP MGMT elective at 3000 or above .....	3

## Agriculture Degree Program

Bryan Garton, Associate Dean, Academic Programs  
Shari Freyeremuth, Assistant Dean, Academic Programs  
Mary Hendrickson, Coordinator of Sustainable Agriculture

Dickinson Student Achievement Center  
2-64 Agriculture Building  
(573) 882-8301  
www.cafnr.missouri.edu

### Faculty

See Listing for Faculty in areas of concentration.

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

Students choose agriculture for a variety of reasons. Some may enter the program with a specific career goal in mind. Others may choose agriculture to obtain a broader education that will give them more flexibility.

### Major Program Requirements – Agriculture

To complete the requirements for the Agriculture degree, students must complete the general requirements for the College of Agriculture, Food and Natural Resources, as well as all University graduation requirements, including University general education requirements. These requirements include courses in communications, natural science and math, social science and humanities and business and economics. (See the general requirements for all BS degrees in College of Agriculture, Food and Natural Resources.)

- Students in agriculture also must complete three areas of concentration from CAFNR programs that offer a major or a minor. The primary concentration area requires completion of 18 or more credits. Two additional concentration areas of at least 15 credits each are also required. (See below.)
- These courses shall not be used to fulfill the requirements of a minor.
- Within each concentration area, at least six credits must be at the 3000-level or above.
- Within each concentration area, at least 50 percent of the credits must be earned on the MU campus.
- Credits used to meet the University general education requirements can be used to meet requirements in concentration areas.
- No more than six credits in the primary area and three credits in the secondary areas may consist of problems, readings, internships, travel courses and other non-structured courses.
- The capstone experience for agriculture majors can be a capstone course in a concentration area, an internship or capstone project. This capstone is in addition to credits in the concentration areas.
- Overall, a minimum of 42 credits must be taken in the College of Agriculture, Food and Natural Resources out of the total of 128 credits needed to satisfy degree requirements. Also, a minimum of 48 credits must be in courses numbered

2000 and above; minimum of 24 of the 48 credits must be in courses numbered 3000 and above.

## Areas of Concentration

In addition to the University's general education requirements and the graduation requirements of the College of Agriculture, Food and Natural Resources, students must complete at least 18 credits in one of the following areas, and at least 15 credits in two additional areas. These include:

- Agricultural Economics
- Agricultural Education
- Agricultural Leadership
- Agricultural Systems Management
- Animal Sciences
- Biochemistry
- Fisheries and Wildlife
- Food Science and Nutrition
- Forestry
- Hospitality Management
- Natural Resources
- Parks, Recreation and Tourism
- Plant Sciences
- Rural Sociology
- Science and Agricultural Journalism
- Soil, Environmental, and Atmospheric Sciences
- Sustainable Agriculture

## Sustainable Agriculture Emphasis Area within Agriculture

CAFNR offers an emphasis area in Sustainable Agriculture as part of its Agriculture degree program. A minimum of 42 credits is required for the emphasis area (major) degree.

### Emphasis Area Core Course Requirements .....18

- BIO SC 1060: Basic Environmental Studies..... 3
- OR SOIL 2100: Introduction to Soils ..... 3
- AFNR 2215: Introduction to the Theory and Practice of Sustainable Agriculture..... 3
- AG EC 3241: Ethical Issues in Agriculture..... 3
- AFNR 4972: Capstone Project in Agriculture, Food, and Natural Resources ..... 3

### Choose 2 courses:

- AN SCI 1011: Animal Science..... 3
- PLNT S 2110: Plant Growth and Culture ..... 3
- NAT R 1060: Ecology and Conservation of Living Resources ..... 3
- NAT R 1070: Ecology and Renewable Resource Management ..... 3

### Secondary Core Course Requirements.....12

- AG EC 2070: Environmental Economics and Policy..... 3
- AFNR 3215: Community Food Systems ..... 3
- AG EC 3260: General Farm Management..... 3
- OR AG EC 3224: New Products Marketing..... 3
- RU SOC 2225: Science, Technology and Society..... 3
- Electives..... 12

### Choose from courses in one of three areas: .....12

#### A. Community Food Systems:

- AG EC 2183: The Agricultural Marketing System ..... 3
- AG EC 3257: Rural and Agricultural Law ..... 3
- AG EC 3271: International Agricultural

- Development..... 3
- AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources ..... 3
- AG ED 2250: Introduction to Leadership..... 3
- AG ED 2260: Team and Organizational Leadership..... 3
- AG ED 4320: Designing Curriculum and Instruction in Agriculture ..... 3
- AG ED 4330: Teaching Agriculture Subjects..... 3
- SCI AG J 3210: Fundamentals of Communications..... 3
- AN SCI 2110: Global Animal Agriculture ..... 2
- FINPLN 2185: Consumer as Entrepreneur ..... 3
- ECONOM 4360/PEA ST 4360: Economic Development..... 3
- GEOG 2660: Environmental Geography..... 3
- NUTR S 4590: Community Nutrition..... 3
- RU SOC 3235: Global Perspectives and Realities..... 3
- RU SOC 4341: Building Communities from the Grassroots ..... 3
- RU SOC 4342: Empowering Communities from the Future..... 3
- RU SOC 4343: Creating Capacity for Dynamic Communities..... 3
- WGST 4230/SOCIOL 4230/BL STU 4230: Women, Development, and Globalization..... 3
- NAT R 4353: Natural Resource Policy/Administration 3

#### B. Production Agriculture:

- AG EC 2183: The Agricultural Marketing Systems..... 3
- AG EC 4962: Planning the Farm Business..... 3
- AG S M 4220: Material Handling and Conditioning... 3
- AG S M 4440: Water Quality and Pollution Control ... 3
- AG S M 4420: Surface Water Management..... 3
- AN SCI 2110: Global Animal Agriculture ..... 2
- AN SCI 2165: Introduction to Ruminant Livestock Production..... 3
- AN SCI 2175: Introduction to Monogastric Production..... 3
- AN SCI 3212: Principles of Animal Nutrition ..... 3
- BIOL EN 3050: Environmental Control for Biological Systems ..... 3
- BIO SC 3710/PLNT S 3710: Introductory Entomology..... 3
- BIO SC 3715/PLNT S 3715: Insect Diversity..... 2
- FOREST 2151: Dendrology ..... 4
- FOREST 3212: Forest Health and Protection..... 4
- FOREST 4385: Agroforestry I: Theory, Practice and Adoption..... 3
- PLNT S 2075: Environmental Horticulture ..... 3
- PLNT S 2110: Plant Growth and Culture..... 3
- PLNT S 3210: Principles of Weed Science..... 4
- PLNT S 3230: Plant Propagation..... 3
- PLNT S 3260: Greenhouse Management..... 4
- PLNT S 3270: Forage Corps ..... 3
- PLNT S 3275: Grain Crops..... 3
- PLNT S 4500: Biology and Pathogenesis of Plant-Associated Microbes ..... 4
- PLNT S 4730: Insect Pest Management for Plant Protection ..... 3
- SOIL 2106: Soil Science Laboratory ..... 2
- SOIL 4308: Soil Conservation ..... 3
- SOIL 4312: Environmental Soil Microbiology ..... 3
- SOIL 4313: Soil Fertility and Plant Nutrition ..... 3

<b>C. Natural Resources:</b>	
AG S M 4440:Water Quality and Pollution Control ....	3
AG S M 4420: Surface Water Management.....	3
BIOL EN 3050: Environmental Control for Biological Systems .....	3
BIOL EN 4150: Soil and Water Conservation Engineering.....	3
BIO SC 3650: General Ecology .....	5
BIO SC 3710 /PLNT S 3710: Introductory Entomology.....	3
BIO SC 3715/PLNT S 3715: Insect Diversity.....	2
F W 3200: Aquaculture.....	3
F W 3400: Water Quality and Natural Resource Management .....	3
F W 3600: Introduction to Conservation Biology .....	3
FOREST 2151: Dendrology .....	4
FOREST 3212: Forest Health and Protection.....	4
FOREST 4385: Agroforestry I: Theory, Practice and Adoption.....	3
FOREST 4390: Watershed Management and Water Quality.....	3
GEOLOG 1200: Environmental Geology with Laboratory	4
GEOLOG 2450: Global Water Cycles .....	3
NAT R 4353: Natural Resources Policy/Administration.....	3
PLNT S 3210: Principles of Weed Science.....	4
SOIL 3290: Soils and the Environment.....	3
SOIL 4308: Soil Conservation .....	3
SOIL 4312: Environmental Soil Microbiology .....	3
SOIL 4313: Soil Fertility and Plant Nutrition .....	3
SOIL 4320: Genesis of Soil Landscapes .....	4

## Division of Plant Sciences

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K. S. Shelby, P. L. Vincent, O. Yu

The Plant Sciences undergraduate major is a joint contribution of the disciplines of Agronomy, Entomology, Horticulture and Plant Microbiology and Pathology. From the manipulation of genes to increasing crop productivity to improving the quality of life by enhancing the landscape, plant science students are engaged in the science and art of working with plants. Educational opportunities in plant science range from basic (genetics, biotechnology and physiology) to applied (crop production and protection, landscape design and turfgrass).

The division offers the BS degree with a major in Plant Sciences. Students in plant science initially receive a broad education in agriculture, the basic sciences and business. Later, they elect to enroll in a specific emphasis area designed to empower them to be competitive in career opportunities in that area. The emphasis areas are a series of interwoven courses in:

- Crop Management
- Horticultural Science and Design
- Breeding, Biology and Technology
- Turfgrass Science

## Major Program Requirements – Plant Sciences

In addition to CAFNR requirements and the university's general education and graduation requirements, the Division of Plant Sciences requires the following courses. The student must also select one emphasis area. Two writing intensive courses are required under university guidelines.

### Major core requirements

<b>Communications</b> .....	<b>9</b>
ENGLSH 1000: Exposition & Argumentation .....	3
COMMUN 1200: Public Speaking.....	3
OR AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources .....	3
One of the following courses .....	3
AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources (if not used above).....	3
SCI AG J 3210: Fundamentals of Communication .....	3
SCI AG J 3240: Communicating on the Web.....	3
COMMUN 3441: Nonverbal Communication.....	3
COMMUN 3572: Argument and Advocacy .....	3
COMMUN 3575: Business and Professional Communication .....	3
COMMUN 3576: Persuasive Speaking .....	3
C S D 1110: Manual Communication I.....	3
THEATR 1400: Acting for Non-Majors .....	3
RU SOC 2225: Science, Technology and Society.....	3
Foreign Language	
ENGLSH 2030: Professional Writing.....	3
ENGLSH 2010: Intermediate Composition .....	3

### Math and Science

MATH 1100: College Algebra .....	3
CHEM 1320: General Chemistry II with Lab .....	3
Any Chemistry or Biochemistry (not CHEM 1100) .....	5
BIO SC 1200: General Botany with Laboratory .....	5
Social and Behavioral Sciences .....	9
Macro & Micro Economics.....	4
AG EC 1041 or ECONOM 1014.....	3
AG EC 1042 or ECONOM 1015 .....	3
State Law requirement (select one of the following)	
HIST 1100, 1200, 1400, 2210, 2440, 4000, 4220,4230 OR POL SC 1100, 2100 .....	3

### Humanistic Studies and/or Fine Arts .....6

Courses may include AG EC 3241, SCI AG J 3210,  
AG ED 2220, RU SOC 1150

For additional course options see General Education List at  
<http://generaleducation.missouri.edu/Courses> eligible must  
include an "HFA" in appropriate column.

### Major field requirements ..... 61-67

<b>Core Courses:</b> .....	<b>(20-21 credits)</b>
PLNT S 2100: Introduction to Soils .....	3

PLNT 2125: Plant Structure and Function.....	3
SOIL 2106: Soil Science Laboratory .....	2
PLNT S 3130: Undergraduate Seminar in Plant Science .....	1
PLNT S 3225: Plant Breeding and Genetics .....	3
OR PLNT S 3230: Plant Propagation .....	3
Professional Skills (select one):	
AG ED 2250: Introduction to Leadership.....	3
AG ED 2260: Team and Organizational Leadership.....	3
COMMUN 3575: Business and Professional Communication .....	3
ENGLSH 2030: Professional Writing.....	3
Or other course approved by Division Advisor	

### Pest Sequence

#### Select two of the following:

PLNT S 4500: Biology and Pathogenesis of Plant-Associated Microbes .....	4
PLNT S 3210: Principles of Weed Science.....	4
PLNT S 3710: Introductory Entomology.....	3
AND PLNT S 3715: Insect Diversity .....	2

#### Emphasis Areas (select 1 from below)

#### Capstone Experience ..... 3-4

Within their last 45 hours, students must complete a capstone experience. This requirement may be met by completing any one of the following:

PLNT S 4940: Internship in Plant Science.....	3
PLNT S 4950: Undergraduate Research in Plant Science .....	3
PLNT S 4975: Advanced Landscape Design.....	4

#### Business and Economics Courses .....12

AG EC 1041: Applied Microeconomics.....	3
AND AG EC 1042: Applied Macroeconomics .....	3
Business Electives.....	6

(Choose from Accountancy, Agricultural Economics,  
Consumer and Family Economics, Finance, Management or  
Marketing)

**Electives:** (the hours necessary to total 128 credits)

## Crop Management Emphasis

The management of food and fiber crops is key to meeting the global demands for food and energy. There are many opportunities to improve plant growth by manipulating production practices and improving control of disease, insect, and weed pests.

### Emphasis Area Requirements..... 16-17

BIO SC 2200: General Genetics .....	4
OR PLNT S 3213: Genetics of Agricultural Plants and Animals .....	3
PLNT S 4313: Soil Fertility and Plant Nutrition .....	3
PLNT S 4315: Crop Physiology.....	3
PLNT S 4500: Biology and Pathogenesis of Plant-Associated Microbes .....	4
PLNT S 4730: Insect Pest Management for Plant Protection.....	3

Emphasis Area Requirements fulfilled by core:

PLNT S 3210: Principles of Weed Science	
PLNT S 3225: Plant Breeding and Genetics	
PLNT S 3710: Introductory Entomology	
PLNT S 3715: Insect Diversity	

### System Options (select two) ..... 6-7

PLNT S 3240: Principles of Viticulture I.....	4
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PLNT S 3270: Forage Crops.....	3
PLNT S 3275: Grain Crops.....	3
<b>Management Options (select two) .....</b>	<b>6-7</b>
PLNT S 4325: Field Crop Breeding .....	3
PLNT S 4340: Principles of Viticulture II .....	4
PLNT S 4360: Precision Agriculture Science and Technology.....	3
<b>Total.....</b>	<b>28-31</b>

### Horticultural Science and Design Emphasis

Trees, flowers and other ornamental plants add beauty to our landscape, preserve green space, and reduce the negative impacts of climate change. Other plants such as vegetables and fruits enhance human health. Career opportunities exist to design landscapes, improve the value and beauty of homes and businesses, as well as commercially grow horticultural crops in greenhouses and other settings.

#### Emphasis Area Requirements.....9

PLNT S 2075: Environmental Horticulture .....	3
PLNT S 2210: Ornamental Woody Plants.....	3
PLNT S 2215: Ornamental Herbaceous Plants.....	3

Emphasis Area Requirements fulfilled by core:

PLNT S 3230: Plant Propagation	
PLNT S 3710: Introductory Entomology	
PLNT S 3715: Insect Diversity	
PLNT S 4500: Biology and Pathogenesis of Plant-Associated Microbes	

#### Select One of the Following Tracks:

(Note: Tracks do not appear on transcripts or diplomas)

#### *Landscape Design & Maintenance Track*..... 20

PLNT S 2002: Topics in Plant Science (see advisor for approved topics).....	4
PLNT S 2254: Landscape Design .....	3
PLNT S 3210: Principles of Weed Science.....	4
PLNT S 3250: Green Industry Bidding.....	1
PLNT S 3355: Introductory Turfgrass Management....	3
PLNT S 3252: Arboriculture and Pruning.....	1
PLNT S 4975: Advanced Landscape Design (capstone)4	

#### *Horticulture Production, Sales & Management Track* ..... 21-22

AG EC 2223: Agricultural Sales .....	3
PLNT S 3250: Green Industry Bidding.....	1
PLNT S 3260: Greenhouse Management.....	4
PLNT S 4365: Greenhouse Crops Production.....	4
PLNT S 4010: Operations Management.....	3
PLNT S 4940: Internship in Plant Science (capstone) .	3
BIO SC 2200: General Genetics .....	4
OR PLNT S 3213: Genetics of Agricultural Plants and Animals .....	3

#### **Total..... 29-31**

### Breeding, Biology and Biotechnology Emphasis

Manipulation of plants at the cellular and genetic level can lead to improvements in crop performance and resistance to pests, as well as increase plant users. Job opportunities from the laboratory to the field are widespread in seed and chemical industries around the world.

#### Emphasis Area Requirements.....18

BIOCHM 3630: General Biochemistry .....	3
CHEM 2100: Organic Chemistry I .....	3
PLNT S 3213: Genetics of Agricultural Plants and Animals.....	3
PLNT S 3275: Grain Crops.....	3

SOIL 4313: Soil Fertility and Plant Nutrition .....	3
STAT 2530: Statistical Methods in Natural Resources .	3

Emphasis Area Requirements fulfilled by core:

PLNT S 3225: Plant Breeding and Genetics	
PLNT S 4500: Biology and Pathogenesis of Plant-Associated Microbes	

#### Select one course from each A, B and C option ... 10-11

<b>A.</b> PLNT S 4400: Plant Anatomy .....	4
OR BIO SC 2300: Introduction to Cell Biology .....	4
<b>B.</b> PLNT S 4315: Crop Physiology .....	3
OR PLNT S 4320: Plant Physiology .....	3
<b>C.</b> PLNT S 4325: Field Crop Breeding .....	3
OR BIO SC 3210: Plant Systematics.....	4
OR BIO SC 4660: Plant Population Biology.....	4
<b>Total.....</b>	<b>28-29</b>

### Turfgrass Science Emphasis

Creation and maintenance of high quality turf areas for sporting activities, home lawns, and utility areas are important. Careers are available to protect turf from pests and optimize growth; integrated strategies emphasize conservation of water and other natural resources.

#### Emphasis Area Requirements..... 22-23

AG S M 2340: Pesticide Application Equipment .....	3
AG S M 4460: Irrigation and Drainage .....	3
PLNT S 3210: Principles of Weed Science.....	4
PLNT S 3355: Introductory Turfgrass Management....	3
PLNT S 4355: Advanced Turfgrass Management.....	3
P R TR 1080: Introduction to Sport Management.....	3
BIO SC 2200: General Genetics .....	4
OR PLNT S 3213: Genetics of Agricultural Plants and Animals .....	3

Emphasis Area Requirements fulfilled by core:

PLNT S 3710: Introductory Entomology	
PLNT S 3715: Insect Diversity	
PLNT S 4500: Biology and Pathogenesis of Plant-Associated Microbes	

#### Ornamental Skills (select one).....3

PLNT S 2210: Ornamental Woody Plants.....	3
PLNT S 2215: Ornamental Herbaceous Plants.....	3

#### Business Skills (select one) ..... 1-3

PLNT S 3250: Green Industry Bidding.....	1
P R TR 2281: The Business of Sport.....	3
P R TR 3185: Sports Economics and Finance .....	3

#### **Total..... 26-29**

## *Division of Applied Social Sciences*

### **Department of Rural Sociology**

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M. Hendrickson  
**EXTENSION ASSISTANT PROFESSOR** J. Adams,  
S. Jeanetta, M. S. Leuci  
**ASSOCIATE PROFESSOR EMERITUS** K. E. Pigg  
**PROFESSOR EMERITUS** R. R. Campbell, M. F. Nolan

The Department of Rural Sociology participates in the agriculture degree offered by the College of Agriculture, Food and Natural Resources and offers a minor in rural sociology. For information about the general agriculture major, see the Department of General Agriculture. The Department of Rural Sociology also offers graduate degrees.

#### **Minor in Rural Sociology**

The rural sociology undergraduate minor requires 15 credits in rural sociology courses. Nine credits must be above the 2000 level. The specific combination of courses must be approved by a department advisor.

## *The School of Natural Resources*

(WITHIN THE COLLEGE OF AGRICULTURE, FOOD AND NATURAL RESOURCES)

Mark R. Ryan, Director  
The School of Natural Resources  
103 Anheuser-Busch Natural Resources Building

Bruce Cutter, Associate Director  
Academic Programs Office  
124 Anheuser-Busch Natural Resources Building

Main Office: (573) 882-6446  
Academic Programs Office: (573) 882-7045  
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### **Degrees Offered**

**Bachelor of Science in Forestry (BSF)** with emphasis areas in  
*Forest Entrepreneurship and Business*  
*Forest Resource Management*  
*Individualized Studies*  
*Urban Forestry*

**Bachelor of Science in Fisheries and Wildlife Sciences (BSFW)**

**Bachelor of Science** with majors in  
Parks, Recreation and Tourism with emphasis areas in  
*Leisure Service Management*  
*Natural Resource Recreation Management*  
*Sport Management*  
*Tourism Development*

Soil, Environmental and Atmospheric Sciences with emphasis areas in  
*Atmospheric Science*  
*Environmental Science*  
*Soil Resource Management*

**Dual Major** Fisheries and Wildlife/Forestry  
**Minors**

Forestry  
Natural Resources  
Soil, Environmental and Atmospheric Sciences  
Captive Animal Management

The School of Natural Resources is Missouri's and the Midwest's only school with a comprehensive natural resources program. It is a division of the College of Agriculture, Food and Natural Resources. It encompasses atmospheric sciences, environmental science, fisheries, forestry, parks, recreation, soils, tourism and wildlife. The school is based on an integrated, scientific approach to natural resources management. It is housed in the Anheuser-Busch Natural Resources Building containing state-of-the-art teaching, research and outreach-extension facilities.

The Department of Forestry was established at MU in 1947 and was elevated to the status of School of Forestry in 1957. The fisheries and wildlife program, which was established in 1937 in the College of Arts and Science, became part of the school in 1973. The Department of Parks, Recreation and Tourism was added in 1988. The School of Natural Resources was formed through a name change in 1989. A Department of

Soils was formed at MU in 1914 and a Department of Atmospheric Science was formed in 1966. Faculties in soil science and atmospheric science joined The School of Natural Resources in 1990 and 1991, respectively, and were merged into the Department of Soil and Atmospheric Sciences in 1992. This name was changed to the Department of Soil, Environmental and Atmospheric Sciences in 2004. With approximately 500 undergraduates and 50 faculty members, the school is noted for excellent education, strong professional orientation, active student organizations and outstanding advising.

## Admissions

In addition to requirements listed below, students admitted to the University of Missouri may enter The School of Natural Resources as freshmen or as transfer students.

### Transfer Students

Previous college work is carefully evaluated by The School of Natural Resources. Courses are readily accepted if they are satisfactory substitutes for required University of Missouri courses. Lists of acceptable substitute courses offered at many other institutions are maintained and are available to prospective transfer students on request.

## Major Program Requirements

Students must meet all emphasis, major, degree, department, college and university graduation requirements, including the university general education requirements. See the appropriate sections of this catalog.

### Academic Assessment

#### Field Assessment

This assessment is required by the Missouri Coordinating Board for Higher Education (CBHE). In The School of Natural Resources, it consists of an unstructured evaluation of each student's competencies based on performance in a capstone course. For students in fisheries and wildlife, forestry, soil research management, environmental soil science, environmental science, and natural resources recreation management in NAT R 4970: Resource Practicum in Natural Resources, interdisciplinary teams develop and defend a comprehensive resource management plan before a panel of The School of Natural Resources professors and several resource management agency professionals. All students in parks, recreation and tourism are assessed during their required internship experience (P R TR 4940: Parks, Recreation and Tourism Internship). Students in atmospheric science are assessed in ATM SC 4990: Daily Analysis and Forecast Interpretation.

#### Capstone Options

Within the last 45 credits, but usually during the senior year, students must take a capstone course or be involved in a capstone project. This project is an academic activity that integrates general knowledge with the specialized knowledge each student has developed in the major area and, when appropriate, the related field (minor). In the atmospheric sciences curriculum, the capstone course is ATM SC 4990: Daily Analysis and Forecast Interpretation (3). Fisheries and wildlife, forestry, and soils curricula utilize NAT R 4970: Resource Practicum in

Natural Resources (3). This course is also taken by most parks, recreation and tourism students in the natural resource recreation management emphasis area, although it does not serve as their formal capstone experience. The parks, recreation and tourism curriculum utilizes P R TR 4940: Parks, Recreation and Tourism Internship (12) as the capstone experience.

### Credits by Examination

A total of 21 credits in CLEP (College Level Entrance Program) is accepted in the following areas: English, mathematics, social sciences and humanities. The school does not accept natural science CLEP credit.

### Dual Degree - BS in Geological Sciences and Soil, Environmental and Atmospheric Sciences

The Department of Soil, Environmental and Atmospheric Sciences and the Department of Geological Sciences offer a dual BS degree program with majors in Geology and Soil and Atmospheric Science with an emphasis in Environmental Soil Science. The dual degree program requires 132 credits for graduation. For more information on the dual degree program, contact an advisor in the department.

### Dual Major - Fisheries and Wildlife/Forestry

In addition to courses that satisfy university general education requirements, students who plan to complete a dual major in fisheries and wildlife/forestry must complete the required fisheries and wildlife sciences, forestry and elective options to reach 140 credits. The dual major does not allow for any general elective hours.

### Minor Program Requirements

Four minors have been developed within The School of Natural Resources to provide students within other academic divisions the opportunity to diversify their educational experiences in natural resources. All minors meet the university criterion for a minor: a minimum of 15 credits of course work. Six credits may be taken in courses numbered below 2000 while the remaining 9 credits must be taken in courses numbered 2000 or above. (Note: While minors appear on transcripts, their related tracks do not appear on transcripts or diplomas.)

### Minor in Soil, Environmental and Atmospheric Sciences

A minor in soil environmental, and atmospheric sciences is offered at the undergraduate level, with separate tracks in atmospheric science, environmental science, and soil science. The atmospheric science track is useful for careers in journalism broadcast meteorology as well as certification required by government agencies.

<b>Atmospheric science track</b> .....	<b>15</b>
ATM SC 1050: Introductory Meteorology.....	3
ATM SC 2720: Weather Briefing.....	1
ATM SC 3600: Climates of the World .....	3
ATM SC or closely related area (advisor recommendation) .....	8
<b>Soil science track</b> .....	<b>15</b>

Selection of courses should be made in consultation with an advisor in the Soil, Environmental and Atmospheric Science

Department. Students with the following majors often choose a minor with the soil science track: forestry, fisheries and wildlife sciences, plant science and geological sciences. A minor with the soil science track also provides assistance in meeting certification as a wastewater specialist.

### **Minor in Forestry**

The forestry minor requires FOREST 2151: Dendrology (4). The student also must select four or five additional upper-division forestry courses from a prearranged list to attain 15 credits.

### **Minor in Natural Resources**

The natural resources minor requires that students select no more than 6 credits from a prearranged list of lower-division courses. The student also must select three additional upper-division courses, totaling at least 9 credits, from any curriculum within The School of Natural Resources.

### **Minor in Captive Animal Management**

Captive wild animal management is an interdisciplinary program that blends course work from two existing major degrees - Animal Sciences and Fisheries and Wildlife - with specialized classes. The minor provides significant professional specialization and prepares you for careers ranging from animal rescue operations to captive breeding of endangered species. Minor requires 18 hours of course work.

## **Student Services**

### **Advising**

Personalized advisement and counseling is available from the school's faculty members. An open-door policy by advisors is emphasized and the school is noted for excellent student/faculty relations. Undergraduate advisement in The School of Natural Resources (SNR) is undertaken by those faculty and staff who advise with the attitude of fostering academic and professional development and success. The faculty members recognize the importance of establishing a trust relationship with students that will extend through their academic years at MU into their careers.

### **Career Placement**

Students in The School of Natural Resources are provided various types of employment assistance through the College of Agriculture, Food and Natural Resources Placement Office (2-64 Agriculture Building). Resource materials on potential employers are available for student use. Instructions regarding federal, state and industrial employment procedures and assistance in the preparation of resumes and applications also are available. Notices of available positions are posted, and interviews are arranged with visiting organizations. Employment assistance also is given to alumni of the school on request.

### **Freshman Interest Groups**

Freshman Interest Groups (FIGs) are sponsored by the school in four areas, atmospheric sciences ("Storm Chasers"), environmental science, natural resources and sport management. A learning community is also sponsored, comprised of members of the two FIGs and other students who live on the same dormitory floor. The FIG experience promotes a sense of community among students that increases the quality of all aspects of university life for incoming students.

### **Transfer Student Interest Groups**

TRIGS, or Transfer Interest Groups, involve activities that are specifically designed to help transfer students make a smooth transition to the MU campus. The School of Natural Resources TRIG is composed of transfer students with common interests and majors. In addition to other activities, members of each TRIG take a 1 credit hour proseminar together during their first semester at MU. You do not need to live on campus to participate in a TRIG program. TRIGs are only open to transfer students who have completed 24 or more hours at their previous institution. There is no additional cost for participating in a TRIG, and they are a great way to get to know campus and meet other students who are also making the same transition. TRIGs are available only for students planning to start at MU in the fall term.

# Department of Fisheries and Wildlife Sciences

J. R. Jones  
 School of Natural Resources  
 302 Anheuser-Busch Natural Resources Building  
 (573) 882-3543

## Faculty

**PROFESSOR** M. E. Gompper, J. R. Jones, J. J. Millspaugh,  
 C. H. Nilon, M. R. Ryan, J. Faaborg  
**ASSOCIATE PROFESSOR** R. S. Hayward, D. B. Noltie  
**ASSISTANT PROFESSOR** D. Kesler  
**EXTENSION ASSISTANT PROFESSOR** R. A. Pierce II

The fisheries and wildlife sciences degree is based on a common foundation of biological sciences, ecology, conservation, communication, analytical, social science, humanities and professional courses that provide students with a basic liberal education as well as prerequisites for additional professional courses.

Most students take courses that prepare them for entry-level, technical positions in fisheries, wildlife or water quality management with local, state or federal agencies. Such training usually involves taking courses that meet the standards set by The Wildlife Society or the American Fisheries Society to become certified, professional wildlife or fisheries biologists. Other students may complete a program that emphasizes more advanced study and prepares them for careers in resource management, research or administration.

The department offers BSW, MS and PhD degrees with majors in Fisheries and Wildlife Sciences.

## Major Program Requirements - Fisheries and Wildlife

In addition to courses that satisfy General Education requirements, students earning a BS in Fisheries and Wildlife Sciences must complete required F&W courses and elective options to reach 125 credits. **Students must earn C- or better in all courses applied to degree.**

### Major core requirements

#### Science core:

CHEM 1310: General Chemistry I .....	2
CHEM 1320: General Chemistry II with Lab .....	3
Earth Science (choose one) .....	4-5
GEO 1100: Principles of Geology with Laboratory... ..	4
SOIL 2100: Introduction to Soils.....	3
AND SOIL 2106: Soil Science Laboratory.....	2
Physics (choose one).....	3-4
PHYS 1210: College Physics I.....	4
ATM SC 1050: Introductory Meteorology.....	3
General Biology.....	5
BIO SC 1200: General Botany with Laboratory .....	5
F W 1100: Introductory Zoology with Laboratory.....	5
OR BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
BIO SC 3650: General Ecology .....	5

Animal Form/Function course (choose one).....	4-5
MPP 3202: Elements of Physiology.....	5
AN SCI 3254: Physiology of Domestic Animals.....	3
AND AN SCI 3255: Physiology of Domestic Animals Laboratory.....	2
BIO SC 3700: Animal Physiology .....	5
BIO SC 2300: Introduction to Cell Biology.....	4
Genetics (choose one) .....	3-4
F W 2500: Introduction to Genetics and Evolution for Conservation .....	3
BIO SC 2200: General Genetics .....	4
AN SCI 3213: Genetics of Agricultural Plants and Animals.....	3
<b>Math Sequence</b>	
MATH 1100: College Algebra .....	3
MATH 1400: Calculus for Social and Life Sciences I.....	3
STAT 2530: Statistical Methods in Natural Resources.....	3
<b>Professional Core</b>	
NAT R 1070: Ecology and Renewable Resource Management.....	3
F W 2100: Colloquium in Fisheries and Wildlife.....	1
Public Speaking (choose one) .....	3
AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources .....	3
P R TR 3231: Principles of Interpretive Outdoor Recreation.....	3
Plant Taxonomy (choose one).....	4
BIO SC 3210: Plant Systematics .....	4
FOREST 2151: Dendrology .....	4
Law/Policy.....	3
NAT R 4353: Natural Resource Policy/Administration.....	3
NAT R 3110: Natural Resource Biometrics .....	3
F W 3600: Introduction to Conservation Biology.....	3
F W 4500: Animal Population Dynamics and Management.....	3
NAT R 4970: Resource Practicum in Natural Resources ..	3

**Professional Track Course** (choose 7 courses, minimum 24 hours, with at least two courses from each track. Note: tracks do not appear on transcript)

**Terrestrial Track** (choose 2 from Terr A; 2 from Terr B; any 2 from Aquatic Track; and any one other Professional Track course)

<b>A. Science and Natural History</b>	
F W 2600: Ornithology .....	4
F W 3660: Mammalogy .....	4
<u>Not more than one from this group:</u>	
BIO SC 3260: Invertebrate Zoology.....	4
BIO SC 3360: Herpetology .....	4
BIO SC 3710: Introductory Entomology .....	3
AND BIO SC 3715: Insect Diversity.....	2
<b>B. Management and Applications</b>	
F W 2900: Principles of Wildlife Management.....	4
F W 4220: Human Dimensions of Fish and Wildlife Conservation.....	3
F W 4600: Ecosystem Management.....	4

**Aquatic Track** (choose 2 from Aquatic A; 2 from Aquatic B; any 2 from Terrestrial Track; and any one other Professional

Track course)

A. Science and Natural History

F W 2700: Ichthyology ..... 4

F W 4100: Limnology ..... 3-4

Not more than one from this group:

BIO SC 3260: Invertebrate Zoology ..... 4

BIO SC 3360: Herpetology ..... 4

BIO SC 3710: Introductory Entomology ..... 3

AND BIO SC 3715: Insect Diversity..... 2

B. Management and Applications

F W 3400: Water Quality and Natural Resource Management..... 3

F W 3900: Ecology of Fishes ..... 3

F W 4220: Human Dimensions of Fish and Wildlife Conservation..... 3

F W 4300: Fisheries Management ..... 3

F W 4400: Techniques for Fisheries Management and Conservation ..... 3

**Disciplinary Electives** - can be used as seventh Professional Track course. Choose from a list of approved courses.

**Dual Major Requirements - Fisheries and Wildlife/Forestry**

In addition to courses that satisfy General Education requirements, students who plan to complete a Dual Major in Fisheries & Wildlife and Forestry must complete the required F&W, Forestry and elective options to reach 140 credits (this total does not allow any general elective hours).

**Major Core Requirements**

**Science Core**

CHEM 1310: General Chemistry I..... 2

CHEM 1320: General Chemistry II with Lab ..... 3

Physics (choose one)

PHYSICS 1210: College Physics I..... 4

ATM SC 1050: Introductory Meteorology..... 3

GEOL 1100: Principles of Geology with Laboratory..... 4

SOIL 2100: Introduction to Soils..... 3

SOIL 2106: Soil Science Laboratory..... 2

General Biology..... 5

BIO SC 1200: General Botany with Laboratory ..... 5

F W 1100: Introductory Zoology with Laboratory..... 5

OR BIO SC 1500: Introduction to Biological Systems with Laboratory ..... 5

Ecology (choose one) ..... 5

BIO SC 3650: General Ecology ..... 5

FOREST 4320: Forest Ecology\* ..... 5

Animal Form/Function course (choose one)..... 4-5

MPP 3202: Elements of Physiology..... 5

AN SCI 3254: Physiology of Domestic Animals ..... 3

AND AN SCI 3255: Physiology of Domestic Animals Laboratory..... 2

BIO SC 3700: Animal Physiology ..... 5

BIO SC 2300: Introduction to Cell Biology..... 4

Genetics (choose one) ..... 3-4

F W 2500: Introduction to Genetics and Evolution for Conservation ..... 3

BIO SC 2200: General Genetics ..... 4

AN SCI 3213: Genetics of Agricultural Plants and Animals..... 3

**Math Sequence**

MATH 1100: College Algebra ..... 3

MATH 1400: Calculus for Social and Life Sciences I... 3

STAT 2530: Statistical Methods in Natural Resources . 3

**Professional Core**

NAT R 1070: Ecology and Renewable Resource Management ..... 3

F W 2100: Colloquium in Fisheries and Wildlife ..... 1

Public Speaking (choose one) ..... 3

AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources ..... 3

P R TR 3231: Principles of Interpretive Outdoor Recreation ..... 3

Plant Taxonomy..... 4

FOREST 2151: Dendrology ..... 4

Law/Policy ..... 3

NAT R 4353: Natural Resource Policy/Administration..... 3

NAT R 3110: Natural Resource Biometrics ..... 3

Water Quality (choose one)..... 3

F W 3400: Water Quality and Natural Resource Management..... 3

FOREST 4390: Watershed Management and Water Quality..... 3

F W 3600: Introduction to Conservation Biology..... 3

FOREST 4330: Practice of Silviculture..... 3

F W 4500: Animal Population Dynamics and Management..... 3

NAT R 4970: Resource Practicum in Natural Resources .. 3

**Summer Field Studies** (must be taken concurrently)..... 6

FOREST 2540: Forest Hydrology Field Studies ..... 1

FOREST 2541: Forest Utilization..... 1

FOREST 2542: Forest Measurement and Inventory.... 1

FOREST 2543: Forest Ecology Field Studies..... 1

FOREST 2544: Introduction to Silviculture and Management..... 1

FOREST 2545: Forest Management Planning ..... 1

**Professional Track Courses** (Minimum of 10 courses AND 32 hours required)

**Fisheries and Wildlife Core - 5 courses minimum**

A. Science and Natural History (must take at least 1 Terrestrial and 1 Aquatic. Only 1 outside F W)

F W 2600: Ornithology ..... 4

F W 2700: Ichthyology ..... 4

F W 3660: Mammalogy ..... 4

F W 4100: Limnology ..... 3-4

BIO SC 3360: Herpetology ..... 4

BIO SC 3710: Introductory Entomology ..... 3

AND BIO SC 3715: Insect Diversity..... 2

B. Management - (must take at least 1 Terrestrial and 1 Aquatic

F W 2900: Principles of Wildlife Management..... 4

F W 3900: Ecology of Fishes ..... 3

F W 4300: Fisheries Management ..... 3

F W 4220: Human Dimensions of Fish and Wildlife Conservation..... 3

F W 4400: Techniques for Fisheries Management and Conservation ..... 3

F W 4600: Ecosystem Management..... 4

C. Specialty Courses (5th course can come from this list or from A or B)

F W 4220: Human Dimensions of Fish and Wildlife

Conservation .....	3
F W 3200: Aquaculture.....	3
F W 4200: Urban Wildlife Conservation.....	3
F W 4880: Waterfowl Ecology and Management .....	3
International Studies or Study Abroad [approved FW Proposal required].....	1-8

**Forest Core - 5 courses minimum**

A. Science (must take at least 2; cannot duplicate courses from Professional Core III)

FOREST 3212: Forest Health and Protection.....	4
FOREST 4320: Forest Ecology*.....	5
FOREST 4340: Tree Physiology.....	3
FOREST 4390: Watershed Management and Water Quality.....	3

B. Management - (must take at least 2)

FOREST 3207: Forest Fire Control and Use .....	2
FOREST 4350: Forest Economics* .....	3
FOREST 4360: Photogrammetry, Inventory and Models .....	3
FOREST 4380: Forest Resource Management.....	3
NAT R 4325: Introduction to Geographic Information Systems.....	3

C. Specialty Courses (5th course can come from this list or from A or B)

FOREST 3240: Wood Technology .....	3
FOREST 3290: Urban Forestry.....	2
FOREST 4365: Logging Systems: Operations and Analyses .....	3
FOREST 4370: Wildland Fire Management .....	3
FOREST 4385: Agroforestry I: Theory, Practice and Adoption.....	3

The following courses collectively meet the requirements for the SAF accredited Forest Resource Management curriculum: FOREST 3207, FOREST 3212, FOREST 3240, FOREST 4320, FOREST 4340, FOREST 4350, FOREST 4360, FOREST 4380, FOREST 4390.

\*Required as a minimum for Forestry Certification if the accredited curriculum has not been completed.

## Department of Forestry

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### Faculty

**PROFESSOR** H. S. He, S. Jose, D. R. Larsen, R. M. Muzika,  
S. G. Pallardy  
**ASSOCIATE PROFESSOR** J. P. Dwyer, H. E. Stelzer  
**ASSISTANT PROFESSOR** F. X. Aguilar, J. A. Hubbard  
**RESEARCH PROFESSOR** M. A. Gold, R. P. Guyette  
**RESEARCH ASSISTANT PROFESSOR** M. V. Coggeshall,  
C. H. Lin, M. C. Stambaugh

The forestry undergraduate major is based on a foundation of communication, analytical science, humanities and professional courses that provides students with prerequisites for additional professional courses as well as a basic liberal education. Four emphasis areas are offered: forest resource management, urban forestry, industrial forestry management and individualized studies.

The department offers BSF, MS and PhD degrees with majors in Forestry. A minor is also available.

### Major Program Requirements - Forestry (BSF)

The forestry major requires the successful completion of 125 credits. In addition to the University graduation requirements, including general education, students must meet college and school as well as department and major requirements.

**Major core requirements.....12**

(May also fill University general education requirements)  
MATH 1400: Calculus for Social and Life Sciences I... 3  
CHEM 1100: Atoms and Molecules with Lab ..... 3  
BIOCHM 2110: The Living World: Molecular Scale .. 3  
AG EC 1041: Applied Microeconomics  
OR AG EC 1042: Applied Macroeconomics  
OR AG EC 2070: Environmental  
Economics and Policy..... 3

**Major core science ..... 15-18**

BIO SC 1200: General Botany with Laboratory ..... 5  
OR PLNT S 2110: Plant Growth and Culture..... 3  
GEOL 1100: Principles of Geology with Laboratory  
OR GEOL 1200: Environmental Geology  
with Laboratory..... 4  
SOIL 2100: Introduction to Soils..... 3  
AND SOIL 2106: Soil Science Laboratory ..... 2  
PHYS CS 1210: College Physics I..... 4  
OR ATM SC 1050: Introductory Meteorology..... 3

**Major core professional .....35**

NAT R 1070: Ecology and Renewable  
Resource Management ..... 3  
STAT 2530: Statistical Methods in Natural Resources 3  
NAT R 3110: Natural Resource Biometrics ..... 3  
NAT R 3290: Hydrologic Measurement Techniques.... 1

NAT R 4353: Natural Resource Policy/Administration.....	3
NAT R 4970: Resource Practicum in Natural Resources.....	3
FOREST 2151: Dendrology .....	4
FOREST 4320: Forest Ecology .....	5
FOREST 4330: Practice of Silviculture.....	3
NAT R 4325: Introduction to Geographic Information Systems .....	3
FOREST 4390: Watershed Management and Water Quality.....	3
P R TR 3231: Principles of Interpretive Outdoor Recreation .....	3
<b>Major core summer field studies.....</b>	<b>5</b>
FOREST 2541: Forest Utilization.....	1
FOREST 2542: Forest Measurement and Inventory....	1
FOREST 2543: Forest Ecology Field Studies.....	1
FOREST 2544: Introduction to Silviculture and Management.....	1
FOREST 2545: Forest Management Planning .....	1

### Forestry Field Studies

Students enrolled in forestry are required to attend a specialized, five-week, summer field session in southeast Missouri. This session includes courses for 5 credits and is recommended between the sophomore and junior years.

### Honors

Students who graduate with the following cumulative GPA values are awarded BSF degrees with Latin honors:

3.50-3.69	cum laude
3.70-3.89	magna cum laude
≥3.90	summa cum laude

### Emphasis Areas

Four emphasis areas are offered within the BSF degree program. Three of these areas (*forest resource management, urban forestry, and forest entrepreneurship and business*) represent areas of specialization within the forestry profession. The *individualized studies* emphasis area allows students to specialize in an allied area under the direction of a faculty committee.

#### Emphasis in Forest Resource Management

The goal of the forest resource management emphasis area is to prepare students to deal with the ever-changing complexities of multiple-use resource management. Emphasis is on the applications of forest management to provide commodities and amenities in a sustainable fashion.

Graduates are qualified to develop and execute management plans in an environmentally safe, cost-efficient and effective manner at both the stand and the forest level. Graduates are prepared to enter the workforce in either the public or the private sector. Courses listed are in addition to university, college, department and forestry major requirements.

<b>Emphasis core requirements .....</b>	<b>25+</b>
FOREST 3212: Forest Health and Protection.....	4
FOREST 3207: Forest Fire Control and Use .....	2
FOREST 3240: Wood Technology .....	3
FOREST 4340: Tree Physiology .....	3
FOREST 4360: Photogrammetry, Inventory	

and Models .....	3
FOREST 4380: Forest Resource Management .....	3
FOREST 4350: Forest Economics .....	3
F W 4600: Ecosystem Management.....	4
<b>Undesignated electives to total 125 hours</b>	

#### Emphasis in Urban Forestry

Urban forestry seeks the maintenance of vigorous and aesthetic tree systems that enhance urban and suburban environments. The responsibility of the urban forester is to establish, develop and administer tree management systems for metropolitan areas and other population centers.

Students in urban forestry learn communications and public relations skills as well as mid-level management procedures that prepare them to organize, staff, finance, plan and supervise urban forestry programs. Courses in management, administrative strategies and scientific foundations are incorporated into the urban forestry curriculum. Courses listed are in addition to University, college, department and forestry major requirements.

<b>Emphasis core requirements .....</b>	<b>25+</b>
FOREST 3212: Forest Health and Protection .....	4
FOREST 3290: Urban Forestry .....	2
FOREST 4340: Tree Physiology .....	3
PLNT S 2210: Ornamental Woody Plants .....	3
PLNT S 3230: Plant Propagation .....	3
PLNT S 2254: Landscape Design .....	3
PLNT S 4350: Nursery Crop Production and Management .....	4

#### Undesignated electives to total 125 hours

#### Emphasis in Individualized Studies in Forestry

This emphasis area allows students with interests in both forestry and an allied field to obtain a degree in forestry combined with a customized specialization in a field of interest. The allied field can be wildlife biology and management, ecology, environmental science, environmental studies, interpretation of natural resources, environmental law, soils or others.

The individualized study program requires completion of 27 credits to be determined by the student and a three-member faculty committee, two of whom must be forestry faculty. Courses listed are in addition to university, college, department and forestry major requirements.

<b>Emphasis core requirements .....</b>	<b>27+</b>
Individualized study program .....	27+

#### Undesignated electives to total 125 hours

#### Dual Major - Forestry/Fisheries and Wildlife

In addition to courses that satisfy university general education requirements, students who plan to complete a dual major in fisheries and wildlife/forestry must complete the required fisheries and wildlife sciences, forestry, and elective options to reach 140 credits. The dual major does not allow for any general elective hours.

#### Major Core Requirements Science Core

CHEM 1310: General Chemistry I .....	2
CHEM 1320: General Chemistry II with Lab .....	3

Physics (choose one)	
PHYSICS 1210: College Physics I.....	4
ATM SC 1050: Introductory Meteorology.....	3
GEO 1100: Principles of Geology with Laboratory...	4
SOIL 2100: Introduction to Soils.....	3
SOIL 2106: Soil Science Laboratory .....	2
BIO SC 1200: General Botany with Laboratory .....	5
General Biology.....	5
F W 1100: Introductory Zoology with Laboratory.....	5
BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
Ecology (choose one) .....	5
BIO SC 3650: General Ecology .....	5
FOREST 4320: Forest Ecology*.....	5
Animal Form/Function course (choose one).....	4-5
MPP 3202: Elements of Physiology.....	5
AN SCI 3254: Physiology of Domestic Animals .....	3
AND AN SCI 3255: Physiology of Domestic Animals Laboratory .....	2
BIO SC 3700: Animal Physiology .....	5
BIO SC 2300: Introduction to Cell Biology.....	4
Genetics (choose one) .....	3-4
F W 2500: Introduction to Genetics and Evolution for Conservation .....	3
BIO SC 2200: General Genetics .....	4
AN SCI 3213: Genetics of Agricultural Plants and Animals.....	3

**Math Sequence**

MATH 1100: College Algebra .....	3
MATH 1400: Calculus for Social and Life Sciences I...	3
STAT 2530: Statistical Methods in Natural Resources.	3

**Professional Core**

NAT R 1070: Ecology and Renewable Resource Management .....	3
F W 2100: Colloquium in Fisheries and Wildlife .....	1
FOREST 2151: Dendrology .....	4
Public Speaking (choose one).....	3
AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources .....	3
P R TR 3231: Principles of Interpretive Outdoor Recreation .....	3
Law/Policy (choose one).....	3
AG EC 2156: Introduction to Environmental Law.....	3
AG EC 3257: Rural and Agricultural Law.....	3
NAT R 4353: Natural Resource Policy/Administration.....	3
Water Quality (choose one).....	3
F W 3400: Water Quality and Natural Resource Management.....	3
FOREST 4390: Watershed Management and Water Quality.....	3
F W 3600: Introduction to Conservation Biology .....	3
FOREST 4330: Practice of Silviculture.....	3
F W 4500: Animal Population Dynamics and Management.....	3
NAT R 3110: Natural Biometrics Biometrics.....	3
NAT R 3290: Hydrologic Measurement Techniques....	1
NAT R 4970: Resource Practicum in Natural Resources* .....	3

<b>Summer Field Studies</b> (must be taken concurrently).....	5
FOREST 2541: Forest Utilization.....	1
FOREST 2542: Forest Measurement and Inventory....	1
FOREST 2543: Forest Ecology Field Studies.....	1
FOREST 2544: Introduction to Silviculture and Management.....	1
FOREST 2545: Forest Management Planning .....	1

**Professional Track Courses** (Minimum of 10 courses AND 32 hours required)

**Fisheries and Wildlife Core - 5 courses minimum**

A. Science and Natural History (must take at least 1 Terrestrial and 1 Aquatic. Only 1 outside F W)

F W 2600: Ornithology .....	4
F W 2700: Ichthyology .....	4
F W 3660: Mammalogy .....	4
F W 4100: Limnology .....	3-4
BIO SC 3360: Herpetology .....	4
BIO SC 3710: Introductory Entomology .....	3
AND BIO SC 3715: Insect Diversity.....	2

B. Management - (must take at least 1 Terrestrial and 1 Aquatic

F W 3900: Ecology of Fishes .....	3
F W 4300: Fisheries Management .....	3
F W 4400: Techniques for Fisheries Management and Conservation .....	3
F W 4600: Ecosystem Management.....	4
F W 4700: Wildlife Research and Management Techniques.....	4

C. Specialty Courses (5th course can come from this list or from A or B)

F W 3200: Aquaculture.....	3
F W 4200: Urban Wildlife Conservation.....	3
F W 4220: Human Dimensions of Fish and Wildlife Conservation.....	3
International Studies or Study Abroad [approved F W Proposal required] .....	1-8

**Forest Core - 5 courses minimum**

A. Science (must take at least 2; cannot duplicate courses from Professional Core III)

FOREST 3212: Forest Health and Protection.....	4
FOREST 4320: Forest Ecology*.....	5
FOREST 4340: Tree Physiology.....	3
FOREST 4390: Watershed Management and Water Quality.....	3

B. Management - (must take at least 2)

FOREST 3207: Forest Fire Control and Use.....	2
FOREST 4350: Forest Economics* .....	3
FOREST 4360: Photogrammetry, Inventory and Models.....	3
FOREST 4380: Forest Resource Management.....	3
NAT R 4325: Introduction to Geographic Information Systems.....	3

C. Specialty Courses (5th course can come from this list or from A or B)

FOREST 3240: Wood Technology .....	3
FOREST 3290: Urban Forestry.....	2
FOREST 4365: Logging Systems: Operations and Analyses .....	3
FOREST 4370: Wildland Fire Management .....	3
FOREST 4385: Agroforestry I: Theory, Practice and Adoption.....	3

The following courses collectively meet the requirements for the SAF accredited Forest Resource Management curriculum: FOREST 3207, FOREST 3212, FOREST 3240, FOREST 4320, FOREST 4340, FOREST 4350, FOREST 4360, FOREST 4380, FOREST 4390.

\*Required as a minimum for Forestry Certification if the accredited curriculum has not been completed.

### Minor in Forestry

A minor in forestry requires 15 credits in the forestry major (forestry requirements and emphasis areas).

## Department of Parks, Recreation and Tourism

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 105 Anheuser-Busch Natural Resources Building  
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 Vaughtdr@missouri.edu  
<http://snr.missouri.edu/PRT/academics/parks-rec-tour.php>

### Faculty

**ASSOCIATE PROFESSOR** G. L. Hitzhusen, J. M. Morgan

**ASSISTANT PROFESSOR** C. Barbieri, T. D. Hack,  
 J. R. Upah, N. M. Watanabe, S. A. Wilhelm Stanis,  
 D. R. Vaught

**ADJUNCT PROFESSOR** D. Eiken

**INSTRUCTOR** T. Balthazor, M. Griggs

The Department of Parks, Recreation and Tourism is among the oldest nationally accredited programs in the United States. Emphasis areas include: leisure service management, natural resource recreation management, sport management and tourism development. The department integrates classroom learning with applied research and internship experiences and is a leader in technology infusion.

All students are required to complete an internship placement, normally taken during the last year of study and after completing all core courses. The semester-long internship is with an on or off-campus agency or organization chosen by the student and faculty. Regional, national and international internship placements are possible. Students may receive direct financial assistance from the agency or organization during the internship.

The department offers BS and MS degrees with majors in Parks, Recreation and Tourism.

### Admission

It is possible for students who have a broad, liberal education to transfer into the department without a significant time penalty toward graduation. CLEP credits are accepted and evaluated on an individual basis. Minimum GPA of 2.00 required.

### Major Program Requirements - Parks, Recreation and Tourism

Satisfactory completion of 133 credits is required: a minimum of 121 credits in course work and a 12-credit internship with a cumulative GPA of 2.0. Professional preparation includes course work in a professional core, professional option requirements and electives, and an internship. Students must also complete all degree, department, college and university graduation requirements, including university general education.

**Major core requirements (minimum grade of C- in core)**

<b>Mathematics</b> .....	<b>9</b>
College Algebra .....	3
Accounting.....	3
Statistics .....	3

**Social and behavioral science..... 18**

Include approved courses in each of the following areas:

Economics .....	3
Marketing .....	3
History/political science (must satisfy the state requirement for history) .....	3
Social science.....	3
Behavioral science .....	3
Human growth and development.....	4
General electives .....	10-13
<b>Professional core (required for all options) .....</b>	<b>21</b>
P R TR 1010: Introduction to Leisure Studies.....	3
OR P R TR 1080: Introduction to Sport Management.....	3
P R TR 1011: Academic Planning & Career Orientation in Parks, Recreation & Tourism.....	1
P R TR 1081: Sport Facility Design .....	1
AND P R TR 2082: Domestic and International Sports Environment .....	1
AND P R TR 2083: Technological Advancement in Sport.....	1
P R TR 2111: Introduction to Planning and Evaluating Leisure Environments.....	3
P R TR 3210: Personnel Management and Leadership in Leisure Services.....	3
P R TR 3215: Program Development in Leisure Services.....	3
P R TR 3220: Introduction to Recreation for Individuals with Disabilities .....	2
P R TR 4208: Administration of Leisure Services.....	3
P R TR 4333: Park Management.....	3
<b>Professional emphasis requirements .....</b>	<b>9-12</b>
<i>Leisure Service Management emphasis</i> .....	6
P R TR 4355: Private and Commercial Recreation Principles and Practice .....	3
Select one from nine available courses .....	3
P R TR 2107: Aquatics Science .....	3
<i>Natural Resources Recreation Management emphasis</i> .....	9
P R TR 3230: Introduction to Parks and Outdoor Recreation Services.....	3
P R TR 3231: Principles of Interpretive Outdoor Recreation .....	3
P R TR 4340: Advanced Recreation Land Management.....	3
<i>Tourism Development emphasis</i> .....	9
P R TR 4355: Private and Commercial Recreation Principles and Practice .....	3
P R TR 4356: Tourism Management .....	3
P R TR 4357: Tourism Planning and Development.....	3
<i>Sport Management emphasis</i> .....	12
P R TR 2281: The Business of Sport.....	3
P R TR 3185: Sports Economics and Finance .....	3
P R TR 3282: Governance and Policy in Sport and Leisure.....	3
P R TR 4385: Legal Aspects of Sport .....	3
<b>Internship .....</b>	<b>13</b>
P R TR 3189: Pre-internship Seminar in Parks, Recreation and Tourism.....	1
P R TR 4940: Parks, Recreation and Tourism Internship.....	12
<b>Professional option electives.....</b>	<b>18-21</b>
Advisor-approved courses specific to the student's selected aca- demic option	

## Honors

Students who graduate with the following cumulative GPA values are awarded the baccalaureate degree accordingly:

3.50-3.69	cum laude
3.70-3.89	magna cum laude
3.90 +	summa cum laude

# Department of Soil, Environmental and Atmospheric Sciences

Anthony R. Lupo, Chair  
School of Natural Resources  
College of Agriculture, Food, and Natural Resources  
302 Anheuser-Busch Natural Resources Building

Atmospheric Science, Environmental Science, Soil Science  
(573) 882-6301

## Faculty

**PROFESSOR** S. H. Anderson, C. J. Gantzer, A. R. Lupo,  
P. P. Motavalli  
**ASSOCIATE PROFESSOR** N. I. Fox, K. W. Goynes,  
P. S. Market, R. J. Miles  
**ASSISTANT PROFESSOR** J. Hubbart  
**ADJUNCT PROFESSOR** R. J. Kremer  
**INSTRUCTOR** E. Aldrich, C. Frey  
**EXTENSION ASSISTANT PROFESSOR** P. E. Guinan

The Department of Soil, Environmental and Atmospheric Sciences brings together students, staff and faculty working in the fields of environmental, atmospheric and soil sciences. Excellent opportunities exist for students wishing to explore these exciting areas of study.

Three emphasis areas are offered: Atmospheric Science, Environmental Science, and Soil Resource Management.

The department offers BS, MS and PhD degrees with a major in Soil, Environmental and Atmospheric Sciences. A minor with options in Environmental Science, Soil Science, or Atmospheric Science, is also available.

## Major Program Requirements - Soil, Environmental and Atmospheric Sciences

In addition to university general education requirements, students must meet school and department major requirements.

### Major core requirements

<b>Social and behavioral sciences</b> .....	3
Economics/business elective	
<b>Math reasoning skills</b> .....	3-5
MATH 1400: Calculus for Social and Life Sciences I... 3	
OR MATH 1500: Analytical Geometry and	
Calculus I..... 5	
(for Atmospheric Science students, MATH 1500 is required.)	
<b>Computer science</b> .....	3
AFNR 1111: Computing and Information Systems I..... 3	
<b>Major capstone experience</b> .....	3
ATM SC 4990: Daily Analysis and Forecast	
Interpretation..... 3	
OR NAT R 4970: Resource Practicum in	
Natural Resources .....	
3	
<b>Soil, environmental, and atmospheric sciences</b> .....	11
ATM SC 1050: Introductory Meteorology..... 3	
SOIL 2100: Introduction to Soils..... 3	
OR SOIL 3290: Soils and the Environment .....	
3	

OR ENV SC 1100: Introduction to	
Environmental Science .....	3
ATM SC electives .....	5
OR SOIL electives.....	5
OR ENV SC electives .....	5
<b>Major core quantitative skills</b> .....	3
STAT 1400: Elementary Statistics for Life Sciences..... 3	
OR STAT 2530: Statistical Methods in	
Natural Resources .....	
3	
<b>Major core science requirements</b> .....	14
CHEM 1310: General Chemistry I .....	
2	
CHEM 1320: General Chemistry II with Lab .....	
3	
Science electives .....	
9	

## Dual Degree - Geological Sciences and Soil, Environmental and Atmospheric Sciences

The Department of Soil, Environmental and Atmospheric Sciences and the Department of Geological Sciences offer a dual BS in Geology and in Soil, Environmental and Atmospheric Sciences with an emphasis in Soil Resource Management. The dual degree program requires 132 credits for graduation. For more information on the dual degree program, contact an advisor in the Department of Soil, Environmental and Atmospheric Sciences or the Department of Geological Sciences.

## Dual Degree - Biochemistry and Soil, Environmental and Atmospheric Sciences

The Department of Soil, Environmental and Atmospheric Sciences and the Division of Biochemistry offer a dual BS degree in Biochemistry and in Soil, Environmental and Atmospheric Sciences with an emphasis in Environmental Science. The dual degree program requires 134 credits for graduation. For more information on the dual degree program, contact an advisor in the Department of Soil, Environmental and Atmospheric Sciences or the Division of Biochemistry.

## Dual Degree - Forestry and Soil, Environmental and Atmospheric Sciences

The Department of Soil, Environmental and Atmospheric Sciences and the Department of Forestry offer a dual degree in Forestry and in Soil, Environmental and Atmospheric Science with an emphasis in Environmental Science. The dual degree requires 136 credits for graduation. For more information on the dual degree program, contact an advisor in the Department of Soil, Environmental and Atmospheric Sciences or the Department of Forestry.

## Emphasis in Atmospheric Science

Study of atmospheric science prepares the student for employment as a professional meteorologist in the National Weather Service, the military and other government agencies as well as meteorological consulting firms, broadcast outlets and industry. The emphasis in atmospheric science adheres to federal requirements for employment as a meteorologist, yet emphasizes interdisciplinary studies in natural resources leading to specialization in operational meteorology or environmental science. The course of study also serves as a preparatory curriculum for advanced study in atmospheric science. A major in soil, environmental and atmospheric sciences with an emphasis in atmospheric science requires 128 credits for graduation.

## Emphasis core requirements

### Emphasis general requirements

<b>Math reasoning skills</b> .....	5
MATH 1500: Analytical Geometry and Calculus I.....	5
<b>Communications</b> .....	6
COMMUN 1200: Public Speaking.....	3
Choose one from the following or contact advisor for other selections.....	3
SCI AG J 3210: Fundamentals of Communications.....	3
ENGLSH 2030: Professional Writing.....	3
COMMUN 3575: Business and Professional Communication. ....	3
Those desiring a career in broadcast meteorology should consider the following courses or contact an advisor for other selections:	
COMMUN 2100: Media Communication in Society ..	3
COMMUN 2315: Basic Audio Production and Performance .....	3
COMMUN 3390: Television Studio Production .....	3
COMMUN 3395: Television Field Production.....	3
THEATR 1400: Acting for Non-majors.....	3
<b>Senior capstone experience</b> .....	3
ATM SC 4990: Daily Analysis and Forecast Interpretation .....	3

### Emphasis core quantitative skills

<b>Statistics</b> .....	3
STAT 1400: Elementary Statistics for Life Sciences.....	3
<b>Quantitative electives</b> .....	19
ATM SC 4800: Numerical Methods in Atmospheric Science and Natural Resources .....	3
MATH 1160: Precalculus Mathematics .....	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III .....	3
MATH 4100: Differential Equations .....	3

### Emphasis core science requirements .....

PHYSICS 2750: University Physics I.....	5
PHYSICS 2760: University Physics II .....	5

### Other emphasis core requirements.....

ATM SC 4310: Atmospheric Thermodynamics .....	4
ATM SC 4320: Atmospheric Dynamics.....	4
ATM SC 4350: Mesoscale Meteorology and Dynamics	3
ATM SC 4510: Remote Sensing for Meteorology and Natural Resources.....	3
ATM SC 4550: Atmospheric Physics .....	3
ATM SC 4650: Long-Range Forecasting .....	3
ATM SC 4710: Synoptic Meteorology I.....	4
ATM SC 4720: Synoptic Meteorology II .....	4

Credits from general, quantitative, science, and atmospheric science to complete 128 credits

## Emphasis in Environmental Science

Addressing environmental problems such as water and air quality, waste management and land use issues often requires an interdisciplinary science education as well as an understanding of the social and economic context of the problem. The environmental science emphasis is designed to prepare students for careers as environmental professionals.

Within the environmental science emphasis, students can choose one of three tracks:

- water quality
- land management
- air quality

Students in all tracks take a mixture of natural and applied science courses such as ecology, soil science, forestry, atmospheric science, and fisheries and wildlife.

Other required classes provide students with technical and outreach skills such as geographical information systems (GIS) and additional communications courses, to prepare for work in environmental careers. Students also gain hands-on experience in their field of interest through off-campus internships and practical courses. Each of the tracks requires a 3-credit practical internship in environmental science. Students must complete 128 credits to graduate, including 21-22 credits in the water quality, land management or air quality track.

Among the skills and abilities students develop as graduates with an environmental science emphasis are:

- Understanding of ecosystems and the factors affecting environmental processes and problems
- Facility with environmental monitoring techniques and instrumentation
- Knowledge of technologies and methods for remediation of degraded environments
- Capacity to effectively communicate and educate others about the environment

### Emphasis core general requirements

<b>Social and behavioral sciences</b> .....	9
AG EC 1041: Applied Macroeconomics OR AG EC 2070: Environmental Economics and Policy .....	3
RU SOC 1000: Rural Sociology OR RU SOC 1120: Population and the Environment.....	3
RU SOC 2010: Leadership in Today's World OR RU SOC 2225: Science, Technology and Society	3
<b>Math reasoning skills</b> .....	3
MATH 1400: Calculus for Social and Life Sciences I... OR MATH 1500: Analytical Geometry and Calculus I .....	5
<b>Computer science</b> .....	3
AFNR 1111: Computing and Information Systems I... OR CMP SC 1040: Introduction to Problem Solving and Programming .....	3
OR CMP SC 1050: Algorithm Design and Programming I.....	3
OR NAT R 4325: Introduction to Geographic Information Systems .....	3
OR GEOG 4840: Geographic Information Systems I .....	3
<b>Communications</b> .....	3
AG ED 2220: Verbal Communication in Agriculture, Food & Natural Resources.....	3
OR COMMUN 1200: Public Speaking .....	3
<b>Senior capstone experience</b> .....	3
NAT R 4970: Resource Practicum in Natural Resources.....	3
OR ATM SC 4990: Daily Analysis and Forecast	

Interpretation .....	3
<b>Emphasis core quantitative skills requirements .....</b>	<b>3</b>
STAT 2530: Statistical Methods in Natural Resources .....	3
<b>Emphasis core science requirements (organic chemistry is recommended)</b>	
<b>Chemistry .....</b>	<b>3</b>
CHEM 1330: General Chemistry III with Lab.....	3
OR CHEM 2100: Organic Chemistry I.....	3
AND CHEM 2110: Organic Chemistry II.....	3
AND CHEM 2140: Organic Laboratory II.....	2
<b>Biological science .....</b>	<b>15</b>
BIO SC 1200: General Botany with Laboratory .....	5
BIO SC 1500: Introduction to Biological Systems with Laboratory.....	5
BIO SC 3650: General Ecology .....	5
OR FOREST 4320: Forest Ecology.....	5
<b>Geology.....</b>	<b>4</b>
GEOLOGY 1100: Principles of Geology with Laboratory... ..	4
OR GEOLOGY 1200: Environmental Geology with Laboratory.....	4
<b>Physics .....</b>	<b>4-5</b>
ENV SC 4305: Environmental Soil Physics.....	3
AND ENV SC 4306: Environmental Soil Physics Laboratory.....	2
OR PHYSICS 1210: College Physics I.....	4
<b>Policy/Regulation .....</b>	<b>3</b>
NAT R 4353: Natural Resource Policy/Administration OR CV ENG 4250: Environmental Regulatory Compliance.....	3
<b>Other emphasis core requirements.....</b>	<b>14</b>
ENV SC 1100: Introduction to Environmental Science.....	3
ENV SC 3290: Soils and the Environment.....	3
ENV SC 3500: Pollutant Fate and Transport.....	3
ENV SC 4320: Hydrologic and Water Quality Modeling.....	3
SOIL 2106: Soil Science Laboratory .....	2

**Water quality track**

F W 3400: Water Quality and Natural Resource Management.....	3
ENV SC 4940: Environmental Science Internship .....	3

**Select five classes from the following list**

<b>(must take at least one course from Environmental Science or Soil Science and a course from another department) .....</b>	<b>15-17</b>
AG S M 4420: Surface Water Management.....	3
ATM SC 3600: Climates of the World .....	3
ATM SC 4400: Micrometeorology .....	3
ATM SC 4510: Remote Sensing for Meteorology and Natural Resources .....	3
BIOL EN 4150: Soil and Water Conservation Engineering.....	3
CV ENG 3702: Hydrology .....	4
CV ENG 4200: Remote Sensing of the Environment..	3
ENV SC 3330: Environmental Land Use Management .....	3
ENV SC 4305: Environmental Soil Physics.....	3
ENV SC 4306: Environmental Soil Physics Laboratory2	3
ENV SC 4312: Environmental Soil Microbiology .....	3
ENV SC 4318: Environmental Soil Chemistry.....	3
F W 4100: Limnology .....	3-4
F W 4800: Environmental Toxicology .....	3

FOREST 4360: Photogrammetry, Inventory and Models.....	3
FOREST 4390: Watershed Management and Water Quality.....	3
GEOG 4630: Fluvial Geomorphology .....	3
GEOG 4830: Remote Sensing .....	3
GEOG 4840: Geographic Information Systems I.....	3
GEOG 4940: Geographic Information Systems II .....	3
GEOLOGY 4100: Groundwater Hydrogeology.....	3
GEOLOGY 4110: Karst Hydrology .....	3
GEOLOGY 4300 Introduction to Low-Temperature Geochemistry.....	3
NAT R 4325: Introduction to Geographic Information Systems.....	3
PLANT S 4720: Aquatic Entomology.....	3
RU SOC 4370: Environmental Sociology .....	3
SOIL 4308: Soil Conservation .....	3
SOIL 4313: Soil Fertility and Plant Nutrition .....	3
SOIL 4320: Genesis of Soil Landscapes .....	4

**Land management track**

ENV SC 3330: Environmental Land Use Management.....	3
ENV SC 4940: Environmental Science Internship.....	3

**Select five classes from the following list**

<b>(must take at least one course from Environmental Science or Soil Science and a course from another department) .....</b>	<b>15-17</b>
AG S M 4360: Precision Agriculture Science and Technology .....	3
AG S M 4420: Surface Water Management.....	3
ATM SC 3600: Climates of the World .....	3
ATM SC 4400: Micrometeorology .....	3
BIOL EN 4150: Soil and Water Conservation Engineering.....	3
CV ENG 4200: Remote Sensing of the Environment..	3
ENV SC 4305: Environmental Soil Physics .....	3
ENV SC 4306: Environmental Soil Physics Laboratory2	3
ENV SC 4312: Environmental Soil Microbiology .....	3
ENV SC 4318: Environmental Soil Chemistry.....	3
F W 4800: Environmental Toxicology .....	3
FOREST 3207: Forest Fire Control and Use .....	2
FOREST 4330: Practice of Silviculture .....	3
FOREST 4360: Photogrammetry, Inventory and Models.....	3
FOREST 4370: Wildland Fire Management .....	3
FOREST 4390: Watershed Management and Water Quality.....	3
GEOG 3610: Physical Geography of the United States3	3
GEOG 3630: Process Geomorphology .....	3
GEOG 4710: Spatial Analysis in Geography.....	3
GEOG 4830: Remote Sensing .....	3
GEOG 4840: Geographic Information Systems I.....	3
GEOG 4940: Geographic Information Systems II .....	3
NAT R 4325: Introduction to Geographic Information Systems .....	3
PLANT S 3270: Forage Crops .....	3
PLANT S 3275: Grain Crops.....	3
RU SOC 4341: Building Communities from the Grassroots .....	3
RU SOC 4370: Environmental Sociology .....	3
SOIL 4308: Soil Conservation .....	3
SOIL 4313: Soil Fertility and Plant Nutrition .....	3

SOIL 4320: Genesis of Soil Landscapes .....	4
<b>Air quality track</b>	
ATM SC 2720: Weather Briefing .....	1
ATM SC 4550: Atmospheric Physics .....	3
ATM SC 4949: Internship in Meteorology .....	3
<b>Select five classes from the following list:</b>	
<b>(must take at least one course from Atmospheric Science and a course from another department) ...15</b>	
ATM SC 3600: Climates of the World .....	3
ATM SC 4310: Atmospheric Thermodynamics .....	4
ATM SC 4400: Micrometeorology .....	3
ATM SC 4500: Advanced Meteorological Observation and Instrumentation .....	3
ATM SC 4650: Long-Range Forecasting .....	3
ATM SC 4710: Synoptic Meteorology I.....	4
BIOL EN 4150: Soil and Water Conservation Engineering.....	3
CH ENG 4311: Chemodynamics .....	3
CH ENG 4312: Air Pollution Control .....	3
CHEM 4280: Environmental Chemistry.....	3
CV ENG 3200: Fundamentals of Environmental Engineering .....	4
CV ENG 3702: Hydrology .....	4
CV ENG 4200: Remote Sensing of the Environment..	3
GEOG 4830: Remote Sensing .....	3
GEOG 4840: Geographic Information Systems I .....	3
GEOG 4940: Geographic Information Systems II .....	3
NAT R 4325: Introduction to Geographic Information Systems.....	3
<b>Electives .....</b>	<b>12-14</b>

## Emphasis in Soil Resource Management

This course of study prepares the student for employment as a professional soil scientist in government, industry or consulting. Courses offered in soil science emphasize the application of basic physical and biological sciences to understanding the function and use of soils. A major in soil, environmental and atmospheric sciences with an emphasis in soil resource management requires 128 credits for graduation.

Soil science professionals have a wide range of career opportunities, including working in land-use planning and assessment, agricultural and horticultural production, consulting and sales, landscaping and recreational management. Among the state and federal agencies that employ soil scientists are the USDA-Natural Resources Conservation Service, the US Forest Service, the US Environmental Protection Agency, the Missouri Department of Natural Resources, the Missouri Department of Conservation and the Missouri Department of Health and Senior Services. Opportunities in private industry include working in environmental consulting firms and the horticultural and agricultural production and service industries.

### Emphasis core general requirements

<b>Math reasoning skills .....</b>	<b>3</b>
MATH 1400: Calculus for Social and Life Sciences I... 3	
<b>Computer Science .....</b>	<b>3</b>
AFNR 1111: Computing and Information Systems I ... 3	
OR NAT R 4325: Introduction to Geographic Information Systems .....	3
<b>Senior capstone experience .....</b>	<b>3</b>
NAT R 4970: Resource Practicum in	

Natural Resources.....	3
<b>Emphasis core quantitative skills.....</b>	<b>6</b>
STAT 1400: Elementary Statistics for Life Sciences..... 3	
OR STAT 2530: Statistical Methods in Natural Resources.....	3
Additional course in math, computer science, and statistics OR one of the following:	
ENV SC 4320: Hydrologic and Water Quality Modeling .....	3
NAT R 4325: Introduction to Geographic Information Systems.....	3
NAT R 4365: GIS Applications .....	3
NAT R 4385: Landscape Ecology and GIS Analysis I .....	3

### Emphasis core science requirements (including one course in organic or biochemistry)

<b>General chemistry .....</b>	<b>3</b>
CHEM 1330: General Chemistry III with Lab.....	3
<b>Organic chemistry OR Biochemistry .....</b>	<b>3</b>
CHEM 2100: Organic Chemistry I .....	3
AND CHEM 2110: Organic Chemistry II .....	3
AND CHEM 2140: Organic Laboratory II .....	2
BIOCHM 2110: The Living World: Molecular Scale ..	3
OR BIOCHM 2112: Biotechnology in Society.....	3
<b>Biological science .....</b>	<b>6</b>
ENV SC 1100: Introduction to Environmental Science.....	3
OR NAT R 1070: Ecology and Renewable Resource Management .....	3
PLNT S 2110: Plant Growth and Culture.....	3
OR BIO SC 1010: General Principles and Concepts of Biology.....	3
AND BIO SC 1020: General Biology Laboratory 2	
OR BIO SC 1200: General Botany with Laboratory.	5

### Geology (any course) .....

### Recommended science electives.....

Courses in biochemistry, biology, chemistry, entomology, geology, physics, and plant pathology as well as the following:	
CV ENG 3702: Hydrology .....	4
FOREST 4320: Forest Ecology .....	5
PLNT S 3210: Principles of Weed Science.....	4
PLNT S 3225: Plant Breeding and Genetics .....	3
PLNT S 4315: Crop Physiology.....	3

### Other emphasis core requirements

ATM SC 1050: Introductory Meteorology.....	3
SOIL 2100: Introduction to Soils.....	3
SOIL 2106: Soil Science Laboratory .....	2
SOIL 3290: Soils and the Environment.....	3
<b>Additional soils course from the following .(12 credits)</b>	
SOIL 4305: Environmental Soil Physics .....	3
SOIL 4306: Environmental Soil Physics Laboratory....	2
SOIL 4308: Soil Conservation .....	3
SOIL 4312: Environmental Soil Microbiology .....	3
SOIL 4313: Soil Fertility and Plant Nutrition .....	3
SOIL 4314: Soil Fertility & Plant Nutrition Laboratory.....	2
SOIL 4318: Environmental Soil Chemistry .....	3
SOIL 4320: Genesis of Soil Landscapes .....	4
SOIL 4360: Precision Agriculture Science and Technology .....	3

**Recommended electives, other soils courses or the following courses ..... (7 credits)**

BIOL EN 4150: Soil and Water Conservation Engineering.....	3
BIOL EN 4250: Irrigation and Drainage Engineering.....	3
CV ENG 3400: Fundamentals of Geotechnical Engineering.....	4
ENV SC 4320: Hydrologic and Water Quality Modeling.....	3
F W 3400: Water Quality and Natural Resource Management.....	3
FOREST 4390: Watershed Management and Water Quality.....	3

**Credits from general, quantitative, science and soil science to complete 128 total.**

**Minor in Soil, Environmental and Atmospheric Sciences**

A minor in soil, environmental and atmospheric sciences is offered at the undergraduate level with three options: atmospheric science, environmental science, and soil science.

The minor in soil, environmental, and atmospheric sciences with an option in atmospheric science prepares the student for jobs in journalism and broadcast meteorology as well as for certification required by government agencies. A minor with an option in atmospheric science requires a minimum of 15 credits including:

ATM SC 1050: Introductory Meteorology.....	3
ATM SC 2720: Weather Briefing.....	1
ATM SC 3600: Climates of the World .....	3

Additional credits in atmospheric science or in a closely related area as recommended by the minor advisor..... 8

The minor in soil, environmental and atmospheric sciences with an option in environmental science requires a minimum of 15 credit hours in environmental science courses with at least 9 credit hours at the 3000 level or above. This minor provides students an opportunity to enhance their understanding of the environment, interrelationships between various components of the environment, and a firm understanding of environmental issues. Selection of courses should be made in consultation with an advisor in environmental science. The following courses are required:

ENV SC 1100: Introduction to Environmental Science.....	3
ENV SC 3290: Soils and the Environment .....	3
ENV SC 3330: Environmental Land Use Management.....	3
F W 3400: Water Quality and Natural Resource Management .....	3

Additional credits in environmental science as recommended by the advisor.....3

The minor in soil, environmental and atmospheric sciences with an option in soil science requires a minimum of 15 credits in soil science. Selection of courses should be made in consultation with an advisor in soil science. Students with the following majors often choose minors with an option in soil science: forestry, fisheries and wildlife, plant science, and geological sciences. This minor also provides assistance with meeting

certification as a waste water specialist. The following courses are required:

SOIL 2100: Introduction to Soils.....	3
SOIL 2106: Soil Science Laboratory .....	2
SOIL 4320: Genesis of Soil Landscapes .....	4

Additional credits at the 3000 level or higher in soil science as recommended by the minor advisor..... 6





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# **College of Arts and Science**

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# College of Arts and Science

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## Degrees Offered

*Emphasis areas are in italics.*

### Bachelor of Arts (BA) with majors in:

Anthropology  
Art  
Art History and Archaeology  
Biological Sciences  
Chemistry  
Classics with emphasis areas in  
*Classical Languages, Classical Humanities, Greek, Latin*  
Communication  
Computer Science  
Economics  
English  
Environmental Geology  
Film Studies  
French  
Geography with emphasis areas in  
*General Geography, Geographic Information Sciences, Regional/Cultural, Physical/Environmental, Urban/Population*  
German  
History  
Interdisciplinary with emphasis areas in  
*Black Studies, Environmental Studies, Peace Studies, Women's and Gender Studies*  
International Studies with emphasis areas in  
*East Asian Studies, Environmental Studies, European Studies, International Business, Latin American Studies, Peace Studies, South Asian Studies*  
Linguistics  
Mathematics  
Music  
Philosophy  
Physics  
Political Science  
Psychology  
Religious Studies  
Russian  
Sociology  
Spanish  
Statistics  
Theatre with emphasis areas in  
*Design/Technical, Performance, Writing for Performance*

### Bachelor of Fine Arts (BFA) with a major in Art

### Bachelor of General Studies (BGS) with a major in General Studies

### Bachelor of Music (BM)

### Bachelor of Science (BS) with majors in:

Biological Sciences  
Chemistry  
Economics  
Geological Sciences  
Mathematics with an optional emphasis area in

*Actuarial Science and Mathematical Finance*

Physics  
Statistics

### Minors

Aerospace Studies  
Afro-Romance Literatures in Translation  
Anthropology  
Art  
Art History and Archeology  
Astronomy  
Biological Sciences  
Black Studies  
Canadian Studies  
Chemistry  
Classics with emphasis areas in  
*Greek, Latin*  
East Asian Studies  
Economics  
English  
English Writing  
Film Studies  
French  
Geographic Information Science  
Geography  
Geological Sciences  
German  
History  
Italian Area Studies  
Latin American Studies  
Leadership and Public Service  
Linguistics  
Mathematics  
Medieval & Renaissance Studies  
Military Science  
Music  
Peace Studies  
Philosophy  
Physics  
Political Science  
Psychology  
Religious Studies  
Romance Literatures in Translation  
Russian  
Sociology  
South Asian Studies  
Spanish  
Statistics  
Theatre  
Woman Studies

### Certificates

General Honors  
Environmental Studies  
Geographical Information Systems  
Multicultural Studies

# Administration

Michael J. O'Brien, Dean  
Theodore A. Tarkow, Associate Dean

Arts and Science Dean's Office  
317 Lowry Hall  
(573) 882-4421

## Contact Information

Arts and Science Advising Support Services  
107 Lowry Hall  
(573) 882-6411  
umcasadvising@missouri.edu

The College of Arts and Science, established in 1841, is the oldest and largest academic division in the university. The majority of MU undergraduates are enrolled in the college, which provides undergraduate and graduate programs in humanities, fine and performing arts, and social, behavioral and natural sciences. It also offers a solid foundation in basic studies for students in professional and specialized programs in other colleges. Consisting of the School of Music and the departments of Art and Theatre, is in the College of Arts and Science.

A liberal education is the foundation of study in many disciplines. It enables students to serve roles in society or to continue their education with advanced academic study. To these ends, the college encourages excellence in teaching and scholarship among its faculty and provides both traditional and innovative undergraduate curricula. Degree programs allow flexibility in individual courses of study.

Many students who enroll in the college during their first two years at the University have not yet decided upon a major field of study. The structure of the college is such that students generally need not commit themselves to a major until the beginning of the junior year. This allows students time to explore possibilities and to consider their likes and dislikes and their personal and professional objectives. Students are encouraged to work closely with academic advisors while deciding on a program of study.

Students planning to enter the schools of Journalism, Law, Medicine or Veterinary Medicine often spend their first two or four years in the College of Arts and Science in preparation for professional training. Most students, realizing the increased necessity for a broad background in the liberal arts for all professions, earn an undergraduate degree in the college before enrolling in the schools of Law or Medicine. Preprofessional study for veterinary medicine may be completed either in the College of Agriculture, Food and Natural Resources or in the College of Arts and Science.

## College of Arts and Science Requirements

To earn any degree from the College of Arts and Science, in addition to the university requirements a candidate must fulfill each of the following:

- Complete all course work required for the Arts and Science Foundation Requirements.
- Basic Skills, Breadth of Study and Depth of Study requirements
- Sufficient elective credits to bring the total earned credits

to 120

- Earn a GPA of 2.0 in the following categories.
- A minimum 2.0 cumulative MU GPA
- A minimum 2.0 MU GPA in all courses taken in the major
- A minimum 2.0 MU GPA in all courses taken in the final 60 credits
- A minimum 2.0 MU GPA in all courses taken in the final 30 credits
- A minimum 2.0 MU GPA in all courses taken in the minor, if student is completing one
- Attain grades of C- or higher in the major and optional minor. Some departments of the college have higher minimum grade requirements in specified courses.
- Earn a minimum of 30 credits in courses numbered 3000 or above, which may include courses in the major. These courses must be regularly accepted for credit in the College of Arts and Science. A few specifically identified math, science, and music courses numbered at the 2000-level may be used to meet this requirement. Additional information is available in appropriate advising offices.
- Complete no fewer than four semesters at full-time status (12-credit minimum).

## Credit Restrictions

### Time Limit on Credits Earned

Credit that is applied toward a degree is considered valid for eight years. After that time, the validity of credit already on the transcript will be reevaluated. Departments of the college have the right to accept or to reject credit earned after eight years have passed.

### Credit Toward Degree

Some courses are not accepted toward a degree in the College of Arts and Science. They are:

- MIL SC 1110, 1130, 2210 and 2230
- Vocational courses, such as radio repair or keyboarding
- Developmental courses, such as MATH 0110, English Language Support Program courses, spelling and grammar

### Sequence

Credit for a more advanced course within a sequence will not apply toward graduation if a student subsequently completes a less advanced course. (For example: completion of FRENCH 1200 after FRENCH 2100 or completion of MATH 1100 after MATH 1300.)

### Maximum Credit Policies

- With the exception of MATH 1100 or 1120 (or equivalent), ENGLSH 1000 (or equivalent), and the elementary sequence in a foreign language, the maximum number of credits from a single department that may apply toward graduation is 40 for the BA and the BGS, 70 for the BFA, and 90 for the BM.
- A maximum of 12 credits for internship, special problems or directed readings may apply toward any one degree. Of the 12 hours, only 6 may be earned as internship credit. Some departments may further restrict this type of credit for both majors and non-majors in arts and science.
- A maximum of 5 credits for BIO SC 3100 and 3650 may apply toward graduation.
- A maximum of 5 credits for MATH 1100, 1120, 1140, 1160 and 1180 may apply toward graduation.

- A maximum of 5 credits for MATH 1320, 1400 and 1500 may apply toward graduation.
- A maximum of 10 credits for introductory chemistry, which includes CHEM 1310 (or 1100), 1320, 1330 and 1500, may apply toward graduation.
- A maximum of 1 credit for AG EC 3285 may apply toward graduation.
- A maximum of 3 credits for any combination of the following may apply toward graduation: LTC V 1210; 4550; AGRIC 1111; CMP SC 1020.
- For non-music majors, a maximum of 6 credits for music ensemble courses, which include MUSIC 1841, 1842, 1846, 1865 and 2843, may apply toward graduation.
- For non-music majors, a maximum of 12 credits for applied music courses, which include MUSIC 1435, 1445, 2445, 2455, 3455, 3970, 4445 and 4455, may apply toward graduation.
- For non-art majors, a maximum of 12 credits for studio art courses may apply toward graduation. For interdisciplinary studies majors, the maximum is 18 credits, and for general studies majors, the maximum is 21 credits.
- A maximum of 2 credits for physical education activity courses may apply toward graduation.
- A maximum of 5 credits for orientation courses may apply towards graduation. Of these 5 credits, no more than 3 credits may come from courses that cover life skills or orientation to college life, and no more than 3 credits may come from discipline-focused courses. Life skills/college life courses include courses such as Learning Strategies and Orientation to College; discipline-focused orientation courses include courses such as Introduction to Management and Introduction to Physical Therapy. Additional information is available in the appropriate advising offices.

## Departmental Examinations

A student who wishes to take a departmental examination must take it before enrolling in a college class in the same subject. Applications normally are made to the departments indicated; however, during the summer preregistration period, some examinations can be taken at the MU Testing Service Office without formal application to the respective departments. In addition, the examinations administered by Testing Services may be taken any time during the academic year.

Students may not earn credit for introductory foreign language courses in their native language.

- **Chemistry:** Apply to the Department of Chemistry, 125 Chemistry Building, for an examination to earn credits in chemistry.
- **French:** Apply to the Department of Romance Languages, 143 Arts and Science Building, for an examination for 3 credits equivalent to the completion of FRENCH 2100. Upon successful completion of this test, a student will be awarded 10 credits of advanced standing for FRENCH 1100 and 1200 in addition to the 3 credits indicated.
- **German:** Apply to the Department of German and Russian Studies, 448 Strickland Hall, for an examination to earn 3 credits in each of the following courses: GERMAN 2100; GERMAN 2160: German Conversation and Composition; GERMAN 3130: Advanced German Reading. Upon successful completion of one of these tests, a student will

be awarded 10 credits of advanced standing for GERMAN 1100 and 1200 in addition to the 3 credits indicated.

- **Italian:** Apply to the Department of Romance Languages, 143 Arts and Science Building.
- **Latin:** Apply to the Department of Classical Studies, 405 Strickland Hall.
- **Mathematics:** To earn 3 credits in College Algebra, students may take the proctored ALEKS Exam through the Office of Testing Services. ([mathplacement.missouri.edu](http://mathplacement.missouri.edu))
- **Political Science:** Contact the group testing program in the Testing Services Office for information on the 3-credit group test.
- **Russian:** Apply to the Department of German and Russian Studies, 448 Strickland Hall, for an examination to earn 3 credits in Elementary Russian and Russian Composition and Conversation. Upon successful completion of one of these two tests, a student will be awarded 10 credits of advanced standing for RUSS 1100 and 1200 in addition to the 3 credits indicated.
- **Spanish:** Apply to the Department of Romance Languages, 143 Arts and Science Building, for an examination to earn 3 credits equivalent to the completion of SPAN 2100. Upon successful completion of this test, a student will be awarded 10 credits of advanced standing for SPAN 1100 and 1200 in addition to the 3 credits indicated.
- **Statistics:** Apply to the Department of Statistics, 146 Middlebush Hall, for an examination to earn 3 credits for STAT 1300: Elementary Statistics.

## Maximum Credits Enrolled

With the consent of the dean, students with superior scholastic records may be allowed to register for more than 18 credits during a fall or spring semester. During the summer sessions, a student may not ordinarily be enrolled for more than 9 credits during the two four-week sessions combined and/or the eight-week session.

## Enrolling at Other Institutions

Students within the College of Arts & science are allowed to enroll in another institution, while being simultaneously enrolled at MU. Students are strongly encouraged to speak with an advisor to verify course transfer credit, degree applicability and other academic ramifications. Students, however, bear the ultimate responsibility for checking course equivalencies and requesting official transcripts be sent to the MU Office of Admissions (230 Jesse Hall). Similarly, A&S students who are likely to qualify for Latin honors are advised not to risk their eligibility for this distinction because of simultaneous enrollment at another institution (see information on Latin honors). Students who receive financial aid are advised to check with a financial aid officer to learn the implications, if any, of simultaneous enrollment in a non-MU course.

## Graduation with Latin Honors

Regulations of the college regarding the awarding of Latin honors require that the final 60 credits are completed in MU course work for a letter grade (A-F). Awarding of Latin Honors is based on the cumulative GPA. The local chapter of Phi Beta Kappa requires completion of a minimum of 60 credits of course work on the MU campus, usually during the last two years of study. Exceptions to this latter expectation may be made for students who study abroad in an approved program

during their final semesters of study.

## Probation and Dismissal

### Academic (Scholastic) Standing

In addition to University requirements defined earlier in this catalog and in the *Faculty Handbook*, academic status of Arts and Science students is determined in accordance with the following faculty guidelines. The word “term” in these regulations applies to semester, summer session or intersession. Course work completed by correspondence or through extension also has a bearing on academic status. (See Academic Standing in the front section of this catalog.)

- Students on scholastic probation have two terms, (as long as each term GPA is no lower than 1.0), in which to attain good academic standing (2.0 minimum term and cumulative GPA) or be subject to dismissal. A student will not be eligible for removal from probation if he or she does not complete in residence during these two terms at least 12 graded credits acceptable by the student’s advisor and in accordance with college policy for credit in the College of Arts and Science. To complete a course, the student must earn a grade in the A, B, C or D range.
- In the application of these rules, the dean will determine how an incomplete grade in a course will be considered in determining a student’s academic standing.
- The dean may, in extenuating circumstances, waive any of the foregoing regulations governing eligibility to re-enroll for an individual student.

## Degree Requirements

### Arts and Science Foundation Requirements

The purpose of the Arts and Science Foundation Requirements is to assure that students fulfill the common educational objectives of the College of Arts and Science. Courses satisfying these requirements impart specialized knowledge and help students fulfill the broader objectives of a liberal education. Thus, these courses help students develop the following abilities:

- To communicate clearly and effectively in both writing and speech
- To generate and test hypotheses
- To locate and develop information needed to solve problems
- To think critically and use analytic skills effectively
- To examine their lives critically and objectively
- To enrich their lives through appreciation of present and past cultural achievements

Foundation requirements include three categories:

- Basic Skills requirements ensure competency in composition and communication, mathematics and analytic reasoning, awareness of American history and government, and where applicable, foreign language.
- Breadth of Study requirements are met by completing course work from a wide array of disciplines to ensure that graduates are broadly educated.
- Depth of Study requirements are met by completing advanced course work that allows for fuller understanding of a discipline than can be gained in introductory course work alone.

All students must complete all Arts and Science Foundation Requirements in order to earn a degree, regardless of prior baccalaureate degrees earned. Course work will be evaluated on a course-by-course basis. For students who earn an Associates of Arts degree from a Regionally accredited Missouri institution all Breadth of Education requirements will be considered to be met. Students will be required to complete at least one Depth of Education class with MU course work. In all cases, completion of the basic English and Mathematics requirements will be evaluated on a course-by-course basis.

### Basic Skills

MATH 1100, 1160, 1120 or transferable equivalent with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.

ENGLISH 1000 or transferable equivalent with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.

One Math Reasoning Proficiency course with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.
- May also apply toward other degree program requirements.
- Must be chosen from the list of MRP courses designated each semester in the online Schedule of Courses.

One course in American government or history

- Required for BA, BFA, BGS, BM and BS degrees.
- May also apply as a social science toward the behavioral and social science requirement.
- Should be chosen from the list of MU courses approved to meet Arts and Science Foundation Requirements.

Foreign language

- Each student is required to attain the degree of proficiency equivalent to the completion of at least 12 hours of college-level work in a single foreign language. All MU foreign language departments require a grade in the C range or higher in level I or a language and level II of a language as prerequisites for level II and III, respectively.
- Alternative for selected BS degrees: 12 credits numbered 2000 or above in an area approved by the major department substituted with the concurrence of the dean’s office. Courses used for a minor cannot be used to meet this requirement.
- The foreign language requirements can be waived if a student has completed four units of a single foreign language in high school. If a student chooses to meet the requirement by using high school units, any college credit for that same introductory language will not count towards graduation hours (i.e., a student who has completed 4 units of high school Spanish and has credit for Spanish 1100 will not have the Spanish 1100 count towards graduation hours). If a student wants to have the introductory college credit count towards graduation, the student must complete the language sequence.
- International students whose native language is other than English are exempt from the foreign language requirements but may not receive credit for basic skills courses in their native languages. Others with native competence in one or more foreign language offered by MU may have a foreign language requirement waived by passing an exam given by a faculty member who is fluent in the language. The faculty member need not be a member of the MU faculty, but must be approved by the dean’s office. The exam tests the student’s ability to read, write, and speak the language at the

level broadly described as “intermediate.” Results of the examination are forwarded to the dean’s office for evaluation. Students in this situation do not receive advanced-standing credit for their foreign language knowledge.

### **Breadth of Study**

Breadth of Study requirements include course work distributed among the following categories: biological, physical and mathematical sciences; behavioral and social sciences; humanities and fine arts.

#### **1. Biological, physical and mathematical sciences**

9 credits required for BA, BFA, BGS, BM and BS degrees.

- Must include course work from at least two of three areas.
- Must include at least one biological or physical science laboratory course.

#### **2. Behavioral and social sciences**

9 credits required for BFA, BGS, BM and BS degrees (except the biological sciences).

- Must include course work from both the behavioral and social sciences.

14-15 credits required for all BA degrees and the BS degree with a major in Biological Sciences.

- Must include 5-6 credits of behavioral science.
- Must include 9 credits of social science, including course work from at least two different areas.

#### **3. Humanities and fine arts**

9 credits required for the BFA, BGS, BM and BS degrees (except for the BS degree with a major in Biological Sciences).

- Must include course work from at least two different areas.

12 credits required for the BA degree, and the BS degree with a major in Biological Sciences.

- Must include course work from at least three different areas.

#### **4. Additional breadth requirement for the BGS degree**

3 credits from course work chosen from any of the following four categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

### **Parameters for meeting Breadth of Study requirements:**

- Courses from the major department may not be used for breadth requirements in the BA, BFA and BS.
- Courses from the major department may be used for breadth requirements in the BM.
- Students earning degrees in special degree programs (where the courses in the major represent multiple departments) may use courses from their major departments to meet breadth requirements, but not the specific courses used in the major.
- Courses from outside the major department but required for the major may not be used to meet breadth requirements in the BFA or BA with a major in Art.
- Only one non-Arts and Science course may be used in each of the four categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.
- Courses must be chosen from the Distribution of Content List on the web site of the General Education Program. (<http://generaleducation.missouri.edu>.)
- Courses used to meet breadth requirements may also be used to meet depth requirements (see below).
- Problems, research, readings, and internship courses may not be used for breadth requirements.

### **Depth of Study**

Depth of Study requirements include at least 6 hours of course work numbered 2000 or above, distributed as follows:

#### **BFA in Art**

- 6 credits required.
- Must include course work from at least two of the following four breadth categories: biological, musical, mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

#### **BGS in General Studies, BS with a major in Biological Science and all BA degrees**

- 9 credits required.
- Must include course work from at least two of the following four breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

#### **BS with majors in Chemistry, Geological Science, Mathematics, Physics and Statistics**

- 6 credits required.
- Must include course work from at least two of the following three breadth categories: behavioral sciences; social sciences; humanities and fine arts.

#### **BS with a major in Economics**

- 6 credits required.
- Must include course work from at least two of the following four breadth categories: biological, physical and mathematical sciences; behavioral sciences, social sciences, humanities and fine arts.

#### **BM with a major in Music**

- 6 credits required.
- Must include course work from at least one of the following three breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences.
- 3 credit hours in Music (see below).

### **Parameters for meeting Depth of Study requirements:**

- All courses must be numbered 2000 or above.
- At least 3 credits must be completed with MU course work.
- A student who elects 1-credit topics courses must complete a minimum of three courses in that breadth category as partial fulfillment of the depth of study requirement.
- Courses from the major department may not be used, except for the BM with a major in Music.
- Students earning degrees in special degree programs (where the courses in the major represent multiple departments) may use courses from their major departments to meet depth requirements, but not the specific courses used in the major.
- Courses from outside the major department, but required for the major, may not be used to meet depth requirements in the BFA or BA with a major in Art, the BA or BS with a major in Biology, or the BA with a major in Chemistry, Geological Science, Mathematics, Physics, or Statistics.
- Non-Arts and Science courses may not be used.
- Courses must be chosen from the Distribution of Content List on the web site of the General Education Program. (<http://generaleducation.missouri.edu>.)
- Courses used to meet depth requirements may also be used to meet breadth requirements.
- Problems, research, readings, and internship courses may not be used.

## Major Program Requirements

A major consists of at least 21 credits, including at least 15 credits in courses numbered 2000 or above, 12 of which must be taken in MU course work. See detailed departmental information for additional requirements for specific majors.

All Arts and Science majors require an MU Writing Intensive course numbered 3000 or above and an MU capstone course with grades of C- or higher. In addition, some majors require course work outside the major department.

Each student must declare and receive official approval for a major by submitting a graduation plan no later than the semester after completion of 60 credits. The purpose of the graduation plan is to acquaint students with all requirements that must be met prior to graduation and to plan for the timely completion of these requirements. Departments and programs approve the graduation plan only when the student has met the following criteria:

- 2.0 cumulative GPA
- Completion of ENGLSH 1000 and MATH 1100 or 1120 (or their equivalents) with grades of C- or higher
- Completion of any additional departmental requirements

## Requirements for an Optional Minor

A minor consists of at least 15 credits, including at least 6 credits numbered 2000 or above, within a department or program that offers a minor; 9 of the required credits must be taken in MU course work. See detailed departmental information for additional requirements for specific minors. Courses outside the major department but required for the major may be used towards a minor. In addition, courses required in the minor may be used to meet Foundation requirements.

The College of Arts and Science awards minors only to undergraduate students who are simultaneous recipients of bachelor's degrees. Students may not earn a major and a minor in the same field.

## Dual Degrees

In order to receive two bachelor's degrees, a student must complete a minimum of 132 credits and complete all of the specific requirements for both degrees. Normally, a minimum of one additional semester is required to earn both degrees. Each candidate for a dual degree is assigned advisors as appropriate.

The College of Arts and Science maintains dual-degree programs with the schools of Law, Medicine and Veterinary Medicine. To enroll in these programs, the student must have completed all of the specific course requirements for the bachelor's degree prior to admission to the professional school and also must have completed the junior year in residence in the College of Arts and Science. Under certain circumstances, Arts and Science undergraduates may be assured admission to MU's schools of Law or Medicine.

## Second Degrees

The faculty of the college has approved the following guidelines for students wishing to obtain a second undergraduate degree after completion of a bachelor's degree, in addition to any university requirements that may apply:

- Unless both degrees are earned at MU in successive se-

mesters, a student pursuing a second undergraduate degree will ordinarily be required to complete a minimum of 30 credits in residence in the College of Arts and Science after completion of the first undergraduate degree.

- A student must complete any college, general education or department requirements that are unique to the new degree program. Requirements that are in effect at the time a student begins work toward the second degree are applicable.
- Students applying for second-degree status will be considered only if they have completed (with grades C- or higher) ENGLSH 1000 and MATH 1100 or 1120 (or equivalents) and have final term and cumulative GPAs no less than 2.0.
- The student must submit a graduation plan in consultation with an advisor in an appropriate department or program before the dean's office will approve a request from the student to enroll as a candidate for a second degree.
- The college rarely approves applications for a second undergraduate degree in General Studies or Interdisciplinary Studies.
- Once enrolled for a second degree, a student is committed to enrolling in course work required for completion of that degree. A student will not be allowed to continue as a candidate for a second undergraduate degree if not enrolled in courses required for the second bachelor's degree.

## Double Majors

A number of Arts and Science students choose to complete multiple majors while earning one degree. The requirements of each major, along with requirements for the degree, must be completed. Often, this does not result in the addition of hours to the degree program.

## Graduate School Dual Enrollment

A final-semester senior may dually enroll in the College of Arts and Science and the Graduate School with permission of the deans of both divisions. This enables the student to complete some graduate course work prior to receiving the bachelor's degree.

The student must be within 15 credits of completion of the bachelor's degree and must rank in the upper half of the class. Application forms for dual enrollment in these two schools may be obtained from the Graduate School dean in 210 Jesse Hall.

## Student Services

### Advising

Students who have declared a major are assigned an advisor in that department. Students who have not yet decided on a major are assigned to a professional advisor in the Student Success Center.

### Career Placement

Employment opportunities in the various disciplines of the liberal arts vary greatly. Most departments in the college have printed information available describing employment opportunities. The MU Career Center in the Student Success Center offers students a variety of career planning services.

# Department of Aerospace Studies

Department of Aerospace Studies  
College of Arts and Science  
Air Force Reserve Officer Training Corps (AFROTC)  
217 Crowder Hall  
(573) 882-7621  
airforce.missouri.edu  
www.afrotc.com

## Overview

The Air Force Reserve Officer Training Corps (AFROTC) provides the opportunity to become a United States Air Force officer while completing a college degree. The program combines traditional undergraduate education with military instruction in preparation for Air Force leadership challenges. Each semester academic AFROTC classes will build a foundation for application in a two-hour Leadership Lab.

## Scholarships

**High School Seniors:** Air Force ROTC offers an excellent scholarship program for highly qualified students. Many of these scholarships pay full tuition. All of the scholarships include an annual textbook allowance and a tax-free monthly stipend during the academic year. The high school scholarship application period runs from May of the junior year until December 1 of the senior year. Competition is based on the whole-person concept. Please visit [www.afrotc.com](http://www.afrotc.com) for the most current scholarship information.

**In-College Students:** Freshmen or sophomores can join and compete for one of many scholarship offers. In-College scholarship tuition dollar amounts vary. However, all scholarship recipients receive an annual textbook allowance and a tax-free monthly stipend during the academic school year. Visit [www.afrotc.com](http://www.afrotc.com) for the most current In-College scholarship information.

## Qualifications

Requirement to enroll in freshman/sophomore year AFROTC are:

- Full time student at a college that offers Air Force ROTC as a host school or cross-town school
- At least 14 years old (17 for scholarship recipients)
- In good physical condition
- Of good moral character

## Air Force Benefits

- Starting salary of approximately \$45K, increasing to over \$64K in four years (salary varies depending on location and dependent status)
- 30 days vacation with pay each year
- Free medical and dental care
- Up to 100% of postgraduate tuition paid
- World wide travel opportunities

## Obligation

After graduating from college and successfully completing all Air Force ROTC requirements, cadets receive a commission as a second lieutenant with an obligation of four years of service in the active duty Air Force. Pilots incur a ten-year commitment from the date of graduation from pilot training. A few additional career fields require a six or eight year commitment.

## Minor in Aerospace Studies

A minor in Aerospace Studies is available upon the completion of 15 semester hours, of which 12 hours are taught by Aerospace Studies. The additional 3 hours must be approved by the Department of Aerospace Studies and be in the academic area of history, political science, sociology, military science disciplines, or peace studies.

# Department of Anthropology

R. L. Lyman, Chair  
College of Arts and Science  
107 Swallow Hall  
(573) 882-4731  
Fax: (573) 884-5450  
<http://anthropology.missouri.edu>

## Advising Contact

Cynthia Irsik  
107 Swallow Hall  
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## Faculty

**PROFESSOR** M. V. Flinn, R. L. Lyman, M. J. O'Brien,

D. M. Pearsall, L. Sattenspiel

**ASSOCIATE PROFESSOR** C. T. Palmer, T. L. VanPool

**ASSISTANT PROFESSOR** G. E. Blomquist, L. Cowgill,

M. K. Shenk, C. S. VanPool, R. Walker

**Note:** All permanent faculty members in the department serve as undergraduate advisors for anthropology majors.

Anthropology is the study of humans and their cultures at different levels of social complexity, in different environments and at different times and places. Anthropologists view and compare human populations across cultures and consider the interplay between biology and culture in forming human behavior. Anthropological study has four foci:

- Biological anthropology; the study of the evolution and biology of humans and other primates
- Cultural anthropology; the study of the various ways of life of recent and present-day peoples
- Archaeology; the study of past cultures through analysis of their material remains
- Linguistic anthropology; the study of language in its cultural context

Each of these contributes to a discipline that attempts to understand how and why humans look and behave the way they do.

An undergraduate major in anthropology results in a broad educational base that can be the core of a liberal arts education or the background for specific vocational or professional goals of a student. Anthropology is of particular value to students planning professional careers in a world of cultural and ethnic diversity. Anthropology majors are required to take core courses in three areas of the discipline, but may emphasize one or more of them in their remaining courses. Students may also develop an interdisciplinary program in cooperation with other departments or schools. In addition, the department offers an anthropology minor to students who are majoring in other departments and who will profit by more formal training in the discipline.

The Department of Anthropology provides many opportunities for students to become involved in research and encourages all students to do so. Such experiences help a student develop creativity, critical thinking skills, and skills in problem solving and writing. Students who are interested in doing anthropological research have several options, including both working in close conjunction with a faculty member and working on an

independent project, which may lead to an honors degree for eligible students.

Undergraduate training in anthropology prepares students for work in government agencies (both in the United States and overseas), museum positions and field positions in, for example, archaeology, ethnography, human paleontology, death investigation or linguistic studies. It also prepares students for graduate study leading toward college or university teaching of anthropology. An anthropology degree also provides good background for careers in business, journalism, health care, law and many other fields.

The Department of Anthropology has a number of special facilities that are available for use in classes, for individual research opportunities, and in some cases, for the general public to visit. The list is included below. Students interested in additional information are encouraged to consult the following web site: <http://anthropology.missouri.edu/facilities.html>.

These special facilities include:

- The Museum of Anthropology and Museum Support Center
- The Human Skeletal Remains Identification Laboratory
- The Paleoethnobotany Laboratory
- The Zooarchaeology Laboratory
- The Fossil Cast Collection

## Major Program Requirements

Students completing an anthropology degree are awarded a BA degree with a major in Anthropology or a BA degree with Honors in Anthropology. The undergraduate program is designed to help students develop an appreciation of other cultures and other world views and to gain an understanding of how and why the diversity in human culture and biology came about. Several goals help faculty teach undergraduates about the nature of the discipline and how to think critically about what it is, what it means and how it is useful in today's society. These goals include:

- To recognize the broad, cross-cultural generalizations that characterize anthropology
- To recognize the value of a cross-cultural, comparative perspective
- To acquire an understanding of the basic concepts in the subfields of anthropology
- To acquire advanced knowledge in one or more of the subfields
- To acquire an awareness of the interrelationship of the subfields
- To think critically about the nature and content of anthropological questions
- To assess the structure of an argument and evaluate it and its supporting information
- To communicate effectively in writing or through oral presentation
- To strive for innovative and creative thinking
- To think independently both within and outside anthropology

Students are also encouraged to acquire experience in research design and methods (e.g., using the library and internet

effectively to gather information on a problem, or understanding and using the methods of one or more subfield). To this end, the department provides abundant opportunities for students to work with faculty members on independent research projects.

## Major Core Requirements

In addition to college foundation requirements and University graduation requirements, such as general education, all anthropology students are required to complete the following core courses (15 credits):

ANTHRO 2020: (or ANTHRO 2021 and 2022)	
Fundamentals of Archaeology with Laboratory .....	4
ANTHRO 2030: Cultural Anthropology .....	3
ANTHRO 2050: (or ANTHRO 2051 and 2052)	
Introduction to Biological Anthropology	
with Laboratory .....	5
ANTHRO 4990: Capstone Seminar in Anthropology .....	3

ANTHRO 4990: Capstone Seminar in Anthropology must be completed even if a student completes an additional major in another department. Some departments waive this requirement for students completing a double major. Students with second majors should check with the other department to see if they are required to complete both capstone courses.

## Electives

A minimum of five additional Anthropology courses (at least 15 credits) are required for the major. These courses must be distributed as follows:

Topical/theoretical	1 course
Area	1 course
Methods	1 course
Two additional courses of student's choice	

Explanation about the distribution of departmental courses among these three categories is available at <http://anthropology.missouri.edu/programs/undergrad/undergrad.html>

The choice of area, topical-theoretical and methods courses is guided by the student's individual interests and goals, and is selected in consultation with the advisor. With the consent of the student's advisor and the director of undergraduate studies, the methods/techniques or area requirements may be fulfilled by suitable courses outside anthropology. If this requirement is satisfied by a course outside anthropology, an additional anthropology course is selected to complete the 30 credits required in anthropology.

Students may also complete the methods requirement by gaining hands-on experience doing anthropological research. This experience will normally begin with ANTHRO 2950: Research Skills in Anthropology, an introduction to the methods used by one or more faculty members. This course will satisfy the methods requirement if a student enrolls in it for at least 3 credits. A student may independently choose a faculty mentor and arrange for course credit or can work with the department's undergraduate research coordinator, who will match the student's interests with those of one or more faculty members.

Students wishing to continue doing research of an independent nature may register for ANTHRO 4950: Undergraduate Research in Anthropology or for ANTHRO 4950H: Honors

Research in Anthropology. Prior approval by the director of undergraduate studies is required to use these courses to satisfy the departmental methods requirement. Honors Research may be used to satisfy the requirements for an Honors BA with a major in Anthropology, but the course is not required for that degree. Specific requirements for the Honors BA are described below.

## Related Courses

Because of the interdisciplinary nature of anthropology, the Department of Anthropology strongly recommends that all students complete a cluster of at least two or three courses that complement chosen courses within the major.

These courses may be offered by a single department or may be a related set of courses from several departments (e.g., courses in ancient history from both the Art History and Archaeology and the History departments). The courses should be chosen with the advisor and are intended to provide background in the content of other disciplines related to the student's anthropological focus. Fulfillment of a formal minor (15 credits in another department as approved by that department) or a second major (at least 30 credits in another department as approved by that department) can also be an effective way to gain expertise in related areas.

## GPA Requirements

The College of Arts and Science requires that students attain a minimum GPA of 2.0 in all courses in their major department. In addition, all core courses in anthropology (ANTHRO 2051/2052 or 2050, 2021/2022 or 2020, 2030 and 4990) must be completed with a grade of C- or higher. Students may receive a grade below C- in no more than one other course used to satisfy the major.

## Departmental Honors

The departmental program leading to the BA with Honors in Anthropology is designed for students who desire a more intensive experience in anthropology and who wish to work closely with a particular faculty member in the Anthropology Department on an independent research or scholarly project. To be accepted into and remain eligible for the honors program in the Department of Anthropology, the student must achieve and maintain a minimum cumulative GPA of 3.3 in all University course work and must maintain a GPA of 3.5 in all anthropology courses.

A student wishing to graduate with departmental honors must fulfill the basic course requirements for the BA with a major in Anthropology. In addition, the student, with the assistance of the honors advisor, is expected to develop, plan and conduct research on an independent project. It is recommended that students in the honors program enroll in ANTHRO 4950H: Honors Research in Anthropology, although projects initiated in other courses or through independent, noncredit research experiences may also be honors eligible.

To complete the honors degree, a student must submit the results of the research project as a formal honors thesis that the student defends during an oral examination conducted by an examining committee. The committee consists of three faculty members: the advisor, another faculty member and the

departmental honors director. The examination is scheduled no later than the thirteenth week of the term during which the student expects to graduate. Each member of the committee is furnished with a copy of the student's thesis or evidence of scholarly activity at least ten days before the examination. After the oral defense, the student furnishes the department with one final copy of the thesis or evidence of scholarly achievement (e.g., photographs) suitable for preservation in the departmental archive. Upon completion of the program, the examining committee recommends to the Dean of the College of Arts and Science that the student be awarded a BA with Honors in Anthropology.

### Minor in Anthropology

A student wishing to minor in anthropology should contact the director of undergraduate studies. The requirements for a minor in anthropology are:

- A total of 15 credits in anthropology approved by the director of undergraduate studies.
- No more than 6 of the 15 credits required for the minor may be drawn from courses numbered below 2000. In addition, a minimum of 3 credits must be in courses numbered 3000 or above.
- Readings, research or problems courses may constitute no more than 6 of the required 15 credits.

## Department of Art

M. Platt, Chair  
 College of Arts and Science  
 A126 Fine Arts Building  
 (573) 882-3555  
<http://art.missouri.edu>  
[umcart@missouri.edu](mailto:umcart@missouri.edu)

### Faculty

**PROFESSOR** J. M. Brueggenjohann, R. B. Clarke,  
 A. W. Hoard, L. Leong, J. Stealey  
**ASSOCIATE PROFESSOR** N. Boyer, J. H. Calvin, J. B. Grill,  
 W. A. Hawk, D. L. Huelsbergen, R. A. Wilson  
**ASSISTANT PROFESSOR** C. Daniggelis, J. Johnson,  
 G. Sampson  
**ASSISTANT TEACHING PROFESSOR** M. Ballou,  
 C. Stigliani  
**LECTURER** M. G. Langeneckert

The Department of Art in the College of Arts & Science offers BA, BFA, and MFA degrees with a major in Art. A minor in Art is also available. Students have the option to take studio courses in drawing, painting, printmaking, ceramics, sculpture, fibers, photography, digital/experimental media, and graphic design.

The BA degree is intended for the student desiring a liberal education with a concentration in art, while the BFA provides more professional training in the studio area. The BFA is the required undergraduate degree for admission to most Master of Fine Arts programs.

Students who wish to teach at the elementary and/or secondary school level normally pursue the BS in Education degree. BA and BFA candidates may acquire elementary or secondary art teaching certification by completing the additional art education requirements not already completed in their BA or BFA programs.

### Major Program Requirements: Bachelor of Art

Art majors earning a BA degree complete art foundations courses, art core requirements, and art studio electives. No more than 40 credits in studio art may be included in the BA curriculum. Students enrolled in the BA degree program may not include art or art history courses with a grade of D.

All art majors must complete a minimum of 12 credit hours of MU art coursework numbered 2000 or above. In addition, 9 hours of Art History and Archaeology courses, including two 3-hour classes numbered 2000 or above, are required.

In addition, students must complete all College of Arts and Science and University graduation requirements, including University general education.

#### Major core requirements

##### Art foundations

ART GNRL 1030: Basic 2-D Design .....	3
ART GNRL 1040: Basic 3-D Design .....	3
ART DRAW 1050: Drawing I .....	3

##### Art core requirements

ART PNT 2500: Beginning Painting .....	3
OR ART PNT 2510: Beginning	

Watercolor Painting .....	3
ART SCUL 2800: Beginning Sculpture .....	3
ART CERM 2100: Beginning Ceramics.....	3
OR ART FIBR 2300: Beginning Fibers .....	3
ART GNRL 4975: Senior Seminar in Art (Capstone)..	3
OR ART GNRL 4976: Design-Senior Seminar (Capstone).....	3
ART studio electives .....	up to 18
(may include 15 credits in one media area)	
AR H A (Art History).....	9

### Major Program Requirements: Bachelor of Fine Arts

Art majors earning a BFA degree complete art foundations courses, art core requirements, and art studio electives with 15 credits in one specific media area. Students enrolled in the BFA degree program may not include art or art history courses with a grade of D.

All art students are assigned a departmental faculty advisor. Students are encouraged to meet with the advisor to plan a program of study with a focus in one particular media area.

BFA students complete 60 to 70 credits in studio art, including a minimum of 15 credits in one specific media area, and 12 credits of art history, including at least two 3-hour Art History & Archaeology courses numbered 2000 or above. A minimum of 35 credit hours of studio art coursework must be taken at MU.

In addition, students must complete all College of Arts and Science and University graduation requirements, including University general education.

#### Major core requirements: Art foundations

ART GNRL 1030: Basic 2D Design.....	3
ART GNRL 1040: Basic 3D Design.....	3
ART DRAW 1050: Drawing I.....	3

#### Art core requirements

Drawing .....	3
ART PNT 2500: Beginning Painting .....	3
OR ART PNT 2510: Beginning Watercolor Painting .....	3
ART SCUL 2800: Beginning Sculpture .....	3
ART CERM 2100: Beginning Ceramics.....	3
AND/OR ART FIBR 2300: Beginning Fibers .....	6
ART PHOT 2600: Photography.....	3
AND/OR ART 2700 Printmaking .....	6
ART GNRL 4975: Senior Seminar in Art (Capstone)..	3
OR ART GNRL 4976: Design - Senior Seminar (Capstone).....	3
ART media area electives .....	15 minimum
ART studio electives .....	up to 19
AR H A (Art History).....	12

### Minor in Art

The minor in art requires a total of 18 credits, including 15 credits in studio art and 3 credits from the Department of Art History & Archaeology. Six credits must be studio art courses numbered 2000 or above. At least 9 of these hours must be taken while in residence at the University of Missouri.

## Department of Art History and Archaeology

A. Stanton, Chair  
College of Arts and Science  
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aha@missouri.edu  
http://aha.missouri.edu

### Faculty

**PROFESSOR** N. E. Land Jr., S. H. Langdon M. Rautman, K. W. Slane  
**ASSOCIATE PROFESSOR** K. L. Eggener, K. A. Schwain, A. R. Stanton, M. E. Yonan  
**ASSISTANT PROFESSOR** J. A. Van Dyke  
**PROFESSOR EMERITUS** W. R. Biers, H. W. Marshall, O. Overby  
**PROFESSOR EMERITA** P. D. Crown

The development of European and American art in its historic and cultural context is the subject of study in the Department of Art History and Archaeology.

The department offers BA, MA and PhD degrees with a major in Art History and Archaeology.

### Major Program Requirements - Art and Archaeology

Students may elect a broad program in art history or a more narrowly focused one in classical archaeology. Those who are planning to major in either program should begin foreign language study as early as possible.

In addition to University general education requirements and other college and University graduation requirements, students must meet the following requirements:

#### Major core requirements

AR H A 1110: Ancient and Medieval Art.....	3
AND AR H A 1120: Renaissance through Modern Art .....	3
OR the General Honors Humanities sequence.....	12
AR H A 4970: Capstone: Art History and Archaeology.....	1
At least two 4000-level courses (after appropriate prerequisites).....	6
One course numbered 4005 through 4960 must be taken in conjunction with AR H A 4970 within the last 45 credits.	

### Options

**Note:** Options do not appear on diplomas or transcripts.

#### Art history option..... 28-34

AR H A 1110: Ancient and Medieval Art.....	3
AND AR H A 1120: Renaissance through Modern Art .....	3
OR the General Honors Humanities sequence.....	12
At least one 3000-level course in each of five fields ....	15
Ancient	
Byzantine-Medieval	
Renaissance-Baroque	

18th century to the present  
Arts of the Americas  
At least two 4000-level courses (after appropriate prerequisites)..... 6  
AR H A 4970: Capstone: Art History and Archaeology ..... 1  
One course numbered 4005 through 4960 must be taken in conjunction with AR H A 4970 within the last 45 credits.

**Language Requirement**

Study is required through the reading level (i.e., 12 or 13 credits) in one language, such as German, French, Spanish or Italian. Students who plan to attend graduate school are strongly urged to study two languages.

**Courses recommended for a well-rounded degree:**

Humanities courses, such as history, literature, philosophy, aesthetics, film, classical studies or religious studies; anthropology, sociology or environmental design.

**Art courses**

Maximum 12 credits; 15, if declared as a minor.  
Students are strongly urged to take at least one course in studio art.

**Classical archaeology option..... 28-34**

AR H A 1110: Ancient and Medieval Art..... 3  
AND AR H A 1120: Renaissance through Modern Art ..... 3  
OR the General Honors Humanities sequence..... 12

At least five courses at the 3000 level, including:  
AR H A 3210: Near Eastern and Egyptian Art and Archaeology ..... 3  
AR H A 3310: Greek Art and Archaeology..... 3  
AR H A 3410: Roman Art and Archaeology ..... 3  
AR H A 3510: Byzantine and Islamic Art and Archaeology..... 3  
OR AR H A 3520: Early Medieval Art and Archaeology..... 3

Any 3000-level post-ancient lecture course:  
AR H A 3520-3850 ..... 3

At least two courses at the 4000-level, after meeting appropriate prerequisites..... 6  
AR H A 4970: Capstone in Art History and Archaeology ..... 1

One course numbered 4005 through 4840 must be taken in conjunction with AR H A 4970: Capstone within the last 45 credits of study for a total of 4 credits.

A third 4000-level course may be taken instead of a post-ancient course at the 3000 level.

**Language requirement**

Study is required through the reading level (i.e., 13 credits) in Greek or Latin. Students who plan to attend graduate school are very strongly encouraged to study French or German as well.

**Courses recommended for a well-rounded degree**

Any course in classics, classical humanities, and ancient history; courses in history, anthropology, philosophy, or religious studies; geology; literature.

**Double Majors and Dual Degrees**

Students may combine a major in art history and archaeology with a major in another department in the College of Arts and Science such as art or classical studies (a double major), or with a major in another college such as education (a dual major). Students who graduate with dual majors will be awarded two degrees; their program of study will include an additional 12 credits. Students who plan to pursue double or dual majors should complete graduation plans in both departments.

**Departmental Honors**

Departmental Honors is intended for students who have a commitment to future professional activity in art history and archaeology, who wish for more substantial research experience, and who have a record of excellence in departmental coursework.

**Requirements:**

- 3.3 or above Cumulative GPA
- 3.6 Departmental GPA
- Successful completion of one 4000-level AR H A course as a prerequisite.
- Completion of a senior honors essay, AR H A 4999

The student should apply for departmental honors the semester prior to taking AR H A 4999 by writing a proposal on the subject of their essay. The proposal is submitted in duplicate to the faculty member whom the student would like to have serve as the project's supervisor and to the Director of Undergraduate Studies, but shall be considered and must be approved by the faculty as a whole. The essay's topic should reflect both the student's interests and the expertise of the faculty supervisor. The honors essay should be of substantial length, incorporate significant individual research, and engage with theoretical, historiographical, and methodological perspectives appropriate to the topic at hand. The minimal required GPA must be maintained through the end of the student's career at MU. Completing these requirements to the faculty's satisfaction will earn the student departmental honors.

**Minor in Art History and Archaeology**

A minor in art history and archaeology requires 15 credits within the department. Nine of the 15 credits must be at the 3000-level or above.

# Division of Biological Sciences

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## Faculty

### DISTINGUISHED TEACHING-

**PROFESSOR EMERITUS** J. E. Carrel

**CURATORS PROFESSOR** J. A. Birchler, H. C. Gerhardt,  
R. Semlitsch, G. P. Smith, F. S. Vom Saal

**PROFESSOR** S. Alexander, R. B. Cocroft, J. R. Faaborg,  
C. Galen, P. H. S. Jen, M. D. Kirk, E. Liscum III,  
A. D. McClellan, K. J. Newton, T. E. Phillips, J. Schul,  
D. R. Setzer, J. C. Walker

**ASSOCIATE PROFESSOR** D. Braun, A. Chandrasekhar,  
D. Cornelison, J. D. David, L. Eggert, M. Garcia,  
M. W. Golomb, T. P. Holtsford, J. Maruniak, P. McSteen,  
J. C. Pires, D. Schulz, P. Shiu, G. F. Summers, C. Tan,  
D. L. Worcester, T. D. Zars

**ASSISTANT PROFESSOR** R. Holdo, L. Milescu,  
M. Milescu, S. Waters

**ADJUNCT ASSOCIATE PROFESSOR** H. Alexander

**ADJUNCT ASSISTANT PROFESSOR** J. Taylor, J. Weaver

**TEACHING ASSOCIATE PROFESSOR** S. L. Bush,  
R. D. Hurst, B. Stone

**TEACHING ASSISTANT PROFESSOR** D. Gayou

**PROFESSOR EMERITUS** B. G. Cumbie, A. Eisenstark,  
D. Mertz, C. D. Miles

**ASSOCIATE PROFESSOR EMERITUS** L. Chapman

The Division of Biological Sciences offers both a Bachelor of Arts and a Bachelor of Science with a major in Biological Sciences, in addition to a minor in biological sciences for students majoring in other departments. The department also offers MA and PhD degrees in Biological Sciences.

The department strongly encourages participation in departmental honors. The heart of the honors program is a year-long experience in laboratory, field, or theoretical work in any area of biology. Students work directly with outstanding faculty mentors from the Division of Biological Sciences or other life science units on campus.

## Major Program Requirements - Biological Sciences

Requirements for the BA and BS degrees with a major in Biological Sciences include course work in biology and ancillary

science departments (chemistry, physics and math). The BS degree program requires more extensive course work, with additional studies in biology and the ancillary sciences. The BA degree program is more flexible and has fewer required courses to accommodate students with dual degrees or minors in related departments. Both degree programs can be used to prepare for graduate study or professional school. Students must also complete college and university graduation requirements, including university general education requirements.

## Major core requirements

### Biology

BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
BIO SC 2200: General Genetics .....	4
BIO SC 2300: Introduction to Cell Biology.....	4
Evolutionary Biology (select from)	
BIO SC 3400: Evolution and Ecology.....	3
BIO SC 4600: Evolution .....	3
Biological diversity (select from) .....	3-5
BIO SC 2600: Ornithology .....	4
BIO SC 2700: Ichthyology.....	4
MICROB 3200: Medical Microbiology and Immunology.....	4
BIO SC 3210: Plant Systematics.....	4
BIO SC 3260: Invertebrate Zoology.....	4
BIO SC 3360: Herpetology.....	4
BIO SC 3510: Biology of Fungi.....	3
BIO SC 3660: Mammalogy .....	4
BIO SC 3710: Introductory Entomology .....	3
AND BIO SC 3715: Insect Diversity .....	2

### Capstone course (select one) (Complete in last 45 hours)

BIO SC 4950 and 4952: Undergraduate Research in Biology .....	3
BIO SC 4950H and 4952H: Honors Research in Biology.....	3
BIO SC 4976: Molecular Biology .....	3
BIO SC 4978: Cancer Biology .....	3
BIO SC 4982: Human Inherited Diseases .....	3
BIO SC 4983: Molecular Ecology.....	4
BIO SC 4984: Mammalian Reproductive Biology .....	3
BIO SC 4986: Neurology of Motor Systems.....	3
BIO SC 4988: Nerve Cells and Behavior.....	3
BIO SC 4990: Vertebrate Histology and Microscopic Anatomy .....	5
BIO SC 4994: Senior Seminar .....	3

### Electives

All biology majors must take additional biology courses to total at least 29 credits for the BA degree or 33 credits for the BS degree.

Elective credits must be in formal courses numbered above 2000 and must include at least one 3000- or 4000-level laboratory course, and one 4000-level course. BIO SC 2010, 2060 and 2100 may not be used to satisfy this requirement. MICROB 3200 may not be used to satisfy the laboratory course requirement.

Independent reading, service learning, internships, problems and seminar courses do not apply.

Students completing research courses BIO SC 4950, 4950H, 4952, or 4952H for 6 credits may apply 3 credits toward

fulfillment of biology elective hours for the BA or BS degree.

Students may repeat research courses for a total of 12 hours.

Any credit remaining after 3 hours are used as a capstone or an elective in biology will be applied toward total hours to graduate. A maximum of 12 credit hours from the following courses ( BIO SC 2940, 2960, 2965H, 4085, 4950, 4950H, 4952 and 4952H) can be counted toward graduation.

BIOCHM 4270 and 4272 may apply toward fulfillment of biology elective hours for the BA or BS degree.

### Other required courses

#### BA program ..... 21-24

General chemistry and laboratory (CHEM 1310, 1320, 1330) ..... 8

Organic Chemistry (CHEM 2100, 2110) ..... 6

One course in physics, geology or astronomy ..... 4-5

One course selected from ..... 3-5

Calculus (MATH 1400 or 1500)

STAT 1400

CMP SC 1040

#### BS program ..... 29-32

General chemistry and laboratory (CHEM 1310, 1320, 1330)..... 8

Organic chemistry with laboratory (CHEM 2100, 2110, 2130)..... 8

One year of general physics with laboratory..... 8-10

One or two courses in calculus

(either MATH 1500 or MATH 1400 and 2100)

OR STAT 1400 and CMP SC 1040 ..... 5-6

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. At least 12 hours of biology coursework must be taken in residence at MU.

## Departmental Honors

Students may earn degrees with honors by completing BIO SC 4950H and 4952H (6 credits) and preparing a manuscript suitable for publication in a journal or the abstract of an oral or poster presentation at an on-campus symposium or at a regional or national meeting of a professional society. Students should meet with the honors program director to arrange their research experience. The honors program requires sophomore standing or higher and a GPA of 3.3. Students with a GPA between 3.0 and 3.29 may petition the director of the honors program for admission. Students must however graduate with a GPA of 3.3 to receive departmental honors. The honors program director is Professor David Setzer, 410 Tucker, 882-6821, setzerd@missouri.edu.

## Minor in Biological Sciences

### Minor core requirements.....15

Introductory biology ..... 5

BIO SC 1200: General Botany with Laboratory ..... 5

OR BIO SC 1500: Introduction to Biological Systems with Laboratory..... 5

### Additional biological sciences

(from at least two areas).....10

Genetics

BIO SC 2200: General Genetics..... 4

Cell biology

BIO SC 2300: Introduction to Cell Biology ..... 4

### Evolutionary Biology

BIO SC 3400: Evolution and Ecology..... 3

BIO SC 4600: Evolution ..... 3

### Biological diversity

BIO SC 2600: Ornithology ..... 4

BIO SC 2700: Ichthyology..... 4

BIO SC 3210: Plant Systematics..... 4

BIO SC 3260: Invertebrate Zoology..... 4

BIO SC 3360: Herpetology..... 4

BIO SC 3510: Biology of Fungi..... 3

BIO SC 3660: Mammalogy ..... 4

BIO SC 3710: Introductory Entomology ..... 3

AND BIO SC 3715: Insect Diversity ..... 2

MICROB 3200: Medical Microbiology

and Immunology..... 4

At least one of the additional courses, selected from the list above, must include a laboratory. Problems, service learning, internships, readings and research (i.e., 2010, 2060, 2100, 2940, 2960, 2965H, 4085, 4950, 4950H, 4952, 4952H, and 4960) may not be used to fulfill requirements for the minor. MICROB 3200 may not be used to satisfy the laboratory course requirement.

All courses in the minor must have a grade of C- or higher with a cumulative GPA of 2.0 or higher in the minor. At least nine of the 15 credit hours in the minor must be taken in residence at MU.

# Department of Chemistry

J. Atwood, Chair  
College of Arts and Science  
125 Chemistry Building  
(573) 882-8374  
chemistry@missouri.edu

## Faculty

**CURATORS PROFESSOR** J. L. Atwood  
**CURATORS TEACHING PROFESSOR** J. E. Adams  
**RABJOHN PROFESSOR** M. Harmata  
**SCHLUNDT PROFESSOR** K. S. Gates  
**PROFESSOR** R. E. Glaser, S. S. Jurisson,  
J. D. Robertson, P. R. Sharp, J. J. Tanner, D. L. Thompson  
**ASSOCIATE PROFESSOR** C. A. Deakyne, T. E. Glass,  
C. M. Greenlief, S. W. Keller, S. Z. Lever, T. D. Sewell  
**ASSISTANT PROFESSOR** G. A. Baker, J. W. Cooley,  
R. D. Jiji, J. R. Walensky  
**ASSISTANT TEACHING PROFESSOR** B. C. Ganley,  
**INSTRUCTOR** L. Phillip Silverman

The Department of Chemistry offers four undergraduate degree tracks, three leading to a Bachelor of Science and one leading to a Bachelor of Arts. A minor in chemistry and a Bachelor of Science degree with departmental honors also are offered. At the graduate level, the department offers MS and PhD degrees in Chemistry.

## Major Program Requirements – Chemistry

Students should consult with a chemistry advisor to schedule science and mathematics requirements in the appropriate order. Note that for a number of chemistry courses there is a prerequisite of a grade of C or better in a previous course.

Students also must complete all applicable College of Arts and Sciences and University graduation requirements, including University general education. Note that students pursuing a BS degree with a major in Chemistry may opt to satisfy the foreign language requirement through alternative course work consisting of no fewer than 12 credits numbered 2000 or above.

### Major core requirements

CHEM 1320: General Chemistry II with Lab .....	3
CHEM 1330: General Chemistry III with Lab .....	3
CHEM 2400: Fundamentals of Inorganic Chemistry with Lab .....	3
CHEM 2100: Organic Chemistry I .....	3
CHEM 2110: Organic Chemistry II .....	3
CHEM 2130: Organic Laboratory I .....	2
CHEM 2140: Organic Laboratory II .....	2
(May substitute CHEM 2160H and 2170H for 2100, 2110, and 2130)	
CHEM 3200: Quantitative Methods of Analysis with Lab .....	4
CHEM 3700: Undergraduate Seminar in Chemistry ...	3
MATH 1500: Analytic Geometry and Calculus I .....	5
MATH 1700: Calculus II .....	5

## Degree Tracks

Beyond the major core requirements, each student must select a degree track. There is one track for students pursuing a BA degree and three for those pursuing a BS. The BA degree is designed to meet the needs of students who wish to gain a strong chemistry background but who may have goals other than employment as a chemist or graduate work in chemistry. The American Chemical Society certification track is recommended for BS students who desire professional employment as chemists or who plan to pursue graduate education in chemistry. A medicinal chemistry track is available to BS students who plan careers in the health professions or in pharmaceutical, clinical or medicinal chemistry. The third BS track, leading to simultaneous completion of a BS in Chemistry and a BS in Education, is appropriate for those students who wish to teach chemistry in secondary schools. More information about this third degree track is available from the Department of Chemistry.

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

### Chemistry major with BA degree

CHEM 3300: Fundamentals of Physical Chemistry .....	3
PHYSCS 1210: College Physics I .....	4
OR PHYSCS 2750: University Physics I .....	5
PHYSCS 1220: College Physics II .....	4
OR PHYSCS 2760: University Physics II .....	5
Collateral courses .....	12
Additional course work at the 2000-level or higher out side of chemistry. For example: biological sciences, mathematics, biochemistry or business	

### Chemistry major with BS degree

#### American Chemical Society certification track

CHEM 3310: Physical Chemistry I .....	3
CHEM 3330: Physical Chemistry II .....	3
CHEM 3340: Physical Chemistry Laboratory .....	3
CHEM 4200: Instrumental Methods of Analysis with Lab .....	3
CHEM 4400: Inorganic Chemistry .....	3
CHEM 4950: Senior Research .....	3
BIOCHM 4270: Biochemistry .....	3
PHYSCS 2750: University Physics I .....	5
PHYSCS 2760: University Physics II .....	5
MATH 2300: Calculus III .....	3

#### Medicinal chemistry track

CHEM 3300: Fundamentals of Physical Chemistry ....	3
CHEM 4170: Medicinal Chemistry .....	3
CHEM 4600: Introduction to Radiochemistry with Lab..	3
OR BIO SC 4328: Introductory Radiation Biology ...	3
OR approved substitution .....	3
BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
BIO SC 2200: General Genetics .....	4
BIO SC 2300: Introduction to Cell Biology .....	4
BIOCHM 4270: Biochemistry .....	3
BIOCHM 4272: Biochemistry .....	3
PHYSCS 1210: College Physics I .....	4
OR PHYSCS 2750: University Physics I .....	5
PHYSCS 1220: College Physics II .....	4
OR PHYSCS 2760: University Physics II .....	5

## Double Majors

No specific programs (other than the dual degree program with the College of Education noted above) are offered, although it is possible to combine a chemistry major (BS or BA) with a variety of other majors, including biological sciences, mathematics and physics.

## Departmental Honors

A BS with Honors in Chemistry is available to honors-eligible BS students who complete CHEM 4990H and 4991H. (These courses replace CHEM 4950 in the ACS certification track.)

## Minor in Chemistry

A minor in chemistry is awarded for the completion of CHEM 1320 and 1330, 2100, 2110, 2130 and 3200. If a student's major already requires all of these courses, then an additional elective course not included in that major must be included in the chemistry minor. At least 9 hours of this course work must be taken at MU.

## Chinese

For courses in Chinese language, see the Department of German and Russian Studies.

## Department of Classical Studies

D. Trout, Chair  
College of Arts and Science  
405 Strickland Hall  
(573) 882-0679  
strodtmand@missouri.edu

### Faculty

**PROFESSOR** J. M. Foley, D. M. Hooley, T. A. Tarkow  
**ASSOCIATE PROFESSOR** R. D. Marks, A. Mori,  
D. J. Schenker, D. Trout, B. P. Wallach  
**ASSISTANT PROFESSOR** R. F. Foley  
**ASSOCIATE TEACHING PROFESSOR** M. H. Barnes

The Classical Studies Department offers courses in the life, languages, cultures, and thought of the ancient Greeks and Romans.

The department offers a BA degree with a major in Classics and emphasis areas in Classical Humanities, Greek, Latin, and Classical Languages; MA degrees in Classical Languages and PhD degrees in Classical Studies. Minors are also available.

### Major Program Requirements - Classics

BA major requirements are specified in the four major emphasis areas: Latin, Greek, Classical Languages, and Classical Humanities. These must be met in addition to college and university requirements, including University general education.

### Major with Honors

The undergraduate program can also include 3-6 credits in an honors thesis course (CL HUM 4970H or CLASS 4970H). These credits, in addition to major requirements and a 3.5 GPA in all classical studies courses (as well as a 3.3 overall GPA), lead to a BA degree with a major in Classics with Honors.

### Emphasis Areas

#### Emphasis in Classical Humanities

CL HUM Courses at the 1000-2000 levels ..... 6-9  
CL HUM Courses at the 3000-level or above ..... 15-18  
(Latin or Greek language courses numbered 4300 or above can be used to replace up to two required Classical Humanities courses.)

#### Emphasis in Latin

LATIN 1100, 1200 and 2000  
OR 1100H, 1200H, and 2000H ..... 13  
(may be used to help satisfy the foreign language requirement in the College of Arts and Science)  
LATIN 4300: Latin Poetry ..... 3  
LATIN 4350-level or above ..... 9  
CL HUM courses at the 2000-level or above ..... 9

#### Emphasis in Greek

GREEK 1100, 1200, and 2000 ..... 13  
(may be used to help satisfy the foreign language requirement in the College of Arts and Science)  
GREEK 4300: Intermediate Readings ..... 3  
GREEK 4350-level or above ..... 9

CL HUM courses at the 2000-level or above..... 9

**Emphasis in Classical Languages**

GREEK or LATIN 1100, 1200, and 2000

OR 1100H, 1200H and 2000H..... 13

(may be used to help satisfy the foreign language requirement in the College of Arts and Science)

GREEK 4300: Intermediate Readings ..... 3

LATIN 4300: Latin Poetry..... 3

OR LATIN 4350: Latin Prose ..... 3

4000-level course in Greek or Latin ..... 3

CL HUM courses at the 2000-level or higher ..... 9

**Double Majors**

A double major is a good way of integrating two related areas of interest, such as Classics and Archaeology or English and Philosophy. Students looking forward to a career in medicine or the sciences may use a double major (Classics and Biology or Chemistry, for instance) to ensure a thorough background in the humanities to balance their scientific studies. Usually minor or related field requirements for each major are satisfied by major courses in the other department. Consult with departmental advisors about specifics.

**Minor in Classics**

The department offers minors with an emphasis in one of three areas, each requiring 15 credits.

**Minor in Classics with an emphasis**

**in Classical Humanities .....15**

1000 through 2000-level..... 3-6

3000 through 4000-level..... 9-12

(3 credits in Greek or Latin language at the 4300-level or above may substitute for equivalent credits)

**Minor in Classics with an emphasis in Latin .....15**

LATIN 4300: Latin Poetry..... 3

One 4350-level or higher Latin course ..... 3

CL HUM courses at the 2000-level or higher ..... 9

**Minor in Classics with an emphasis in Greek .....15**

GREEK 4300: Intermediate Readings..... 3

One 4350-level or higher Greek course..... 3

CL HUM courses at the 2000-level or higher ..... 9

# Department of Communication

M. J. Porter, Chair

College of Arts and Science

108 Switzler Hall

(573) 882-4431

<http://communication.missouri.edu>

**Faculty**

**ASSOCIATE PROFESSOR** J. Aubrey, D. S. Dougherty,

M. S. McKinney, R. Meisenbach, M. J. Porter

**ASSISTANT PROFESSOR** L. Behm-Morawitz,

M. Click, C. Colaner, C. Hesse, J. B. Houston, B. Warner

**ASSOCIATE PROFESSOR EMERITUS** M. J. Smythe

The Department of Communication offers courses in creating and critically evaluating messages. These messages persuade, inform and entertain in contexts such as one-to-one interactions, communication in organizations, and media. Students prepare for careers in broadcasting, sales, public relations, law, politics, marketing and new media.

The department offers BA, MA and PhD degrees with majors in Communication.

**Admission**

Because of student interest in communication programs, admission is restricted. Students must apply for admission no earlier than the first semester of their sophomore year, or during the semester in which they will complete 45 credits. A copy of the admission procedures and policies is available in the department office or at <http://communication.missouri.edu>.

The student's grade point average from the MU system as adjusted by the MU grade repeat policy and the grade point averages in completed communication courses at MU are the primary criteria used to determine admission to the program.

**Transfer Student Admission**

Transfer students are not eligible for admission until they have completed at least one semester in residence (12 credits) and a communication course in residence. Students who are not admitted may reapply for consideration in subsequent terms.

**Major Program Requirements - Communication**

The major in communication includes a minimum of 30 hours and a maximum of 40 hours in communication courses. Each course is 3 credits unless otherwise noted. Students must also complete College of Arts and Sciences and University requirements, including University general education requirements.

**Major core requirements .....9**

COMMUN 1200: Public Speaking ..... 3

COMMUN 3050: Survey of Communication Studies.. 3

COMMUN 4974: Senior Project ..... 3

OR COMMUN 4975: Visual Literacy ..... 3

**Areas of Focus**

In addition to required courses, a student must select one of three areas of focus. Students must complete 12-15 hours in

one area of focus including one of the core courses in that area (\*). The student must take one course in each of the other areas of focus. A course may only count once toward meeting these requirements.

**Interpersonal Focus:**

- COMMUN 3422: Communication Research Methods..... 3
- \*COMMUN 3441: Nonverbal Communication ..... 3
- COMMUN 3470: Culture as Communication ..... 3
- COMMUN 3525 Conflict and Communication..... 3
- \*COMMUN 3561: Relational Communication ..... 3
- COMMUN 3571: Group Decision Making Processes . 3
- COMMUN 4412: Gender, Language, and Communication ..... 3
- COMMUN 4415: Language and Discourse ..... 3
- COMMUN 4440: Ethical Issues in Communication.... 3
- COMMUN 4520: Family Communication ..... 3

**Organizational Communication Focus:**

- COMMUN 3422: Communication Research Methods..... 3
- \*COMMUN 3460 Organizational Advocacy..... 3
- COMMUN 3470: Culture as Communication ..... 3
- COMMUN 3525 Conflict and Communication..... 3
- COMMUN 3571: Group Decision Making Processes . 3
- COMMUN 3575: Business and Professional Communication ..... 3
- COMMUN 3580: Crisis Communication..... 3
- COMMUN 4440: Ethical Issues in Communication.... 3
- \*COMMUN 4476: Organizational Communication .... 3

**Political and Mass Communication Focus:**

- \*COMMUN 2100: Media Communication in Society..... 3
- COMMUN 3310: Message Design and Writing for the Media..... 3
- COMMUN 3390: Television Studio Production ..... 3
- COMMUN 3395: Television Field Production..... 3
- COMMUN 3422: Communication Research Methods..... 3
- COMMUN 3490: Mass Media Theory..... 3
- COMMUN 3572: Argument and Advocacy ..... 3
- COMMUN 3580 Crisis Communication..... 3
- COMMUN 3636: Contemporary Issues in Mass Communications..... 3
- \*COMMUN 4473: Political Communication ..... 3
- COMMUN 4474: Theory and Research in Persuasion ..... 3
- COMMUN 4481: Principles of Rhetoric..... 3
- COMMUN 4618: Television Program Analysis and Criticism..... 3
- COMMUN 4638: New Technologies and Communication ..... 3

**Electives (beyond 30 hours)**

- COMMUN 2315: Basic Audio Production and Performance ..... 3
- COMMUN 3315: Advanced Audio Production..... 3
- COMMUN 3570: Performance of Literature..... 3
- COMMUN 4940: Internship ..... 1-6

**Potential options for each area of focus depending on specific topic:**

- COMMUN 2701/2703/2705: Topics in Communication (3 hours)
- COMMUN 3701/3703/3705: Topics in Communication (1-3 hours)
- COMMUN 4701/4703/4705: Topics in Communication (1-3 hours)
- COMMUN 4996H/4997H: Honors in Communication (2 hours)
- COMMUN 4960: Directed Readings (1-3 hours)

**Departmental Honors**

To receive departmental honors, a student must earn a minimum overall MU GPA of 3.3 and a minimum GPA of 3.5 in courses in communication completed at the University of Missouri. Students must also earn a grade of A+, A, or A- in COMMUN 4974 or 4975, a research project completed for a minimum of 3 credits with a regular faculty member, or a creative project completed for a minimum of 3 credits with a regular faculty member.

# Computer Science

Cooperative program between the College of Arts and Science and the College of Engineering

The Bachelor of Arts with a major in Computer Science emphasizes the applications of computer science. Students are encouraged to select courses in areas that complement their computer science major. These can include courses in computer animation, business, art, music, geography and many other areas. Courses in digital logic, database management, computer languages, business-oriented calculus and basic statistics prepare the student for a variety of professional settings.

Graduates of the BA program have stronger backgrounds in computer science than graduates of typical data processing or management information systems programs. With the proper choice of electives, BA graduates are prepared to enter advanced degree programs in such areas as business, medicine, law and the arts.

While working toward their degrees, many computer science students participate in cooperative education or internship programs. In doing so, they gain valuable professional experience and often are exposed to equipment and software that may not be available on the campus. Many students return to the co-op or internship company upon graduation.

## Major Program Requirements - Computer Science

The BA requires the completion of 120 credits. To graduate, a student must earn a 2.0 GPA or better in all courses required in the major. A 2.0 GPA is required in CMP SC courses, counting toward the grade point average every time a course is taken with the exception of courses for which the course repeat policy has been used. One excused D is allowed in the courses required in the major.

### Major core requirements

#### Computer science courses ..... 36-39

CMP SC 1000: Introduction to Computer Science .....	1
CMP SC 1050: Algorithm Design and Programming I.....	3
CMP SC 2050: Algorithm Design and Programming II.....	3
CMP SC 3270: Introduction to Digital Logic .....	3
CMP SC 3330: Object Oriented Programming.....	3
CMP SC 3380: Database Applications and Information Systems.....	3
CMP SC 4320: Software Engineering I.....	3
CMP SC 3530: UNIX Operating System .....	3
CMP SC 4970: Senior Capstone Design I.....	3
CMP SC 4980: Senior Capstone Design II.....	2

Note: Students without previous programming experience should begin by taking CMP SC 1040: Introduction to Problem Solving and Programming.

Three CMP SC courses numbered 2000 or above for which the student has the prerequisite (most students choose from the following).....	9
CMP SC 2830: Introduction to the Internet, WWW and Multimedia Systems .....	3
CMP SC 3280: Assembly Language and Computer Organization .....	3

CMP SC 3940: Internship in Computer Science .....	3
CMP SC 4001: Topics in Computer Science.....	1-3
CMP SC 4330: Object Oriented Design I.....	3
CMP SC 4380: Database Management Systems I.....	3
CMP SC 4450: Principles of Programming Languages.....	3
CMP SC 4610: Computer Graphics I .....	3
CMP SC 4830: Science and Engineering of the World Wide Web .....	3
<b>Additional requirements .....</b>	<b>9</b>
MATH 1300: Finite Mathematics .....	3
MATH 1400: Calculus for Social and Life Sciences I...	3
STAT 2500: Introduction to Probability and Statistics I.....	3

## Arts and Science Foundation Requirements

ENGLSH 1000: Exposition and Argumentation (C-range grade is required) .....	3
Foreign language sequence .....	12-13

### Breadth of Study

Biological or physical science .....	3-6
Behavioral sciences (anthropology, psychology or sociology) .....	5-6
Social sciences (from at least two of the following fields) .....	9
History, economics, political science or geography (state law requires one of these courses in American history or American government: HIST 1100, 1200, 1400, 2440, 2210, 4000, 4220, 4230 or POL SC 1100, 2100)	
Humanities/fine arts (from at least three different departments).....	12

### Depth of Study

Among the courses taken to meet the social science, behavioral science, humanities/fine arts, and biological and physical sciences requirements, at least three courses from at least two of the four areas must be numbered 2000 or above. One 3-credit course must be completed under the auspices of MU. At least 30 hours must be at the 3000 or above.

Two courses must be designated Writing Intensive. A C-range grade in ENGLSH 1000 is prerequisite for all WI courses. A C-range grade is required in the WI courses.

For other graduation requirements see University general education requirements and College of Arts and Science foundation requirements.

## Minor in Computer Science

A minor in computer science is offered. To obtain a minor, a student must complete courses approved by the Department of Computer Science. The student must earn a grade of C- or better in each course counting toward the minor and have a 2.0 GPA in all courses counting toward the minor. The following courses are required:

CMP SC 1050: Algorithm Design & Programming I...	3
CMP SC 2050: Algorithm Design & Programming II.	3
CMP SC 3270: Introduction to Digital Logic .....	3
Three additional department-approved CMP SC courses with at least one numbered above 3000.....	9

## Minor in Information Technology

A minor in Information Technology is offered through the College of Engineering. To obtain a minor, a student must complete courses in a sequence approved by the Department of Computer Science. The student must earn a grade of C- or better in each course counting toward the minor and have a 2.0 GPA in all courses counting toward the minor. At least 9 hours must be taken in residence at MU. A total of 15 credit hours are required.

The following courses are required for sequence one. At least 9 hours must be at the 2000 level or above. For possible sequences, contact the department.

INFOTC 2610: Audio/Video I.....	3
INFOTC 3640: Digital Effects .....	3
INFOTC 4640: Digital Effects II .....	3
INFOTC or CMP SC Electives.....	6

## Department of Economics

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### Faculty

**COOK PROFESSOR** C. Otrok  
**FOSTER PROFESSOR** R. Harstad  
**LAY PROFESSOR** J. H. Haslag  
**PROFESSOR** D. M. Mandy, J. Milyo, P. Mueser, X. Ni,  
M. J. Podgursky, X. Wang  
**ASSOCIATE PROFESSOR** S. P. Aura, E. M. Basker,  
N. A. Raymon, V. Trindade  
**ASSISTANT PROFESSOR** C. Gu, Y-C Hsu, C. Koedel,  
D. Lee, O. Loginova, J. I. Miller  
**ASSISTANT TEACHING PROFESSOR** G. Chikhladze,  
M. Lee, S. A. Ryan, G. Sharma  
**ASSISTANT RESEARCH PROFESSOR** M. Ehlert  
**ASSISTANT ADJUNCT PROFESSOR** S. K. Klein  
**PROFESSOR EMERITUS** W. W. Hicks, M. L. Lee,  
C. F. Menezes, R. Wallace  
**ASSOCIATE PROFESSOR EMERITUS** C. Geiss,  
D. Schilling

The Department of Economics takes a global view of economics, with an emphasis on applied problems. An economics major prepares students for careers in business and government and for graduate work in areas such as economics, business and law. A basic understanding of economics develops insight into the many issues facing contemporary society, such as corporate downsizing, environmental pollution, urban decay, poverty, international trade, health care, educational reform, politics and sports deals.

In addition to the BA and the BS degree in the College of Arts and Science, the Economics Department offers a concentration within the Bachelor of Science in Business Administration (BSBA) degree in the College of Business. The department also offers MA and PhD degrees in Economics. A minor is also available.

Before a graduation plan in economics will be approved, students in the College of Arts and Science must have an overall GPA of 2.5 after 30 credits or a GPA in economics of 2.67 after at least 8 credits of courses in economics.

### Major Program Requirements – Economics

In addition to the major core requirements, students must complete college and University graduation requirements including

University general education requirements.

## Options

Students majoring in economics may earn either a BS or a BA degree. The last 21 credit hours in Economics must be completed in residence. Depending upon which degree is sought; students must choose one of the options below:

### BA with a major in Economics

The BA degree is designed for students who plan to continue their education in non-economics fields and for students who plan to seek employment after graduation. Post-graduate educational alternatives include law school or programs in the business school, political science and journalism. Post-graduate employment opportunities include positions in state government, banking, insurance or other financial sectors, and private sector businesses. Frequently, students in humanities or fine arts complete a BA in Economics as a second major in order to increase their employment potential.

### Major Core Requirements for BA

**Economics (with a grade of C or above; grades of C- or below will not be accepted)**

#### General Principles

ECONOM 1014: Principles of Microeconomics  
AND ECONOM 1015: Principles of Macroeconomics  
OR

ECONOM 1024: Fundamentals of Microeconomics  
AND ECONOM 1015: Principles of Macroeconomics  
OR ECONOM 1051: General Economics..... 5-6

ECONOM 4351: Intermediate Microeconomics..... 3  
ECONOM 4353: Intermediate Macroeconomics..... 3  
ECONOM 4371: Introductory Econometrics ..... 3  
ECONOM 4970: Senior Seminar in Economics  
(Capstone course)..... 3

#### Mathematics and Statistics (C- grades will be accepted)

MATH 1300: Finite Mathematics ..... 3  
AND MATH 1400: Calculus for Social and  
Life Sciences I..... 3  
OR

MATH 1500: Analytic Geometry and Calculus I..... 5  
STAT 2500: Introduction to Probability and  
Statistics I..... 3

### BS with a major in economics:

The BS degree is for students who plan to attend graduate school in economics or finance.

### Major Core Requirements for BS

**Economics (with a grade of C or above; grades of C- or below will not be accepted)**

#### General Principles

ECONOM 1014: Principles of Microeconomics  
AND ECONOM 1015: Principles of Macroeconomics  
OR

ECONOM 1024: Fundamentals of Microeconomics  
AND ECONOM 1015: Principles of Macroeconomics  
OR ECONOM 1051: General Economics..... 5-6

ECONOM 4351: Intermediate Microeconomics..... 3  
ECONOM 4353: Intermediate Macroeconomics..... 3  
ECONOM 4370: Quantitative Economics ..... 3  
ECONOM 4371: Introductory Econometrics ..... 3

ECONOM 4970: Senior Seminar in

Economics (Capstone course) ..... 3

#### Mathematics and Statistics (C- grades will be accepted)

MATH 1500: Analytic Geometry and Calculus I..... 5

MATH 1700: Calculus II..... 5

MATH 2300: Calculus III ..... 3

MATH 4140: Matrix Theory..... 3

STAT 4750: Introduction to Probability Theory ..... 3

AND STAT 4760: Statistical Inference ..... 3

OR

STAT 4710: Introduction to Mathematical Statistics.... 3

AND STAT 4510: Applied Statistical Models I ..... 3

MATH 3000: Introduction to Advanced Mathematics.. 3

OR MATH 4100: Differential Equations..... 3

OR STAT 4000+ (Economics Dept.  
approved course) ..... 3

#### Foreign Language Alternative (for BS degree)

The student may elect to fulfill a special option area instead of taking a foreign language. This area consists of at least 12 credits numbered 2000 or above that are not from the parent department, are not normally required of all departmental majors and do not appear elsewhere in the area of concentration. This program is planned by the student's advisor and must be approved by the Director of Undergraduate Studies.

## Electives

At least four (for the BA) or three (for the BS) of the following, with not more than two at the 3000 level, selected with the advisor and completed with a grade of C or above; grades of C- or below will not be accepted:

ECONOM 3004: Topics in Economics

ECONOM 3224: Introduction to International Economics

ECONOM 3229: Money, Banking and Financial Markets

ECONOM 3256: Economics of Public Policy: Antitrust  
Economics

ECONOM 4004: Topics in Economics

ECONOM 4311: Labor Economics

ECONOM 4312: Labor Market Analysis

ECONOM 4315: Public Economics

ECONOM 4316: State and Local Finance

ECONOM 4320: History of Economic Thought

ECONOM 4322: Economics of Regulation and Antitrust

ECONOM 4325: The International Monetary System

ECONOM 4326: Economics of International Trade

ECONOM 4329: The Banking System

and the Money Market

ECONOM 4335: Economics for Decision Making

ECONOM 4340: Game Theory

ECONOM 4345: Economics of Education

ECONOM 4355: Industrial Organization and Competitive  
Strategy

ECONOM 4357: Health Economics

ECONOM 4360: Economic Development

ECONOM 4361: Comparative Economic Systems

ECONOM 4367: Law and Economics

ECONOM 4370: Quantitative Economics

ECONOM 4384: Structural Change in Economic History

ECONOM 4385: Problems in Economics

ECONOM 4965: Independent Study in Economics

NOTE:

Any two of ECONOM 3224, 4325 and 4326 may be taken

for credit. But if all three are taken, ECONOM 3224 will not count towards an economics degree.

Either ECONOM 3229 or 4329 may be taken for an economics degree. If both are taken, only one will count towards an economics degree.

## Major Program Requirements – Business Administration

See the College of Business for requirements for the Bachelor of Science with a major in Business Administration (BS BA).

## Double Majors, Dual Degrees and Five-Year Program

For double majors and dual degrees, students must satisfy all requirements of both degree programs. Some courses may be allowed to count toward both degrees. Carefully chosen elective courses in addition to required courses can facilitate double majors and dual degrees.

Common double majors in the College of Arts and Science are:

- BA with majors in Economics and Political Science, Psychology, History, English or Communication
- BS with majors in Economics and Statistics or Mathematics

Common dual degrees with other schools and colleges are:

- BA with majors in Economics and Journalism, Accountancy, Finance, Marketing or Education
- BS with majors in Economics and Engineering

By planning their courses carefully, Economics majors can earn a bachelor's and a master's degree in economics in five years. Students who are in the BA or BS programs are good candidates for this program. Students must be accepted to this program by the beginning of their senior year.

Students interested in pursuing any of these options should contact the Director of Undergraduate Studies in economics for further advising.

## Departmental Honors

Candidates for honors must be economics majors with a GPA of 3.30 overall and a GPA of 3.50 or higher in economics courses. Students must complete ECONOM 4995: Honors Pro Seminar and ECONOM 4971: Supplemental Senior Seminar in Economics (capstone courses) in order to be awarded departmental honors.

## Minor in Economics

Students wishing to minor in economics must take a minimum of 18 credits in economics and the last 12 credit hours in residence. Courses must include ECONOM 1014 (or 1024) and 1015 (or 1051 instead of the previous two courses\*) and 3251 or 4351 plus three economics electives including at least one at the 4000 level. All required courses must be completed with a grade of C or above; grades of C- or below will not be accepted. Students who take both ECONOM 3251 and 4351 will receive credit for only one of these courses.

\*A minor may be earned with 17 credits in economics by students who take ECONOM 1051H rather than ECONOM 1014(1024)/1015; but not by students who take ECONOM 1051. The one credit hour reduction is exclusively for students who take the Honors section of ECONOM 1051.

# Department of English

David Read, Chair  
College of Arts and Science  
114 Tate Hall  
(573) 882-6421

## Faculty

**CURATORS PROFESSOR** J. M. Foley, E. Lawless

**PROFESSOR** A. Barnstone, S. Cairns, C. Eady,  
C. Hudson-Weems, G. L. Justice, T. L. Lewis, D. K. Looser,  
R. S. Morgan, P. Okker, K. L. Piper, A. Prahlad, T. V. Quirk,  
E. Ragland, D. T. Read, R. B. Schwartz, M. A. Swick,  
N. M. West

**ASSOCIATE PROFESSOR** V. M. Carstens, E. Chang,  
S. Cohen, J. O. Evelev, E. F. Glick, M. J. Gordon,  
N. I. Heringman, A. P. Hoberek, W. J. Kerwin, M. A. Konkle,  
A. C. E. Langley, E. E. Lipton, C. Okonkwo, C. Strathausen,  
D. Strickland, M. Townsend,

**ASSISTANT PROFESSOR** F. Dickey, R. Dingo,  
L. Gurton-Wachter, S. M. Harrison, J. Hearne, S. Karian,  
J. Kramer, E. J. Levy, M. Marlo, A. Myers, A. Socarides

The English Department provides a major with tracks in literature, African Diaspora Studies, language, creative writing and folklore/oral tradition. A major in English develops skills in reading, critical thinking and writing. A degree in English is not intended to provide specific vocational training but rather to give a broad, open-ended education that can lead to many different careers, especially those requiring excellent communication skills.

Recent graduates have gone on to careers in teaching, publishing, television, film, advertising, public relations, insurance and government. In addition, English is excellent preparation for graduate or professional schools such as law and business.

The department offers BA, MA and PhD degrees with majors in English. Two minors are also available.

## Major Program Requirements - English

English majors must complete 30 credits in English. A minor is recommended. At least 24 hours in the major must be in courses numbered above 2999. Remaining hours may be either lower division or junior/senior level courses.

No more than 40 credits in English may be counted toward graduation. The required English composition credits are excluded from this maximum and must be taken before the student enrolls in any English courses numbered above 2009.

### Major core requirements .....30

UNIT I..... 3

ENGLSH 2100: Writing About Literature

UNIT II: Literature ..... 18

At least 3 credits at the 3000+ level in each area:

A. Beginning to 1603

B. 1603 to 1789

C. 1789 to 1890

D. 1890 to the Present

UNIT III: Folklore/Oral Literature, Language, Rhetoric,  
Composition, Theory and Criticism ..... 6

UNIT IV: Capstone ..... 3

ENGLSH 4970 Capstone Experience

## Departmental Honors

To graduate with honors in English, students must have a cumulative GPA of 3.3 and a GPA of 3.5 in English courses and successfully complete ENGLSH 4996 and 4995. Students wishing to enroll in these courses must complete an application process in January of their junior year. More information is available from the Director of Undergraduate Studies.

## Tracks

Students may choose an optional track in African Diaspora studies, creative writing, folklore or language. Choosing one of these tracks increases the major requirements to 33 credits. The requirements in Units II and III (described above) are reduced by 3 credits each and a student takes 9 credits in one of the four track areas described below. (Note: Tracks do not appear on transcripts or diplomas.)

### African Diaspora track.....9

Three of the following courses in African Diaspora studies:  
ENGLSH 2400, 3400, 3410, 3420, 4400, 4410, 4420, 4480 and 4710.

### English language track.....9

Three of the following courses in the English language:  
ENGLSH 1060, 4600, 4610, 4620, 4630, 4640, 4650, 4670

### Creative writing track .....9

Three courses in creative writing in fiction, creative nonfiction, playwriting, or poetry:

Fiction: ENGLSH 1510, 2510 and 4510

Nonfiction: ENGLSH 1520, 2520 and 4520

Playwriting: ENGLSH 2560, 3560 and 4560

Poetry: ENGLSH 1530, 2530 and 4530

### Folklore track.....9

Three of the following courses in folklore and oral tradition:

ENGLSH 1700, 2700 or 2770, 3700, 4700, 4770, 4780

The folklore student also takes a minimum of three courses in associated fields outside the English Department (such as anthropology, linguistics, art history or classics). These courses can be used to fulfill general requirements in the College of Arts and Science.

## Minor Program Requirements

### Minor in English

The English minor consists of 15 credits beyond the university composition requirement. It must include at least 6 credits in courses numbered 3000 or above and may include no more than 6 credits in special problems, methods or readings courses such as ENGLSH 4955 and 4960. The minor is a flexible and varied program that can be tailored to individual students' needs. Students wishing to minor in English should consult the English Department's undergraduate advisor.

### Minor in English Writing

The writing minor is a 15-credit course of study designed to help students in all majors and colleges improve their writing and critical thinking skills. It requires writing courses specified by the department, including 6 credits in courses numbered 3000 or above. Consult the English Department undergraduate advisor for specific requirements.

## Film Studies

Roger Cook, Program Director

Interdepartmental Program in the College of Arts and Science  
451 Strickland  
(573) 882-9452  
cookrf@missouri.edu  
filmstud@missouri.edu

The Film Studies Program offers a major that focuses on film analysis and covers the history of cinema, national and global cinemas, film theory and genres, documentary film, and contemporary visual culture. As a classic liberal arts discipline, film studies teaches the fundamental skills that make a college degree essential in career-oriented jobs: research, information management, critical analysis, cogent development of ideas, developing and testing of hypotheses, and writing and communication. It combines an emphasis on critical thinking, research, problem-solving, written expression, and cultural literacy with the discipline's unique attention to visual analysis. Students emerge with a greater degree of visual literacy at a time when our culture is becoming increasingly dependent upon visual communication. As a complement to the main focus on the critical study of film, the program also offers some production courses and occasional opportunities to participate in filmmaking projects. For those who want to pursue a career in the TV/motion picture or the fast-growing digital media industry the major provides a strong foundation that can be combined with the learning of specific industry skills.

The program offers a BA degree in film studies as well as an undergraduate minor.

## Major Program Requirement

Film Studies majors must complete 30 credits in film studies, with a grade of C- or above in every course. A minor is recommended. At least 15 hours in the major must be in courses at the 3000 level or above. Students must also complete College of Arts and Sciences and University requirements, including University general education requirements. No more than 40 credits in Film Studies may be counted toward graduation.

The 30 hours of Film Studies courses for the major must meet the following requirements:

### Major core requirements.....30

#### UNIT I: .....3

FILM S 1800: Introduction to Film Studies..... 3

#### UNIT II: .....6

FILM S 2820 Trends in World Cinema..... 3

One of the following two courses:

FILM S 2830: American Film History I, 1895-1950..... 3

FILM S 2840: American Film History II, 1950-Present 3

#### UNIT III:

Electives .....18

At least six of the elective hours must come from one of the following national cinema courses:

FILM S 2850: Italian Cinema ..... 3

FILM S 2865: The Art of Soviet and Russian Cinema . 3

FILM S 3830: History of German Film ..... 3

FILM S 3840: German Film After 1945 ..... 3

FILM S 3845: Modern Israeli Film..... 3

FILM S 3870: Russian Women and Film .....	3
FILM S 3875: Brazilian Cinema .....	3
FILM S 3880: Contemporary Chinese Film .....	3
FILM S 3890: Russian and Soviet Film .....	3

**At least six of the elective hours must come from one of the following courses on theory and method:**

FILM S 2860: Film Themes and Genres.....	3
FILM S 2870: Film and Literature .....	3
FILM S 3780: Architecture in Film .....	3
FILM S 3785: Art and Artists on Film.....	3
FILM S 3820: Major Directors .....	3
FILM S 3850: Studies in Film History .....	3
FILM S 3855: Documentary Film .....	3
FILM S 4810: Film Theory.....	3
FILM S 4820: Studies in Film Genre .....	3
FILM S 4840: Culture and Media.....	3
FILM S 4935: Adaptation of Literature for Film .....	3

**UNIT IV:.....3**  
 FILM S 4880 Capstone Experience .....

OR One 4000-level FILM S course of at least 3 credits

### Double and Dual Majors

A film studies major can be paired with a major in another department. Students must meet the requirements of both departments. The program for each major must be approved by the advisor in the degree-granting department.

### Departmental Honors

To receive departmental honors, a student must earn a minimum overall MU GPA of 3.3 and a minimum GPA of 3.5 in courses in film studies completed at the University of Missouri. In addition, with the assistance of an honors thesis advisor, the student must develop, plan and conduct research on an independent project, normally while enrolled in FILM S 4995.

### Minor in Film Studies

To earn a minor in film studies, students must earn 15 credits in film studies. Required courses include 1800, and either 2830 or 2840. At least two courses must be at the 3000 level or above. The minor is a flexible and varied program that can be tailored to individual students' needs. Students wishing to minor in film studies should consult the film studies advisor.

## General Studies Program

Office of Special Degree Programs  
 College of Arts and Science  
 114 Switzler Hall  
 (573) 882-6060

The Bachelor of General Studies (BGS) is designed for students who want a multi-disciplinary major to meet educational and career objectives. Students who pursue the BGS need a high degree of motivation and independence. The BGS is intended for students pursuing a first bachelor's degree and will not be approved as a second bachelor's degree.

The BGS degree requires a minimum of 120 credit hours with a minimum of 30 credit hours numbered 3000 or above. Students meet with the academic advisor to create a graduation plan after completing 60 credit hours, MATH 1100 or an equivalent with a C- grade or higher, ENGLSH 1000 with a C- grade or higher and maintaining a 2.0 cumulative GPA.

BGS students are required to complete 24 credit hours as declared BGS majors and this may include credit for the semester in which the student declares the BGS major. In exceptional circumstances students who need fewer than 24 credit hours to complete all their BGS, A&S and MU requirements must take a minimum 3 credit hour BGS capstone course.

### Major Program Requirements

The BGS major requires 45 credit hours, including a capstone. These 45 credit hours are evenly distributed among three areas of study called components. A component may be made up of courses from a single department or may be made up of courses from multiple departments that relate thematically. Component courses may be selected from any department or program at MU (if the department permits), but at least 18 credit hours must be made of courses from an A&S department. Of the 15 credit hours required for each component, 6 credit hours in each of the components must be numbered 3000 or higher. Students must maintain a GPA of 2.0 in each component area and grades of D are not acceptable. A student may include one component made entirely of transfer coursework if the other two components each contain 9 credit hours of coursework numbered 3000 or above. BGS students are required to include a minimum of 12 credit hours of MU coursework numbered 3000 level or above in their three components.

- 30 of the last 36 hours a student completes must be taken at MU.
- In order to graduate, students must have the following GPAs:
  - 2.0 cumulative GPA (*the GPA for all coursework taken at MU*)
  - 2.0 major GPA (*the GPA for all courses taken to fulfill requirements in the major*)
  - 2.0 minor GPA (*the GPA for all courses taken to fulfill requirements for a minor*)
  - 2.0 GPA in the final 60 hours
  - 2.0 GPA in the final 30 hours

# Department of Geography

Joseph J. Hobbs, Chair  
College of Arts and Science  
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geog@missouri.edu

## Faculty

**PROFESSOR** J. J. Hobbs

**ASSOCIATE PROFESSOR** M. W. Foulkes, S. C. Larsen,  
M. A. Urban, C. Wang

**ASSISTANT PROFESSOR** G. Elliot, T. Matisziw, M. Palmer

**ASSISTANT TEACHING PROFESSOR** L. G. Brown

**INSTRUCTOR** T. L. Haithcoat, J. D. Harlan, S. White

**PROFESSOR EMERITUS** C. L. Salter

**ASSOCIATE PROFESSOR EMERITUS** G. S. Ludwig,  
W. A. Noble, W. A. Schroeder

**ADJUNCT PROFESSOR** C. H. Davis, W. R. Elliot,  
R. B. Jacobson

The Department of Geography has established the following goals for the Bachelor of Arts with a major in Geography:

- Teach students to think spatially and develop problem solving skills
- Provide an intellectual focus for students seeking a broadly based liberal arts education
- Acquaint students with past and present patterns of landscape development and instill concern for intelligent management of earth's biophysical resources
- Expose students to contemporary issues of geopolitical and international significance and their role in such problems
- Provide the skills and expertise necessary to master the application of geographic information technologies and analysis of spatial data
- Prepare motivated students for career development and graduate study

Five different emphasis areas allow students to further focus the undergraduate degree program on their own personal interests in geography.

1. Regional-cultural geography helps students develop a fuller sense of geographic analysis and better understanding of the human and physical characteristics of major regions of the world.
2. Physical-environmental systems emphasize the complex interactions between biophysical systems and human behavior in the areas of geomorphology and biogeography, as well as our role in managing applied environmental problems.
3. Urban-population geography includes the study of urban systems, the role of cities in regional development, and migration behavior.
4. Geographic information sciences addresses the variety of technologies revolutionizing geographic analysis such as GIS, GPS, remote sensing, computer assisted cartography and spatial statistics.
5. General geography is designed for the student with broad interests in geography that overlap with other emphasis areas.

For students planning to end their formal education with the bachelor's degree, a geography major provides marketable skills and the broad perspectives on environment, society and international affairs that enable graduates to move beyond entry-level positions. Geography also provides a sound foundation for students who plan to enter graduate work in a variety of fields, from geography to business, land use planning, law and medicine. Although positions are not often designated with the title of geographer, geography graduates' employment has grown substantially in private enterprise and in all levels of government in recent years.

The Department offers BA and MA degrees with majors in geography as well as undergraduate and graduate certificates in Geographic Information Science. Two minors are also available.

## Major Program Requirements - Geography

Students majoring in geography are required to take a total of 33 credits in geography and 3 in statistics. The geography courses consist of 21 core credits and at least 12 credits in one of the five geography emphasis areas. In addition, students must complete all degree, College of Arts and Sciences and University requirements including University general education.

### Major core requirements .....24

GEOG 1100: Regions and Nations of the World I.....	3
GEOG 1200: Regions and Nations of the World II.....	3
GEOG 2550: Introduction to the Humanized Earth....	3
GEOG 2610: Introduction to Physical Geography.....	3
GEOG 2840: Introduction to Mapping Science.....	3
GEOG 3840: Computer-Assisted Cartography.....	3
GEOG 4990: Senior Seminar in Geography.....	3
STAT 1200, 1300 or higher.....	3

## Emphasis Areas

Students are required to complete one of the emphasis areas listed below for at least 12 credits.

### Emphasis in Regional/Cultural Geography

This area focuses on both the spatial attributes of culture and the interaction between culture and environment. It is intended for prospective secondary school teachers, journalists and business and government workers. Students must take four of the following courses:

GEOG 2120: United States and Canada
GEOG 2130: Geography of Missouri
GEOG 2210: Geography of Europe
GEOG 2260: Geography of East Asia
GEOG 2340: South America
GEOG 2660: Environmental Geography
GEOG 2780: World Political Geography: Patterns and Processes
GEOG 3140: Mexico, Central America and the Caribbean
GEOG 3270: Geography of the Middle East
GEOG 3290: Geography of Russia and the Newly Independent States of Eurasia
GEOG 3450: Geography of Africa
GEOG 3510: Historical Geography of North America
GEOG 3560: Native American Geographies
GEOG 3760: Geography of the World's Religions
GEOG 4560: Resources and Indigenous Peoples
GEOG 4770: Migration and Immigration

### **Emphasis in Physical/Environmental Geography**

This area emphasizes the study of biophysical environmental processes, environmental change, environmental management, and human modification of the environment. It is intended for students interested in understanding the biophysical environment and the ways in which humans interact with it. Students must take four of the following courses:

- GEOG 1050: Introductory Meteorology
- GEOG 1600: Climate Change: Science and Public Policy
- GEOG 2660: Environmental Geography
- GEOG 3600: Climates of the World
- GEOG 3610: Physical Geography of the United States
- GEOG 3630: Process Geomorphology
- GEOG 4620: Biogeography
- GEOG 4630: Fluvial Geomorphology
- GEOG 4810: Landscape Ecology and GIS Analysis I

### **Emphasis in Urban/Population Geography**

This area focuses on topics such as competitive vs. generative growth within urban systems, urban travel behavior, the role of cities in regional development, international commodity trade flow, the fiscal dilemmas of cities and migration behavior. It prepares students for career opportunities in fields such as transportation planning, regional development, urban environmental issues and management. Students must take four of the following courses:

- GEOG 2710: Economic Geography
- GEOG 2720: Urban Geography
- GEOG 2780: World Political Geography: Patterns and Processes
- GEOG 4710: Spatial Analysis in Geography
- GEOG 4740: Location Analysis and Site Selection
- GEOG 4770: Migration and Immigration
- GEOG 4840: Geographic Information Systems I
- GEOG 4850: Transportation Geography

### **Emphasis in Geographic Information Sciences**

This area allows students to develop technical skills central to the discipline of geography and spatial analysis, acquiring skills in the graphical display of geographical data and the ability to produce or analyze such data. Students must take four of the following courses:

- GEOG 4130: The Geospatial Sciences in National Security
- GEOG 4710: Spatial Analysis in Geography
- GEOG 4740: Location Analysis and Site Selection
- GEOG 4790: Geographic Information Systems for the Social Sciences
- GEOG 4810: Landscape Ecology and GIS Analysis I
- GEOG 4830: Remote Sensing
- GEOG 4840: Geographic Information Systems I
- GEOG 4860: Advanced Remote Sensing
- GEOG 4940: Geographic Information Systems II

### **Emphasis in General Geography**

This area is designed for students with a broad interest in geographical studies. Due to the general nature of this emphasis area, students must develop in consultation with their advisor a personal plan of study outlining specific goals and course requirements. Four geography courses are required.

## **Departmental Honors**

The geography honors program requires independent research during the senior year, usually under GEOG 4996H or 4997H.

Consult the geography honors director for further information.

## **Minor Program Requirements**

Students may earn both the minor in geography and minor in geographic information science if the course work is unique for each minor. Students earning a major in geography may not earn the minor in geographic information systems.

### **Minor in Geography**

Fifteen credits are required for a minor in geography, nine of them numbered 2000 and above.

### **Minor in Geographic Information Science**

Fifteen credits are required for the minor in geographic information science, and must include:

- GEOG 2840: Introduction to Mapping Science
- GEOG 4840: Geographic Information Systems I

Nine hours of elective courses must be selected from the following list:

- GEOG 4710: Spatial Analysis in Geography..... 3
- GEOG 4810: Landscape Ecology and GIS Analysis I .. 3
- GEOG 3840: Computer-Assisted Cartography..... 3
- GEOG 4830: Remote Sensing ..... 3
- GEOG 4860: Advanced Remote Sensing ..... 3
- GEOG 4940: Geographic Information Systems II ..... 3

Students may earn both the minor in geography and minor in geographic information science provided that the course work is unique for each minor. GEOG 4860 and 4940 can be taken as part of the GIS minor with the consent of the advisor.

# Department of Geological Sciences

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## Faculty

**PROFESSOR** M. Liu, K. G. MacLeod, P. I. Nabelek,  
 E. A. Sandvol, K. L. Shelton, M. B. Underwood  
**ASSOCIATE PROFESSOR** M. Appold, R. L. Bauer,  
 F. G. Gomez, C. A. Kelley, A. G. Whittington  
**ASSISTANT PROFESSOR** M. Barquero-Molina,  
 M. H. Cormier

The Department of Geological Sciences offers two undergraduate degree programs, a Bachelor of Arts with a major in Environmental Geology and a Bachelor of Science with major in Geological Sciences. The BA is geared to those students interested in environmental concerns, while the BS is geared toward the traditional fields of geology. Both degrees provide a rigorous background in earth sciences. In addition, students majoring in other departments can minor in geological sciences.

## Major Program Requirements— Environmental Geology (BA)

Students majoring in environmental geology and earning a Bachelor of Arts degree will be prepared to seek positions in surficial or environmental geology as registered geologists. In addition to the major core requirements, students must complete all university graduation requirements including university general education, as well as all degree and college or school requirements.

### Major core requirements .....36

- GEOL 1200: Environmental Geology with Laboratory4  
 OR GEOL 1100: Principles of Geology  
 with Laboratory..... 4
- GEOL 2350: Historical Geology ..... 3
- GEOL 2360: Historical Geology Laboratory ..... 1
- GEOL 2400: Surficial Earth Processes and  
 Products with Laboratory..... 4
- GEOL 3110: Geology of Missouri..... 3
- GEOL 3250: Mineralogy..... 5
- GEOL 3800: Sedimentology with Lab..... 4
- GEOL 4100: Groundwater Hydrology ..... 3
- GEOL 4991: Capstone in Environmental Geology..... 3  
 OR GEOL 4990: Communicating in the  
 Earth Sciences ..... 3

A 3 hour capstone must be completed unless a student also completes a senior thesis. In that case the capstone and senior thesis hours must equal 3.

- Additional geological sciences course at or  
 above 2000 level..... 3
- Additional geological sciences course chosen  
 from the 4000 level (including senior thesis)..... 3

### Related courses..... 19-21

- CHEM 1320: General Chemistry II with Lab ..... 3
- CHEM 1330: General Chemistry III with Lab..... 3

- PHYSICS 1210: College Physics I..... 4
- MATH 1400: Calculus for Social and Life Sciences I .. 3
- MATH 2100: Calculus for Social and Life Sciences II . 3  
 OR STAT 2530: Statistical Methods in  
 Natural Resources ..... 3
- BIO SC 1010: General Principles and Concepts  
 of Biology ..... 3  
 AND BIO SC 1020: General Biology Laboratory ..... 2
- OR BIO SC 1060: Basic Environmental Studies..... 3
- OR BIO SC 1100: Introductory Zoology  
 with Laboratory..... 5
- OR BIO SC 1200: General Botany with Laboratory .... 5

## Major Program Requirements - Geological Sciences (BS)

Majoring in geological sciences and earning a Bachelor of Science degree prepares the student for graduate work and a career as a professional geologist in industry, research or academia. The curriculum provides flexibility for students who seek to focus on a specific subdiscipline in the geosciences. Students interested in geophysics, for example, should use their electives to expand their background in math and to develop a broad knowledge of geology and geophysics. In addition, students must meet all degree, college, and university graduation requirements including university general education.

### Major core requirements ..... 53-54

- GEOL 1100: Principles of Geology with Laboratory... 4  
 OR GEOL 1200: Environmental Geology  
 with Laboratory..... 4
- GEOL 2350: Historical Geology ..... 3
- GEOL 2360: Historical Geology Laboratory ..... 1
- GEOL 2400: Surficial Earth Processes and  
 Products with Laboratory..... 4  
 OR GEOL 2110: Introduction to Soil  
 Science with Laboratory..... 5
- GEOL 3250: Mineralogy ..... 5
- GEOL 3300: Introduction to Geochemistry ..... 3
- GEOL 3800: Sedimentology with Lab..... 4
- GEOL 4150: Structural Geology..... 4
- GEOL 4650: Plate Tectonics ..... 3
- GEOL 4900: Igneous and Metamorphic  
 Petrology with Laboratory ..... 4
- GEOL 4992: Field Course ..... 6
- Additional geological sciences course at or  
 above 2000 level (not GEOL 3200)..... 3
- Three additional geological sciences courses at  
 4000 level, cannot be fulfilled by problems ..... 9

### Related courses..... 24-29

#### Professional Track

- CHEM 1320: General Chemistry II with Lab ..... 3
- CHEM 1330: General Chemistry III with Lab..... 3
- PHYSICS 2750: University Physics I..... 5
- PHYSICS 2760: University Physics II ..... 5
- MATH 1500: Analytic Geometry and Calculus I ..... 5
- MATH 1700: Calculus II ..... 5
- MATH 2300: Calculus III ..... 3

#### General Track

- CHEM 1320: General Chemistry II with Lab ..... 3
- CHEM 1330: General Chemistry III with Lab..... 3
- PHYSICS 1210: College Physics I..... 4
- PHYSICS 1220: College Physics II..... 4

MATH 1500: Analytical Geometry and Calculus I..... 5  
MATH 1700: Calculus II..... 5

### Departmental Honors

Departmental honors can be achieved by students who maintain a cumulative GPA of 3.0, departmental GPA of 3.2, and who complete a senior thesis.

### Dual Degrees

The Department of Geological Sciences offers dual degree programs with the Department of Soil, Environmental and Atmospheric Science in their emphasis area of Environmental Soil Science and with the Department of Civil and Environmental Engineering and with the College of Education in the Bachelor of Science in Education, emphasis in Earth Science Education. For more information, contact an advisor in the department.

### Minor in Geological Sciences

A minor in geological sciences consists of 15 credits in the geological sciences with 6 or more at the 2000-level or above. All courses must be taken for a letter grade, and a grade of C- or better must be earned in each course. The courses must be selected in consultation with an advisor in the department.

## Department of German and Russian Studies

Tim Langen, Chair  
College of Arts and Science  
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### Faculty

**PROFESSOR** G. Barabtarlo, R. F. Cook  
**ASSOCIATE PROFESSOR** S. Engelstein, S. Ireton, K. Kopp,  
T. Langen, B. Prager, C. Strathausen  
**ASSISTANT PROFESSOR** M. Kelly, S. Franzel  
**ASSOCIATE TEACHING PROFESSOR** M. Fischer,  
N. Monnier  
**ASSISTANT TEACHING PROFESSOR** M. Holman,  
M. McKinstry, O. Schmidt, M. Volz  
**LECTURER** C. Keller, H. Liang,

The Department of German and Russian Studies offers courses in German and Russian language, literature, film and civilization. It also offers instruction in Arabic, Chinese, Japanese, Hebrew and Korean. Many courses, such as civilization, culture, literature in translation and film courses, do not require knowledge of a foreign language.

The department offers the Bachelor of Arts with majors in German and in Russian, and the Master of Arts in German and in Russian and Slavonic Studies. The department also offers minors in German and in Russian. Many courses in the minor in East Asian Studies are taught in the Department of German and Russian Studies. The Film Studies program is also housed in the Department of German and Russian Studies.

### Major Program Requirements - German

The major in German consists of 27 credits in German beyond GERMAN 2100. The German faculty strongly encourages all majors to spend at least one semester studying abroad at a German university. Equivalents to all the required courses for the major are available through study abroad. In addition, students must meet all degree, college and university graduation requirements including university general education.

#### Major core requirements (beyond the A&S language requirement) .....27

The following courses or their equivalents must be included:

- GERMAN 2260: Intermediate German II: Language and Culture ..... 3
- GERMAN 3160: German Conversation and Composition ..... 3
- OR GERMAN 3190: Contemporary German Culture..... 3
- GERMAN 3230: Introduction to German Literature.. 3
- GERMAN 4980: German Capstone Seminar ..... 3
- One GERMAN 4200-level literature course..... 3
- GERMAN 2310 or 2320 (Writing-Intensive German civilization courses) ..... 3

### Electives

Elective courses and equivalents to replace the required courses

above should be selected in consultation with the advisor.

### Departmental Honors

Departmental honors are available for students majoring in German with a minimum 3.3 GPA. At least two literature courses must be taken at the 4000-level, with no grades below B. The equivalent of one of the courses may be completed in study abroad. Alternately, at the discretion of the department, a paper written within the capstone course may be substituted.

### Major Program Requirements - Russian

The major in Russian consists of 27 credits in Russian beyond RUSS 1200. The Russian faculty strongly encourages all majors to spend at least one semester (or summer) studying abroad at a Russian university, preferably in their third year of the language. In addition, students must meet all degree, college and university graduation requirements including university general education.

#### Major core requirements (beyond the A&S language requirement) .....27

The following courses or their equivalents must be included:

RUSS 2130: Second-Year Russian I ..... 4

RUSS 2160: Second-Year Russian II ..... 4

RUSS 3130: Intermediate Russian ..... 3

OR RUSS 3160 Intermediate Conversation and

Composition ..... 3

RUSS 3630: Russian Classics I ..... 3

OR RUSS 3640: Russian Classics II ..... 3

Two of the following four courses: ..... 6

RUSS 3310: Heroes of Their Times:  
Individualism in Russian Literature ..... 3

RUSS 3320: Matters of Life and  
Death: The Fiction of Tolstoy & Dostoevsky ..... 3

RUSS 3330: Decline, Fall and Resurrection  
in Modern Russian Literature ..... 3

RUSS 3350: The Split Tree of Russian  
Literature: Contemporary Russian Prose ..... 3

One 4000-level literature course ..... 3

RUSS 2310 or 2320 (Writing Intensive  
Russian civilization course)..... 3

#### Electives

Elective courses and equivalents to replace the required courses above should be selected in consultation with the advisor.

### Departmental Honors

Departmental honors are available for students majoring in Russian with a minimum 3.3 GPA. A three-course literature sequence must be completed with no grades below B or, at the discretion of the department, a paper may be written within the capstone course.

### Dual Degrees and Double Majors

As a double major or a dual degree has become an ever more popular choice, an increasing number of students choose German or Russian as one of their majors. Students looking forward to a career in medicine or in the sciences use a double major to ensure a thorough background in the humanities to balance their scientific studies. Double majors within the College of Arts and Science can be arranged and, if the second degree program is identified early, dual degree programs

outside the college are also possible. Combined programs with journalism, international studies, education and business are frequent choices. Within the college, combinations with political science, history, philosophy, art history, and the sciences are popular double major programs.

### Minor in German or Russian

The department offers minors in German and Russian, consisting of 15 credits beyond GERMAN 2100 or RUSS 1200 respectively. A minimum of 6 of these 15 credits must be in German or Russian courses numbered 3000 or above. In addition, a minimum of 9 of the 15 credits must be completed in residence. For the German minor, 12 of the 15 credits must be in courses where the language of instruction is German.

## Hebrew

For courses in Hebrew language, see the Department of German and Russian Studies.

## Japanese

For courses in Japanese language, see the Department of German and Russian Studies.

## Korean

For courses in Korean language, see the Department of German and Russian Studies.

# Department of History

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## Faculty

**DISTINGUISHED PROFESSOR** W. King  
**CURATORS PROFESSOR** K. Miller, A. M. Smith,  
J. Sperber  
**PROFESSOR** R. J. L. Bullion, R. M. Collins, S. Watts,  
L. Whites, J. H. Wigger, I. Worthington, R. Zguta  
**ASSOCIATE PROFESSOR** M. M. Carroll, J. M. Frymire,  
L. L. Huneycutt, T. Koditschek, L. Okamura, J. L. Pasley,  
L. S. Reeder, C. E. Rymph, R. Smale  
**ASSISTANT PROFESSOR** M. Bednar, J. Frank, I. Karthas,  
M. Morris, S. Ong

The Department of History offers undergraduate work in the history of ancient, medieval and modern Europe, the United States, Latin America, Asia and Africa.

The department offers BA, MA and PhD degrees with majors in History. A minor is also available.

## Major Program Requirements - History

A student majoring in history must complete a total of 33 history credits. With the consent of the departmental director of undergraduate studies, certain history requirements can be waived for students pursuing dual degrees or double majors. A grade of "C-" or better is required for all courses taken for the major. In addition, students must complete all university graduation requirements and Arts and Science Foundation Requirements.

<b>Major core requirements .....</b>	<b>33</b>
Introductory courses (below 2000) from three of the following areas.....	9
United States to ca. 1865	
United States since ca. 1865	
Europe	
Third World (Africa, Asia, Latin America)	
One additional course (1000 level or above, not including HIST 1100,1200, 1500, 1510) from each of the following areas .....	9
Europe	
United States	
Third World	
Electives at the 3000 level or above, from any field of history .....	9
Seminar/thesis block .....	6
One undergraduate seminar and one additional history course at the 4000-level	
OR Undergraduate Thesis	
OR Honors Thesis	

## Minor in History

A minimum of 15 credits is required for a minor in history. At least 9 of the 15 must be in courses numbered 2000 or above. A minimum of 9 credits must be taken in residence, 6 of which must be in courses numbered 2000 or above. A grade of C- or better is required for all history courses taken for a minor. The selection and mix of courses is left to the discretion of the student.

# Linguistics

Vicki Carstens, Chair  
Interdepartmental Program in the College of Arts and Science  
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Linguistics is the scientific study of human language. It seeks to understand and explain the structural, social, and psychological properties of language in a clear and formal manner. Although specialists in the field commonly know one or more foreign languages, such knowledge is complementary rather than essential.

A major in linguistics offers students a liberal education and prepares them for graduate study in linguistics or related fields. It also develops the verbal and analytical skills that are valuable in a variety of professional careers. A Bachelor of Arts with a major in Linguistics is available. A minor is also available.

## Major Program Requirements - Linguistics

Major core requirements (minimum)..... 21

### I. Required areas/courses

- Introduction to Linguistics ..... 3  
LINGST 1060: Human Language  
Language Structure - At least one in-depth structure  
course such as: ..... 3  
LINGST 4600: Structure of American English  
LINGST 4720: Structure of Modern French  
LINGST 4721: Structure of Modern Spanish  
Phonology..... 3  
LINGST 4630: Phonology  
(typically offered Spring semesters)  
Syntax..... 3  
LINGST 4640: Syntax  
(typically offered Fall semesters; a structure course prereq-  
uisite)  
Semantics - One of the following:..... 3  
LINGST 2700: Elementary Logic  
LINGST 4100: Philosophy of Language  
LINGST 4110: Formal Logic

### II. Electives

At least one additional course from any part of the linguistics curriculum, including but not limited to those listed above and below. .... 3

- Language variation  
LINGST 4620: Regional and Social Dialects of  
American English  
LINGST 4722: Spanish Across the Continents  
LINGST 4723: Language and Society: Spanish in the U. S.  
Language and Culture  
LINGST 3470: Culture as Communication  
LINGST 4412: Gender, Language and Communication  
Historical Linguistics and Language Change  
LINGST 4200: Introduction to Old English  
LINGST 4610: History of the English Language  
Phonetics  
LINGST 3010: American Phonetics  
LINGST 3220: Speech Acoustics  
LINGST 3210: Anatomy and Physiology of the  
Speech Mechanism

- LINGST 3220: Speech Acoustics  
LINGST 3721: Spanish Phonetics  
Language and the Mind  
LINGST 2820: Introduction to Cognitive Science  
LINGST 4810: Psycholinguistics

### III. Capstone Course

- LINGST 4870: Field Methods in Linguistics

## Options

Topics courses such as LINGST 2001, 3001 and 4001 may also satisfy core requirements. Substitutions may be approved for courses in one of the required areas if no courses are available in that area during a student's senior year.

## Departmental Honors

A student wishing to graduate with honors in linguistics must earn a 3.3 GPA in all courses and complete all the requirements for the BA in linguistics. In addition, with the assistance of his/her honors thesis advisor, the student must develop, plan and conduct research on an independent project, normally while enrolled in LINGST 4991. A committee consisting of the thesis advisor and a second reader, to be selected by the advisor and the program chair, will examine the student on the resulting thesis of 25-40 pages in an oral exam held no later than the thirteenth week of the term during which the student expects to graduate. The second reader will be provided with a copy of the thesis at least two weeks before the examination. After completing any revisions that the exam committee recommends, the student will submit a final version of the thesis for linguistics program records and will then be recommended to the college of Arts and Science for a BA with Honors in linguistics.

## Minor in Linguistics

The minor in linguistics requires at least 15 credits of linguistic courses. They may be drawn from any part of the linguistics curriculum.

# Department of Mathematics

Glen R. Himmelberg, Chair  
College of Arts and Science  
202 Math Sciences Building  
(573) 882-6221  
himmelbergg@missouri.edu

## Faculty

**PROFESSOR** I. M. Aberbach, M. S. Ashbaugh, N. Asmar, W. D. Banks, P. Casazza, C. C. Chicone, T. Christiansen, S. D. Cutkosky, S. Dostoglou, D. S. Edidin, F. Gesztesy, L. Grafakos, A. D. Helfer, S. Hofmann, A. Koldobsky, Y. Latushkin, Y. Li, K. A. Makarov, D. I. Mitrea, M. Mitrea, S. Montgomery-Smith, M. M. H. Pang, D. H. Pettey, Z. Qin, E. Saab, P. Saab, H. Srinivasan, A. Tsoi, S. Wang, I. Verbitsky, Q. Zhang

**ASSOCIATE PROFESSOR** A. Harcharras, C. Morpurgo, J. Segert, D. T. Weston

**ASSISTANT PROFESSOR** C. Chindris, M. Munn, S. Takeda

**BUSINESS MATHEMATICS COORDINATOR** J. Aubrey

**CALCULUS COORDINATOR** A. Clayton

**COLLEGE ALGEBRA COORDINATOR**

T. E. Christiansen

**PROFESSOR EMERITUS** C. Ahlbrandt, J. Beem, R. Crownover, J. Lange, I. J. Papick, C. Petty, J. Reeder, E. Saab, P. Saab, D. Sentilles, Z. Zhao

The Department of Mathematics offers a major with either a Bachelor of Arts or a Bachelor of Science degree. Within the BS degree, an emphasis in Actuarial Science and Financial Mathematics is available. Both the BA and BS degrees will prepare a student for a graduate program in Mathematics. See below for further information.

## Major Program Requirements - Mathematics

Students may apply to be Math majors upon meeting the following criteria:

- Completion of ENGLSH 1000 and MATH 2300
- Both cumulative GPA and GPA in Math courses numbered 1500 and above (expect for 2100) of 2.5 or above.

All math courses required for the degree must be passed with a grade of C- or above.

### Core Math Requirements for all Math degrees .....24

MATH 1500: Analytic Geometry and Calculus I.....	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III.....	3
MATH 3000: Introduction to Advanced Mathematics..	3
MATH 4100: Differential Equations.....	3
MATH 4140: Matrix Theory.....	3
MATH 4700: Advanced Calculus of One Real Variable I.....	3
CMP SC 1040: Introduction to Problem Solving and Programming.....	3
OR CMP SC 1050: Algorithm Design and Programming I.....	3

## Additional requirements for the BA degree

- MATH 4720: Introduction to Abstract Algebra I
- Four approved 4000 level Math electives

All MU General Education and Arts and Science Breadth and Depth requirements (for the BA) must be satisfied. The foreign language requirement must be satisfied either by taking a foreign language for 4 years in high school or by completing a language sequence at MU.

## BS Degrees

The Mathematics Department offers a “Standard” BS, a BS with emphasis in Actuarial Science and Mathematical Finance, and a Dual Degree in Mathematics and Mathematics Education. In each case all MU General Education and Arts and Science Breadth and Depth requirements (for the BS) must be satisfied. Note that the courses accepted for the science requirement by the Mathematics department are more restrictive than the Arts and Science requirement.

All BS degrees require completion of the Foreign Language requirement by one of: four years of a language in high school, completion of a foreign language sequence at MU, or a Foreign Language Alternative (12 credits at the 2000 level or above in an area, or related areas, approved by the Director of Undergraduate Studies).

### Additional requirements for the BS degree

- MATH 4720: Introduction to Abstract Algebra I
- Four approved 4000 level Math electives.
- Science Requirement: 13 or more credits from the two groups below. Both groups must be represented.

#### Group I:

PHYSCS 2750: University Physics I.....	5
PHYSCS 2760: University Physics II.....	5
CHEM 1310: General Chemistry I.....	2
CHEM 1320: General Chemistry II with Lab.....	3
CHEM 1330: General Chemistry III with Lab.....	3
BIO SC 1500: Introduction to Biological Systems with Laboratory.....	5

Group II: Any 4000 level courses in Statistics or Computer Science.

### Additional requirements for the BS with emphasis in Actuarial Science and Financial Mathematics

This emphasis area will serve those who want to pursue a career in the financial and insurance industries. It will also help BS students to prepare for their first actuarial exams. Those students considering further graduate work in Mathematics should also take MATH 4720.

MATH 4355: Investment Science I.....	3
MATH 4370: Actuarial Modeling I.....	3
MATH 4371: Actuarial Modeling II.....	3
MATH 4315 (STAT 4710): Introduction to Mathematical Statistics.....	3
MATH 4320 (STAT 4750): Introduction to Probability Theory.....	3
MATH 4520 (STAT 4760): Statistical Inference I.....	3

### Additional course requirements:

STAT 4870: Time Series Analysis.....	3
STAT 4510: Applied Statistical Models I.....	3
ECONOM 1014: Principles of Microeconomics.....	3
ECONOM 1015: Principles of Macroeconomics.....	3

**Science requirement: 5 or more credits from Group I courses (see above)**

The following courses are recommended in order to satisfy VEE requirements:

FINANC 3000: Corporate Finance .....	3
FINANC 4020: Investments .....	3
MATH 4590: Investment Science II .....	3

### Additional requirements for the Dual BS degree in Mathematics and Mathematics Education

- MATH 4700 may be replaced by one of  
MATH 4300: Numerical Analysis  
OR MATH 4500: Applied Analysis
- MATH 4720: Introduction to Abstract Algebra I  
OR MATH 4510: Higher Algebra
- Four approved 4000 level Math electives.
- Science requirement: 10 credit hours from Group I and Group II courses. Both groups must be represented (see above).

### Preparation for Graduate Study in Mathematics

Students satisfying the requirements for either the BA or the “traditional” BS will have the basic preparation for a graduate program in Mathematics. A student considering graduate work, however, should take additional coursework. Because of this, a BS degree would be considered preferable. Those students in the Actuarial Science area considering graduate work should take MATH 4720 as part of their program. Those students getting a dual degree in Mathematics and Mathematics Education considering graduate work in mathematics should choose to take both MATH 4700 and MATH 4720 as part of their program.

Courses recommended for students planning to pursue graduate studies in pure mathematics: 4400, 4500, 4900, 4920, and 4940.

Courses recommended for students planning to pursue graduate studies in applied mathematics: 4300, 4310, 4315, 4320, 4500, 4540, 4940.

## Departmental Honors

### Eligibility

To become a candidate for the BA or BS degree with a major in Mathematics with departmental honors, a student must have a cumulative grade point average that meets the Honors College standards. At present, students with a GPA of 3.30 or higher are automatically eligible to enter the departmental honors programs.

### Requirements

To graduate with departmental honors in mathematics, a student must satisfy the regular BA or BS degree requirements and must have a GPA of 3.5 or higher in all Mathematics Department courses. In addition, the student must have at least 26 credits in mathematics courses numbered 4000 or above. Furthermore, the student must complete one of the two options listed below.

#### Option 1: Honors Thesis

The student must write an honors thesis in conjunction with a mentorship or in conjunction with MATH 4996. This option requires that the student enroll in MATH 4996.

#### Option 2:

The student’s program of study must include MATH 4700, 4900, 4720 and 4920.

### Minor in Mathematics

To minor in mathematics, a student must satisfactorily complete the following requirements.

- The equivalents of MATH 1500, MATH 1700 and MATH 2300
- 9 additional credits in math (students not taking MATH 2320 or MATH 3000, must take all 9 credits at the 4000 level; students taking MATH 2320 or MATH 3000, need an additional 6 credits at the 4000 level)
- All courses completed with grades in C range or higher
- At least 9 credits used to satisfy the minor requirements taken in residence (College of Arts and Science requirement)

# Department of Military Science and Leadership

LTC Robert S. Boone, Chair  
College of Arts and Science  
Army Reserve Officers' Training Corps  
202 Crowder Hall  
(573) 882-7721

## Faculty

VISITING PROFESSOR R. S. Boone

Army ROTC is a college elective program that teaches the skills needed to succeed in the Army or the corporate world. Students combine classroom time with hands-on experience and learn leadership and management skills. The experience of Army ROTC provides the confidence needed to excel in college and beyond.

The Army ROTC program can be completed through a two- to four-year program designed to develop young men and women into junior commissioned officers in the Active Army, Army Reserve or Army National Guard. In addition to traditional combat roles, Army officers serve in such professional fields as aviation, medical service, finance, personnel management, communications and engineering.

In addition to their academic and military training, Army ROTC students may participate in a variety of extracurricular activities including sports, adventure training, social events and community service.

ROTC students belonging to Army Reserve or Army National Guard units are eligible for additional benefits and can generally opt to stay with their units after graduation or request an active Army assignment. Reserve and National Guard officers attend one weekend drill per month and an annual two-week training period. In addition to the pay and benefits awarded, Reserve and National Guard officers are free to pursue full-time civilian careers.

All students who desire to enter the Army Reserve Officers' Training Corps must be United States citizens, be in good physical condition and have high moral character. Students must be at least 17 years old to enroll and not more than 31 when commissioned. To be admitted into the advanced course, students must maintain an academic average of 2.0, pass an Army medical examination, and pass an Army Physical Fitness Test.

## Program Requirements

The curriculum consists of classroom instruction and a weekly laboratory in which students receive leadership experience. The courses in military science and leadership are both academic and hands-on. Most count toward the student's degree requirements.

The UM Army Reserve Officers' Training Corps academic program consists of:

- A degree in the student's chosen academic subject
- 12 to 22 credits in the military science and leadership cur-

riculum

- An approved course in American military history

## Minor in Military Science

With departmental approval, students may earn a minor in military science and leadership by successfully completing the following courses:

MIL SC 3230: Leadership and Problem Solving .....	3
MIL SC 3240: Leadership and Ethics.....	3
MIL SC 3250: Leadership and Management .....	3
MIL SC 3260: Officership.....	3

Additionally, students must complete an approved course in American military history.

# School of Music

## (IN THE COLLEGE OF ARTS AND SCIENCE)

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### Faculty

**PROFESSOR** M. Budds, P. Crabb, L. Perna, W. T. McKenney, M. Platt, R. Shay, W. Sims, M. Spence, E. Szekely, J. E. Todd, J. Wenger

**ASSOCIATE PROFESSOR** R. Ackmann, I. Akhmadullin, E. Dolbashian, D. Dolezal, S. Freund, J. Gaines, P. Garritson, A. Harrell, A. Manzo, N. Minturn, P. Miyamoto, T. O'Neal, D. Willett

**ASSISTANT PROFESSOR** M. Gibson, T. Howe, S. Jensen, J. Mabary, M. Major, L. Saguiguit, S. Shonekan, B. Silvey, A. White

**ASSISTANT TEACHING PROFESSOR** J. Freeman, C. Seitz, B. Snow

**VISITING ASSISTANT PROFESSOR** A. K. Dade, R. Pellegrin

**ADJUNCT ASSISTANT PROFESSOR** N. Bolshakova, A. Glise, E. Manzo, S. Ryan, P. Savvidou, P. Seitz, S. Stubbs, D. Urton

The School of Music is a department in the College of Arts and Sciences that offers instruction to those who want professional training in music as well as those who wish to pursue music as a vocation. Applied music instruction in piano, voice, string, woodwind, brass and percussion instruments is offered for beginning and advanced students. Elementary and advanced courses are given in music theory and composition. The appreciation, literature and history of music are covered by survey and specialized courses. The school has been an accredited member of the National Association of Schools of Music since 1933.

The School of Music also offers opportunities for all students of the university to participate in various performing groups. Regular programs are presented on campus and throughout the state by groups such as The University Philharmonic Orchestra, Symphonic Wind Ensemble, Marching Mizzou, Symphonic Band, University Band, Jazz Ensembles, Choral Union, University Singers, Chamber Singers, Concert Chorale, Hitt Street Harmony, Opera Workshop and many vocal, string, percussion and wind chamber ensembles. Membership in these groups is open to interested students by audition, except University Choral Union and University Band, which do not require an audition.

The department offers BA, BM, MA and MM degrees majors in Music. BSEd, MA, MEd, EdSP and PhD degrees with majors in Music Education are offered through the Department of Learning, Teaching and Curriculum. A minor in Music and a minor and certificate in Jazz Studies are also available.

### Departmental Honors

Departmental Honors for the School of Music are designed

to reward truly superlative achievement by an undergraduate music student, focusing on the student's area of performance, theory and composition, or history and literature. A minimum GPA of 3.3 at the onset of the senior year is required, not including grades for large ensembles. The student must initiate the process by submitting a formal application to the director of the school of music at the beginning of the semester prior to the semester of graduation, and must receive approval from his or her area coordinator and faculty advisor. Further information and an application form may be obtained by contacting the director of undergraduate studies in music.

### Major Program Requirements - Music

#### Bachelor of Music

The Bachelor of Music (BM) is a professional degree that offers the maximum concentration in music. The student may focus on instrumental, keyboard or vocal performance; music theory; composition; or music history. In addition, students must complete degree, college and university requirements, including Arts & Science Foundation Requirements.

#### Foreign Language Requirement:

- Woodwind or Percussion Performance: 12-13 hours of any foreign language
- Theory, Composition, or Piano or Brass Performance: 12-13 hours of French, Italian, or German
- Music History: 10 hours of German + 5-6 hours of second language, approved by advisor (15-16 total)
- String Performance: 12-13 hours of French, Italian, German or Spanish

Candidates must pass an examination administered by the applied faculty in the area of performance at the completion of their sophomore year before entrance is approved to studio instruction at the 4455-level (for performance tracks) or 3455-level (for all other tracks). All BM candidates are required to fulfill the school's recital attendance requirement. In addition, each performance major is required to present a junior and senior recital, which must be approved two weeks in advance by a faculty hearing committee.

Courses completed in the "D" range may not fulfill music course requirements without the approval of the advisor and the dean, and the student must achieve an overall average of at least C (2.0) in all of the courses attempted in the School of Music at MU.

**Note: Performance tracks below include changes in effect for students entering Fall 2012 and later. Students who entered before Fall 2012 should consult an older undergraduate catalog.**

<b>Requirements for ALL tracks .....</b>	<b>29</b>
MUS THRY 1210: Introduction to Computer Technology and Music .....	2
MUS THRY 1230: Aural Training and Sight Singing I .....	2
MUS THRY 1231: Aural Training and Sight Singing II .....	2
MUS THRY 2230: Aural Training and Sight Singing III .....	2
MUS THRY 2231: Aural Training and	

Sight Singing IV .....	2
MUS THRY 1220: Syntax, Structure and Style of Music I.....	2
MUS THRY 1221: Syntax, Structure and Style of Music II.....	2
MUS THRY 2220: Syntax, Structure and Style of Music III .....	2
MUS THRY 2221: Syntax, Structure and Style of Music IV .....	2
MUSIC 4200: Theory Elective .....	2
MUS THRY 4220: 20th Century Composition Techniques.....	2
MUS THRY 4223: Eighteenth-Century Counterpoint	3
MUSIC 4300: History Elective.....	3
MUS H LI 1322: Introduction to Music in the United States .....	2
MUS H LI 2307: History of Western Music I .....	2
MUS H LI 2308: History of Western Music II.....	2
MUS I VT 2631: Basic Conducting and Score Reading	2
MUS GENL 1091: Recital Attendance for Undergraduate Music Majors (7 semesters) .....	0

The following are additional requirements for each track.  
(Note: Tracks do not appear on transcripts or diplomas)

**Music Composition Track:**

MUS THRY 4225: Sixteenth-Century Counterpoint...	3
MUS THRY 4227: Orchestration.....	2
MUS THRY 2215: Composition I.....	2
MUS THRY 2216: Composition II .....	2
MUS THRY 3215: Composition III.....	2
MUS THRY 3216: Composition IV.....	2
MUS THRY 4215: Composition V .....	2
MUS THRY 4216: Composition VI (Capstone Experience).....	2
MUS THRY 4245: Introduction to Electronic Music..	2
MUSIC 4200 level: Theory Elective.....	2
MUS APMS 2455: Studio Instruction: Major instr. (2+2+2+2) .....	8
MUS APMS 3455: Studio Instruction: Major instr. (2+2+2+2) .....	8
MUS APMS 1435: Studio Instruction for Majors (secondary instruments) (1+1+1+1) .....	4
MUS ENS 1841: Instrumental Ensemble .....	8
OR MUS ENS 1842: Choral Ensemble.....	8
MUSIC 4300 level: History elective .....	3
MUS I VT 1610: Group Piano for Music Majors I.....	1
MUS I VT 1611: Group Piano for Music Majors II.....	1
MUS I VT 2610: Group Piano for Music Majors III ...	1
MUS I VT 2611: Group Piano for Music Majors IV ...	1
<b>Total credits in music.....</b>	<b>92</b>

**Music History Track:**

MUS H LI 4317: Historical Studies in Jazz and Popular Music.....	3
MUS H LI 4318 Studies in World Music.....	3
MUS H LI 4311-16 level: Historical Studies in ____	3
MUS H LI 4335-39 level: Music of the ____ Era.....	3
MUS H LI 4340: Focal Composers.....	3
OR MUS GENL 4005: Topics in Music.....	3
MUS GENL 3085: Problems in History (capstone).....	1
OR MUS THRY 4225: 16th Century Counterpoint.....	3

MUS THRY 4227: Orchestration.....	2
MUS APMS 2455: Studio Instruction: major instr. (2+2+2+2).....	8
MUS APMS 3455: Studio Instruction: major instr. (2+2).....	4
MUS ENS 1841: Instrumental Ensemble .....	8
OR MUS ENS 1842: Choral Ensemble.....	8
MUS I VT 1610: Group Piano for Music Majors I.....	1
MUS I VT 1611: Group Piano for Music Majors II.....	1
MUS I VT 2610: Group Piano for Music Majors III ...	1
MUS I VT 2611: Group Piano for Music Majors IV ...	1
MUS APMS 1435: Studio Instruction: Piano (2+2) .....	4
OR MUS APMS 2455: Studio Instruction: Piano (2+2) .....	4
<b>Total credits in music.....</b>	<b>80</b>

**Piano Track:**

MUS APMS 2455: Studio Instruction: Piano (4+4+4+4) .....	16
MUS APMS 4455: Studio Instruction: Piano (4+4+3+3) .....	14
MUS APMS 3970: Junior Recital .....	1
MUS APMS 4970: Senior Recital .....	1
MUS I VR 3753: Piano Literature I .....	2
MUS I VR 3754: Piano Literature II.....	2
MUS ENS 1841: Instrumental Ensemble OR MUS ENS 1842: Choral Ensemble.....	2
MUS ENS 2843: Piano Ensemble (1+1).....	2
MUS ENS 1846: Chamber Ensemble (1+1+1+1).....	4
<b>Total credits in music.....</b>	<b>84</b>

**String Performance Track:**

MUSIC NM 2445: Studio Instruction: major (4+4+4+4).....	16
MUS APMS 4455: Studio Instruction: major (4+3+4+3).....	14
MUS APMS 3970: Junior Recital.....	1
MUS APMS 4970: Senior Recital .....	1
MUS ENS 1841: Instrumental Ensemble: University Philharmonic.....	8
MUS ENS 1846: Chamber Music (1+1).....	2
MUS I VT 1610: Group Piano for Music Majors I.....	1
MUS I VT 1611: Group Piano for Music Majors II.....	1
MUS I VT 2610: Group Piano for Music Majors III ...	1
MUS I VT 2611: Group Piano for Music Majors IV ...	1
<b>Total credits in music.....</b>	<b>84</b>

**Music Theory Track:**

MUS THRY 4225: Sixteenth-Century Counterpoint...	3
MUS THRY 4227: Orchestration.....	2
MUS GENL 3085: Problems in Music (Capstone Theory).....	2
MUS THRY 2215: Composition I.....	2
MUS THRY 2216: Composition II .....	2
MUS THRY 4200 level: Theory elective .....	2
MUS THRY 4200 level: Theory elective .....	2-3
MUS APMS 1435: Studio Instruction: (secondary instr.) (1+1+1+1) .....	4
MUS APMS 2455: Studio Instruction: Major instr. (2+2+2+2) .....	.8
MUS APMS 3455: Studio Instruction: Major instr. (2+2+2+2) .....	8
MUS ENS 1841: Instrumental Ensemble .....	8

OR MUS ENS 1842: Choral Ensemble.....	8
MUSIC 4300 level: History elective .....	3
MUS I VT 1610: Group Piano for Music Majors I.....	1
MUS I VT 1611: Group Piano for Music Majors II.....	1
MUS I VT 2610: Group Piano for Music Majors III ...	1
MUS I VT 2611: Group Piano for Music Majors IV ...	1
<b>Total credits in music.....</b>	<b>86-87</b>

**Vocal Performance Track:**

MUS APMS 2455: Studio Instruction: Voice (3+3+3+3).....	12
MUS APMS 4455: Studio Instruction: Voice (3+2+3+2).....	10
MUS APMS 3970: Junior Recital.....	1
MUS APMS 4970: Senior Recital.....	1
MUS I VR 3767: Vocal Literature I.....	2
MUS I VR 3768: Vocal Literature II .....	2
MUS I VT 3670: Diction in Singing: Italian.....	1
MUS I VT 3671: Diction in Singing: German .....	1
MUS I VT 3672: Diction in Singing: French .....	1
MUS ENS 1842: Choral Ensembles.....	8
MUS ENS 1865: Opera Workshop (1+1).....	2
MUS I VT 1610: Group Piano for Music Majors I.....	1
MUS I VT 1611: Group Piano for Music Majors II.....	1
MUS I VT 2610: Group Piano for Music Majors III ...	1
MUS I VT 2611: Group Piano for Music Majors IV ...	1
<b>Total credits in music.....</b>	<b>81</b>

**Wind or Percussion Performance Track:**

MUS APMS 2455: Studio Instruction: Major Instr. (4+4+4+4).....	16
MUS APMS 4455: Studio Instruction: Major Instr. (4+3+4+3).....	14
MUS APMS 3970: Junior Recital.....	1
MUS APMS 4970: Senior Recital.....	1
MUS ENS 1841: Instrumental Ensembles.....	8
MUS ENS 1846: Chamber Music (1+1).....	2
MUS I VT 1610: Group Piano for Music Majors I.....	1
MUS I VT 1611: Group Piano for Music Majors II.....	1
MUS I VT 2610: Group Piano for Music Majors III ...	1
MUS I VT 2611: Group Piano for Music Majors IV ...	1
MUS I VT 2634: Rehearsal Clinic: Band Conducting.....	2
<b>Total credits in music.....</b>	<b>84</b>

**Bachelor of Arts with a major in Music**

Students who elect to earn a Bachelor of Arts with a major in Music will complete a general, liberal arts degree with a strong music emphasis. Students must also complete all degree, college and university graduation requirements, including Arts & Science Foundation Requirements.

Courses completed in the D range may not fulfill music course requirements without the approval of the advisor and the dean, and the student must achieve an overall average of at least C (2.0) in all of the courses attempted in the School of Music.

**Major core requirements**

MUS THRY 1230: Aural Training and Sight Singing I.....	2
MUS THRY 1231: Aural Training and Sight Singing II.....	2
MUS THRY 2230: Aural Training and Sight Singing III .....	2

MUS THRY 2231: Aural Training and Sight Singing IV .....	2
MUS THRY 1220: Syntax, Structure and Style I.....	2
MUS THRY 1221: Syntax, Structure and Style II .....	2
MUS THRY 2220: Syntax, Structure and Style III.....	2
MUS THRY 2221: Syntax, Structure and Style IV.....	2
MUS H LI 1322: Intro to Music in the United States .	2
MUS H LI 2307: History of Western Music I.....	2
MUS H LI 2308: History of Western Music II.....	2
MUSIC 4300 level: History elective (Writing Intensive) .....	3
MUS GENL 3085: Problems (Capstone Experience) ..	1
MUS GENL 1091: Recital Attendance for Undergraduate Music Majors (7 semesters) .....	0
MUS APMS 2455: Studio Instruction (2+2+2+2).....	8
MUS APMS 3455: Studio Instruction .....	2
MUS ENS 1841: Instrumental Ensembles.....	4
<b>Total credits in music.....</b>	<b>40</b>

**Minor in Music**

Students who have chosen a major in another field but who wish to continue their musical growth may wish to pursue a music minor. Approval for declaration of the Minor in Music must be received from the Associate Director in Music. A minimum of 18 credits is required:

<b>Music Theory .....</b>	<b>4</b>
MUS THRY 1220: Syntax, Structure and Style of Music I .....	2
MUS THRY 1221: Syntax, Structure and Style of Music II .....	2
<b>Music History.....</b>	<b>6</b>
MUS H LI 1322: Intro to Music in the United States	2
MUS H LI 2307: History of Western Music I .....	2
MUS H LI 2308: History of Western Music II .....	2
<b>Ensembles/Applied Music.....</b>	<b>4</b>
Any combination of MUSIC 1841, 1842, 2445	
<b>Additional Credits in Theory, History, or Performance.....</b>	<b>4</b>

**Minor In Jazz Studies**

Student who have chosen a major in a non-music field may complete a minor in jazz. The Minor is not intended for beginners, but for students with basic musical knowledge. Hence the prerequisites (Music 1211 or 1220) for three of the required courses (1620, 4645, and 4210) and auditions required for Jazz Ensembles. Approval for declaration of the Jazz Minor must be received from the Director of Jazz Studies.

A minimum of 15 credits is required, including the following:

MUS THRY 4210: Jazz Harmony and Arranging I.....	2
MUS THRY 4211: Jazz Harmony and Arranging II.....	2
MUS I VT 1620: Jazz Piano Class.....	1
MUS I VT 4645: Jazz Improvisation .....	2
MUSIC NM 1311: Jazz, Pop, and Rock.....	3
MUSIC 1311: Jazz Ensemble.....	2
Plus 3 credits of any combination of Studio Instruction (Music 1445/2445) and/or Jazz Ensembles (Music 1841/1846).	
<b>Total.....</b>	<b>15</b>

**Certificate in Jazz Studies**

Music Majors (BM, BA Music) and music education majors

(BSEd) may earn a Certificate in Jazz Studies by completing this core of courses in jazz. Approval for admission into the Certificate program must be received from the Director of Jazz Studies.

A minimum of 12 credits is required, including the following:

MUS THRY 4210: Jazz Harmony & Arranging I.....	2
MUS THRY 4211: Jazz Harmony & Arranging II .....	2
MUS I VT 1620: Jazz Piano Class .....	1
MUS I VT 4645: Jazz Improvisation .....	2
MUS H LI 4317: Hist. St. in Jazz and Popular Music..	3
MUS ENS 1841/1846: Jazz Ensemble.....	2
<b>Total.....</b>	<b>12</b>

## Department of Philosophy

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### Faculty

**PROFESSOR** J. J. Bien, B. Gupta, R. N. Johnson, P. J. Markie,  
 M. S. McGrath, A. Melnyk, D. E. Sievert, P. L. Vallentyne,  
 P. Weirich

**ASSOCIATE PROFESSOR** A. Ariew, Z. Ernst, C. S. Horisk,  
 C. Pincock, P. Robbins

**ASSISTANT PROFESSOR** S. Chant

**PROFESSOR EMERITUS** W. B. Bondeson, J. H. Kultgen

**ASSOCIATE PROFESSOR EMERITUS** A. von Schönborn

The Department of Philosophy offers a wide variety of undergraduate and graduate courses, including courses on applied ethics, ethical theory, epistemology, logic, metaphysics, philosophy of mind, philosophy of language, philosophy of religion, philosophy of science, philosophy of biology, decision theory, political philosophy, non-Western philosophy, and the history of philosophy. The study of philosophy is not only fascinating in its own right but practical too, since it encourages the development of marketable intellectual abilities. These include the abilities to read, think, and write about conceptually complex and abstract material, and to construct and analyze elaborate chains of reasoning. Philosophy majors go on to pursue careers in such fields as law, medicine, business, the non-profit sector, the church, and academia.

The department offers BA, MA, and PhD degrees in philosophy, as well as an undergraduate minor.

### Major Program Requirements - Philosophy

Undergraduates pursuing a major in philosophy must meet all the non-philosophy requirements for a BA degree in the College of Arts and Science, including university general education requirements. In addition, however, they must complete a non-philosophical minor that consists of at least 15 credits in a single department, including at least 6 credits at the 2000 level or above. Finally, they must earn 30 credits in philosophy, with a grade of "C-" or above in every course, in accordance with the following rules:

<b>Major core requirements .....</b>	<b>30</b>
History of Philosophy: two courses required	
PHIL 3000: Ancient Western Philosophy .....	3
PHIL 3200: Modern Philosophy.....	3
Logic.....	3
PHIL 2700: Elementary Logic	
Ethics .....	3
At least one of the following is required:	
PHIL 1100: Introduction to Ethics	
PHIL 4500: Theories of Ethics	
PHIL 4600: Political and Social Philosophy	
Metaphysics and Epistemology.....	3
At least one of the following is required:	

PHIL 4200: Metaphysics	
PHIL 4300: Epistemology	
PHIL 4210: Philosophy of Mind	
PHIL 4100: Philosophy of Language	
PHIL 4400: Philosophy of Science	
At least two additional 4000-level courses .....	6
Capstone experience.....	3
PHIL 4950: Senior Seminar in Philosophy	
Philosophy electives .....	6
1. No course can be used to fulfill more than one of the above requirements, AND	
2. No more than two philosophy courses below the 2000-level can count toward the major.	

## Double and Dual Majors

A philosophy major can be paired with a major in another department. Students must meet the requirements of both departments. The program for each department must be approved by the advisor for that department.

## Departmental Honors

To earn a BA with honors in philosophy, a student must earn a 3.3 GPA in all courses, and a 3.7 GPA in all philosophy courses; meet all the standard requirements for the regular philosophy major; in addition take PHIL 4998: Honors I in Philosophy, and PHIL 4999: Honors II in Philosophy, writing a satisfactory senior thesis normally of 8,000 to 10,000 words under the guidance of a faculty member who has consented to work with the student; and pass an oral examination on the thesis before a committee of three members of the philosophy faculty.

## Minor in Philosophy

To earn a minor in philosophy, students must first gain the permission of their academic unit. Students must earn 15 credits in philosophy, including at least 6 credits at the 2000 level or above that are approved by both the advisor in the student's major and the department's director of undergraduate advising. PHIL 4995 and PHIL 4999 do not contribute to the minor.

# Department of Physics and Astronomy

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## Faculty

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**ASSISTANT PROFESSOR** G. King, O. Vajk, H. Yan

**TEACHING PROFESSOR** D.C. Kosztin

**ASSISTANT TEACHING PROFESSOR** K., King, Y. Zhang

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research.

The Department of Physics and Astronomy offers a major in physics with either a Bachelor of Arts or a Bachelor of Science Degree. The BA degree provides a broad coverage of classical and modern physics while permitting a broader liberal arts education. It is normally selected by students who do not envision a professional career in physics, but plan to enter a professional school later in their academic career, e.g. medicine, dentistry or law, or who desire to pursue a teaching certificate. The BS degree in Physics is designed to prepare students for scientific careers immediately upon graduation, for further training in graduate school, or for teaching high school physics. A minor in physics or astronomy is also available.

Physics education plays a pivotal role in such areas of burgeoning and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security. Therefore, the Department of Physics has introduced several new courses and electives to train undergraduate students in optical sciences, biological physics, materials sciences and nanotechnology.

## Major Program Requirements - Physics

Candidates for both degrees must complete 120 credits with an average grade of C or better. For the BA in physics degree, students must complete 30 credits in physics and 19 credits in math and chemistry. For the BS in physics degree, students must complete 45 credits in physics and 25 credits in math and chemistry. Students pursuing a Bachelor of Science in Education, emphasis in Physics Education, have the option of receiving a BS in physics degree by completing 33 credits in physics and 19 hours in math and chemistry. In addition, students must

meet all degree, college, and university requirements including University general education. All students who complete the BS degree in Physics automatically also complete a minor in Math.

### Major core requirements for the BS program

PHYSICS 2800: Undergraduate Seminar in Physics.....	2
PHYSICS 2750, 2760: University Physics I & II .....	10
PHYSICS 3150: Introduction to Modern Physics.....	3
PHYSICS 4060: Advanced Physics Laboratory I.....	3
PHYSICS 4100: Electricity and Magnetism I.....	3
PHYSICS 4120: Introduction to Thermodynamics .....	3
PHYSICS 4140: Mechanics .....	3
PHYSICS 4800: Introduction to Quantum Mechanics I3	
PHYSICS 4810: Introduction to Quantum Mechanics II.....	3
MATH 1500, 1700, 2300: Calculus I, II, III .....	13
MATH 4100: Differential Equations .....	3
CHEM 1320: General Chemistry II with Lab .....	3

### Electives:

Additional physics/astronomy .....	12
Additional math .....	6

### Major core requirements for the BS program for Science Education Majors

(this degree is available only to students who are also pursuing a Bachelor of Science in Education, emphasis in Physics education)

PHYSICS 2800: Undergraduate Seminar in Physics.....	2
PHYSICS 2750, 2760: University Physics I & II .....	10
PHYSICS 3150: Introduction to Modern Physics.....	3
PHYSICS 4080: Major Themes in Classical Physics .....	3
PHYSICS 4110: Light and Modern Optics .....	4
MATH 1500,1700,2300: Calculus I, II, III .....	13
MATH 4100: Differential Equations .....	3
CHEM 1320: General Chemistry II with Lab .....	3

### Electives:

Additional physics/astronomy (a student must select 3 courses from the list below)

PHYSICS 3010: Introduction to Modern Astrophysics .	3
PHYSICS 4190: Physics and Chemistry of Materials ....	3
PHYSICS 4310: Physics in Cell and Developmental Biology .....	3
PHYSICS 4500: Computational Biological Physics .....	3

### Major core requirements for the BA program

PHYSICS 2800: Undergraduate Physics Seminar.....	2
PHYSICS 2750, 2760: University Physics I, II.....	10
PHYSICS 3150: Introduction to Modern Physics.....	3
PHYSICS 4080: Major Themes in Classical Physics .....	3
MATH 1500, 1700, 2300: Calculus I, II, III .....	13
MATH 4100: Differential Equations .....	3
CHEM 1320: General Chemistry II with Lab.....	3

### Electives

Additional physics/astronomy.....	12
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### Elective Tracks

Students have available a variety of courses from which they may select the required credits of physics electives for the BS or BA degree. The Physics Department offers tracks that allow students to specialize in biological physics, astronomy, condensed matter, or optics. Students may want to pursue one of

these tracks, or follow a general track in which they can choose any of the courses that are listed and are not required courses.

**Note:** Tracks are not indicated on the diploma.

### Foreign Language Alternative (BS)

Students who elect an undergraduate program leading to the BS degree with a major in Physics have an option regarding the College of Arts and Science foreign language requirement. This requirement of 12 or 13 credits (depending on the language studied) may be satisfied alternatively by the substitution of an approved specialization. This consists of a minimum of 12 credits at the 2000/3000 level or above and may not include courses normally required of all physics majors. It is to be selected from an area with special relevance to physics and to the student's own interests and future plans.

Students have selected options in aerospace engineering, atmospheric science/geophysical fluid dynamics, radiation biology, chemistry, computer science, electrical engineering (circuits or computer hardware option), geology, nuclear engineering, material science, math and other areas. The choice and planning of an option must be done under the direction of the departmental undergraduate advisor.

### Dual Degrees and Double Majors

Students may wish to pursue two baccalaureate dual degrees simultaneously. For example, this might include a BS in Physics and a BS in Engineering, which is the most common choice. In order to receive two baccalaureate degrees, a student must complete a minimum of 132 credits and complete all the specified requirements for both degrees.

Another degree option is a single baccalaureate degree with two majors (double majors), which may be developed with the concurrence of appropriate advisors in the two departments. A notation of the successful completion of the two areas appears on the student's transcript. Both departments must be in the College of Arts and Sciences. Double major options often chosen by a physics major are chemistry, mathematics or geology. Mathematics is a particularly viable double major because the extensive mathematics component normally required in the BS degree with a major in physics, if coupled with a specialization area chosen from mathematics, nearly completes the BS degree with a major in mathematics.

Careful planning, started early in the academic career, is required to meet the conditions of dual majors or dual degrees. Students who complete such programs obtain the maximum from their undergraduate experience.

### Departmental Honors

The departmental honors program in physics provides exceptional students with an opportunity to develop skills beyond the normal course work. It also acknowledges those students who have attained a level of achievement beyond what is normally expected of an undergraduate physics major.

To receive an honors degree with a major in physics, a student must meet the following criteria:

- Complete BA or BS degree requirements
- Earn a cumulative GPA of at least 3.30
- Earn a minimum GPA of 3.50 in Physics Department courses

- Complete the equivalent of four units of PHYSCS 4950: Undergraduate Research in Physics
- Present a paper based on own research prior to graduation at a regional or national meeting, at a regular physics seminar in the Department of Physics and Astronomy or to a faculty panel that consists of no fewer than three Physics Department faculty members

In order to receive departmental honors recognition, the student must be recommended by the director of undergraduate studies. Upon recommendation, the Office of the University Registrar will be notified that the candidate has earned departmental honors recognition. This acknowledgement will appear on the student's diploma as well as on the transcript.

### Minor in Physics

A student whose area of concentration is in another department may receive a minor in physics with the completion of the following courses with grades of C or better: PHYSCS 2750, 2760: University Physics (10 credits) plus three additional courses at the 2000/3000 level or above (to include at least one course dealing with topics in modern physics). In order to complete these requirements, the student must complete mathematics through MATH 4100: Differential Equations.

Conversely, a student whose area of concentration is physics may pursue a minor in another department in the College of Arts and Sciences. The *Undergraduate Catalog* lists those departments that offer the minor and specifies their respective requirements.

### Minor in Astronomy

A student whose area of concentration is in another department may receive a minor in astronomy with the completion of the following courses with grades of C or better: one year of calculus based physics (the equivalent of PHYSCS 2750: University Physics I and PHYSCS 2760: University Physics II, PHYSCS 3010: Introduction to Modern Astrophysics, plus two additional courses that can be chosen from any of the astronomy courses offered.

## Department of Political Science

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### Faculty

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J. B. Dyer, K. M. Minta, L. K. Williams  
**ASSOCIATE TEACHING PROFESSOR** W. T. Horner

Political science is concerned with government, politics and public policies. In political science courses, students learn how government operates and how to analyze and evaluate public policies and political ideas. This training can help students be more effective as active citizens, as political leaders and as government administrators.

Many political science graduates attend law school or graduate school in political science, public administration, business administration, the social sciences, and other subjects. Others are employed in governmental or political jobs as legislative assistants, military officers or lobbyists, and more go into business or private employment. Many public officials and government administrators have political science degrees.

Courses in political science help students learn to think critically, analyze complex material and communicate effectively. Political science classes require extensive writing assignments, and majors are given many opportunities to hone their writing skills.

The department offers BA, MA and PhD degrees with majors in Political Science.

### Major Program Requirements - Political Science

Students complete a graduation plan, usually at the end of the sophomore year or beginning of the junior year. They should prepare for political science courses by completing university and College of Arts and Science foundation requirements, including university general education..

Students must complete the following classes with letter grades in the C range or better to file a graduation plan:

- POL SC 1100 or an equivalent course
- ENGLSH 1000 or an equivalent course
- MATH 1100 followed by a mathematics or statistics course (STAT 1200 will not count)
- An analytical course e.g. SOCIOL 1000, PSYCH 1000, ECONOM 1014, PHIL 1000 or 1200
- POL SC 3000

Students are required to complete 30 credits in political science. Fifteen of the 30 must be numbered 4000 or above.

### **Major core requirements**

All majors must take: POL SC 1100: American Government AND POL SC 3000: Introduction to Political Research

POL SC 3000 should be taken as a sophomore. It introduces majors to the systematic study of political phenomenon and prepares students for upper-class courses. A grade of C- or higher is required.

### **Comparative government (at least one course required)**

POL SC 2600: Canadian Politics and Government  
POL SC 2700: Comparative Political Systems  
POL SC 2720: European Democracies  
POL SC 4500: The European Union in the Global System  
POL SC 4600: Latin American Politics  
POL SC 4605: Latin American Politics through Film  
POL SC 4610: European Political Systems  
POL SC 4670: The Political System of the European Union  
POL SC 4720: Politics of Development  
POL SC 4730: Women and Politics  
POL SC 4750: Power and Money  
POL SC 4760: Comparative Political Parties

### **International affairs (at least one course required)**

POL SC 1400: International Relations  
POL SC 4400: Theories of International Relations  
POL SC 4410: Politics and War  
POL SC 4411: Genocide, Terrorism and Civil War  
POL SC 4412: Strategy and Warfare  
POL SC 4415: Peacekeeping and Intervention  
POL SC 4420: Politics of International Economic Relations  
POL SC 4440: International Organization  
POL SC 4540: American Foreign Policies

### **Political theory/methodology (one course highly recommended, but not required)**

POL SC 2800: Introduction to Political Theory  
POL SC 2860: American Political Thought  
POL SC 4000: Introductory Statistics for Political Science  
POL SC 4010: Computing Methods  
POL SC 4020: Survey Research Methods  
POL SC 4030: Formal Political Analysis  
POL SC 4800: Classical Political Theory  
POL SC 4830: Democracy in America (and Elsewhere)

### **American politics/public policy (at least two courses required):**

POL SC 2100: State Government  
POL SC 2200: The Judicial Process  
POL SC 4100: Political Parties and Election Campaigns  
POL SC 4110: Political Behavior  
POL SC 4120: Politics and the Media  
POL SC 4130: African-American Politics  
POL SC 4140: Congress and Legislative Policy  
POL SC 4150: The American Presidency  
POL SC 4160: Interest Groups  
POL SC 4170: Politics of the American South  
POL SC 4200: The American Constitution  
POL SC 4210: The Constitution and Civil Rights  
POL SC 4220: The United States Supreme Court  
POL SC 4230: Constitution and Civil Liberties  
POL SC 4310: Comparative State Politics

POL SC 4320: Public Policy  
POL SC 4370: Issues in Public Bureaucracy  
POL SC 4380: Politics of Criminal Justice

## **Options**

For students who want to concentrate on a specific area, suggestions for a course of study are available from the academic advisor. These include:

- Government service for students who want to become government administrators
- Public information and reporting for students who plan to be governmental press secretaries, public information specialists, interest group lobbyists or government reporters
- International relations for students who want to work for multinational corporations or international agencies
- Graduate school preparation
- Law school preparation

## **Departmental Honors**

Students who have honors eligibility and a 3.5 GPA may enter the departmental honors program. Students who successfully complete a senior honors paper with a letter grade in the "B" range or better will have the phrase "with Honors in Political Science" added to their diplomas. Each year many political science honors students are selected for Phi Beta Kappa, Mortar Board, Golden Key and other scholastic honoraries.

Students who plan to enter graduate school are encouraged to enter the departmental honors program and to speak with a faculty member early in their academic career. Some areas of graduate study require significant preparation in language, statistics and methodology.

## **Minor in Political Science**

To earn a minor in political science, students must complete 15 credits, including the following:

- POL SC 1100, American Government (3) or an equivalent course
- Additional political science courses totaling 12 credits with at least 6 at the 4000 level
- No more than 3 internship credits may be included and will not count as a 4000 level
- Nine credits must be in residence including 6 at the 4000 level
- A grade of C- or better is required of all political science classes in either a minor or a major with an overall GPA of 2.0 or greater.

## **Internships**

The Political Science Department offers internship course credit for work in a variety of governmental settings, including work with state legislators, administrative agencies, lobbyists, members of Congress, statewide elected officials, and state political parties. Seniors in good standing with a GPA of 2.67 and juniors in good standing with a GPA of 3.0 who have completed appropriate coursework are eligible to apply. No more than 3 internship credit hours may be included in the 30 hours required for the major.

# Department of Psychological Sciences

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## Faculty

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**ASSOCIATE PROFESSOR** B. Bartholow, S. Hackley, J. Kerns, Y. Luo, D. McCarthy, D. Miller, T. Piasecki, A. Rose, D. Steinley, M. Will

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**TEACHING PROFESSOR** A. Strathman

**PROFESSOR EMERITUS** W. Anderson, B. Biddle, R. Geen, J. LoPiccolo, M. Thelen, D. Wright

The faculty and staff of the Department of Psychological Sciences are committed to providing students with a high quality, broadly-based undergraduate education. Understanding that undergraduate students use the psychology major as preparation for a variety of postbaccalaureate experiences, the department is dedicated to offering a wide range of courses and services to students. While some students are interested in pursuing psychology-related interests in graduate school, most are interested in pursuing careers after graduating with a Bachelor of Arts (BA).

Regardless of a student's ultimate goals, faculty members believe that students will be best served by completing a rigorous research-oriented program of study. Therefore, students should expect instructors to take a scientific approach to the psychological content of each course.

The department offers BA, MA, and PhD degrees with a major in Psychology. A minor is also available.

## Major Program Requirements - Psychology

To graduate with a Bachelor of Arts with a major in Psychology in the College of Arts and Science, a student must complete all degree, college and university graduation requirements, including university general education as well as all degree and college or school requirements. Students are reminded to check the *Undergraduate Catalog* for course descriptions and prerequisite information..

### Major Core Requirements

- The psychology major requires 30 credits.
- All courses that count toward the psychology major requirements must be completed with a grade of C or better. Grades of C- or below will not be accepted. This includes STAT 1200 or its equivalent (a required course for all psychology majors).

- Students must complete at least two psychology courses numbered 4000 or above.
- Students must complete at least one psychology course numbered 3000 or above that is designated Writing Intensive. The psychology capstone lab will meet the WI requirement if completed during the fall or spring semesters. Capstones are not WI in the summer sessions.
- No more than 43 credits in psychology can count toward the credits needed for graduation.
- Students may use no more than 9 hours of Special Problems Courses (PSYCH 2950, 4950 & 4960) toward graduation.

### Required courses

PSYCH 1000: General Psychology.....	3
Research methods sequence	
STAT 1200 or its equivalent .....	3
PSYCH 3010: Research Methods in Psychology .....	3
PSYCH 3020: Research Methods in Psychology II .....	3
Capstone course (psychology lab course).....	3-6

### Distribution Areas

Psychology majors are required to take one course from four of the five distribution areas. This ensures that students will have exposure to a wide range of psychological theory and research. In addition, students choose two additional Psychology courses to receive additional education according to their interests. Although the distribution areas are presented below as distinct areas of study, a great deal of overlap exists among them. Students should understand the ways in which the various areas complement one another and gain the ability to integrate information learned in the different areas.

### Learning and Cognition distribution area .....3

This distribution area studies the mechanisms of the mind and how they are altered by experience. Courses in this distribution area include:

- PSYCH 2110: Learning, Memory, and Cognition
- PSYCH 2820: Introduction to Cognitive Science
- PSYCH 3110: Theories of Learning
- PSYCH 3130: Decisions, Values & Choice
- PSYCH 3140: Cognitive Psychology
- PSYCH 3150: Human Memory
- PSYCH 3160: Perception and Thought

### Biological/Neuroscience distribution area.....3

This distribution area studies the biological basis of the behavior of humans and other animals. Courses in this distribution area include:

- PSYCH 2210: Mind, Brain, and Behavior
- PSYCH 2220: Drugs and Behavior
- PSYCH 2810: Human Sexuality
- PSYCH 3830: Health Psychology
- PSYCH 4210: Physiological Psychology
- PSYCH 4230: Clinical Psychophysiology
- PSYCH 4240: Cognitive Neuroscience

Note: A student may not receive credit for PSYCH 2210 if it is taken after PSYCH 4210.

### Social/Personality distribution area.....3

This distribution area employs scientific methods to understand the nature and causes of individuals' thoughts, feelings and behavior in social situations. Courses in this distribution area include:

- PSYCH 2310: Social Psychology
- PSYCH 2320: Introduction to Personality

PSYCH 4350: Stereotypes and Prejudice  
PSYCH 4815: Cross-Cultural Psychology

**Developmental distribution area .....3**

This distribution area studies the cultural and biological influences on age-related changes in cognition, emotion and social behavior that take place throughout an individual's lifespan.

Courses in this distribution area include:

- PSYCH 2410: Developmental Psychology
- PSYCH 3420: Cognitive Development in Childhood
- PSYCH 3430: Social Development in Childhood
- PSYCH 4440: Sex Differences

Note: Due to the overlap in course content, a student may receive credit for only one of the following three courses: PSYCH 2410, H D FS 3420 or ESC PS 2500.

**Clinical/Abnormal distribution area.....3**

This distribution area focuses on scientific study of the causes of mental disorders as well as methods for assessing and alleviating mental health problems and related types of maladjustment. It also is concerned with the study of positive mental health and wellness, including strategies for preventing the development of mental disorders. Courses in this area include:

- PSYCH 2510: Survey of Abnormal Psychology
- PSYCH 2830: Human-Companion Animal Interaction
- PSYCH 3510: Introduction to Clinical Psychology
- PSYCH 4520: Behavior Genetics
- PSYCH 4530: Research in Psychopathology
- PSYCH 4540: Emotional Disorders in Childhood and Adolescence
- PSYCH 4560: Schizophrenia
- PSYCH 4570: Pediatric Neuropsychology

**Psychology electives (2000-level) .....6**

Students must complete two psychology elective courses numbered 2000 or above, excluding Special Problems/Readings and Capstone Labs.

**Minor in Psychology**

The psychology minor requires 15 credits, distributed as shown below.

- PSYCH 1000: General Psychology ..... 3
- Three regularly-scheduled psychology courses ..... 9
  - At least two of these courses must be numbered 3000 or above. "Regularly-scheduled" includes all courses except special problems courses, which are PSYCH 4950 and 4960: Readings.
- An additional psychology course ..... 3

Students must receive a grade of C or better in all courses required for the minor. Grades of C- will not be accepted. Only 6 credits in transfer courses will be accepted toward the minor.

## Department of Religious Studies

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### Faculty

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**TEACHING ASSISTANT PROFESSORS** D. Cohen, J. Flanagan

The department's field of study includes religious expression from many cultures and in every period of history. Systematic study of this rich world of expression employs the widest range of academic tools and competencies, from the skills of the literary critic and historian to the analytic abilities of the social scientist and anthropologist. Because of this broad base, study in the department promotes fundamental academic skills and critical judgment and provides deeper understanding of national and international cultures. Thus, the religious studies major provides students with a foundation to pursue careers in business, government, counseling, law, medicine and journalism, as well as advanced professional study in religion. The department offers BA and MA degrees with majors in Religious Studies. A minor is also available.

### Major Program Requirements - Religious Studies

Students must earn a minimum GPA of 2.0 or higher in order to have the credit applied. In addition, students must complete all degree, college and university graduation requirements, including university general education.

**Major core requirements .....12**

- REL ST 1100: Introduction to Religion
- OR REL ST 2110: Religions of the World ..... 3
- REL ST 3990: Majors Seminar ..... 3
- REL ST 4100: Advanced Theories and Methods ..... 3
- REL ST 4990: Senior Seminar in Religious Studies .... 3

**Additional requirements .....18**

(at least one course in Asian, Western, and Indigenous Religions.)

### Double Majors

Students are encouraged to pursue dual majors that combine religion with other interests.

### Departmental Honors

See the department web site for details.

### Minor in Religious Studies

A minor in religious studies is available with the following requirements: a minimum of 15 credits (at least one course each in Asian, Western, and Indigenous Religions), including 6 in courses numbered 2000 or above. A minimum 2.0 MU GPA is required in all courses toward the minor.

# Department of Romance Languages and Literature

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**TEACHING ASSISTANT PROFESSOR**  
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**INSTRUCTOR** L. McCune, A. Wetzel

The study of a foreign language allows for the development and refinement of communication, listening and speaking skills. Such study also endows students with a concern for world affairs and an appreciation of and respect for individual differences.

The Department of Romance Languages and Literatures offers language and literature courses in French, Italian, Portuguese and Spanish. Students may elect a major in French or Spanish. Minors are also available in Afro-Romance literatures in Translation, French, Italian Area Studies, Luso-Brazilian Area Studies, Romance Literatures in Translation, and Spanish. The department also participates in the interdepartmental minor in film studies.

Double majors within the College of Arts and Science, as well as dual degree programs outside of the College of Arts and Science, can be arranged if the second degree is identified early. Combined programs with journalism, political science, agriculture, education and business are among the possibilities.

The department offers BA and MA degrees with majors in French and Spanish, an MA with a major in French Language Teaching or Spanish Language Teaching, and a PhD in Romance Languages. Minors are also available.

## Major Program Requirements - French

Students may obtain a BA with a major in French with a minimum of 30 credits in French beyond FRENCH 2100. Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the major. Students must meet all major requirements listed below, as well as all College of Arts and Science and University graduation requirements, including University general education.

Students who work toward a double major (two degrees within

the College of Arts and Science) may be able to complete the majors with a minimum of 120 credits. Students who are considering a dual degree program (in Arts and Science and in another school or college) are advised that a minimum of 132 credits are necessary.

To obtain the BA degree with a major in French, the following courses, or their equivalents, must be included in the graduation plan (numbers in parentheses indicate prerequisite courses).

## Major core requirements

FRENCH 2160: Intermediate French Composition and Conversation (FRENCH 2100) .....	3
FRENCH 3160: Advanced French Composition and Conversation I (FRENCH 2160) OR FRENCH 3280: Commercial French (FRENCH 2160).....	3
FRENCH 3410: Introduction to Literary Analysis (FRENCH 3160) .....	3
FRENCH 3420: Introduction to French Literature I (FRENCH 3160 and 3410).....	3
FRENCH 3430: Introduction to French Literature II (FRENCH 3160 and 3410) .....	3
FRENCH 4130: Stylistics (FRENCH 3160 or 3280 and FRENCH 3420 or 3430) .....	3

## Additional Requirements

- Students must complete five additional 4000-level courses (one of which must be stylistics and one must be a capstone) selected with the advisor's approval. FRENCH 4960: Special Readings in French cannot be used to fulfill this requirement except by permission of the department chair.
- Students beginning at a level higher than FRENCH 2160 due to placement testing must still complete 30 credits in order to receive the major.
- In addition, the student is required to take a Writing Intensive course in the major, normally designated sections of FRENCH 3420 or 3430, and must complete either a related field or minor. For a related field, a minimum of 8 hours, including at least two upper-class courses, as approved by the student's advisor, outside the major field of study.
- It is highly recommended that students take FRENCH 2310: French Civilization as an elective and, if at all possible, study for a summer, a semester or a full year in a French-speaking country.

## Major Program Requirements - Spanish

Students may obtain a BA with a major in Spanish with a minimum of 30 credits in Spanish beyond SPAN 2100. Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the major. Students must meet all major requirements listed below, as well as all College of Arts and Science and University graduation requirements, including University general education.

Students who work toward a double major (two degrees within the College of Arts and Science) may be able to complete the majors with a minimum of 120 credits. Students who are considering a dual degree program (in Arts and Science and in another school or college) are advised that a minimum of 132 credits are necessary.

To obtain the BA degree with a major in Spanish, the following courses, or their equivalents, must be included in the graduation plan (numbers in parentheses indicate prerequisite courses):

### Major core requirements

SPAN 2160: Intermediate Spanish Composition and Conversation (SPAN 2100) .....	3
SPAN 3150: Advanced Spanish Conversation (SPAN 2160) OR SPAN 3721: Spanish Phonetics (SPAN 2160) .....	3
SPAN 3160: Advanced Spanish Composition (SPAN 2160) OR SPAN 3280: Commercial Spanish (SPAN 2160).	3
SPAN 3420: Introduction to Hispanic Literature I (SPAN 3160).....	3
SPAN 3430: Introduction to Hispanic Literature II (SPAN 3160).....	3

### Additional Requirements

Students must complete five 4000-level courses (one of which must be a capstone) selected with the advisor's approval. These courses must be distributed in one of the following options:

- Option 1: two peninsular lit., two Spanish-American lit., one course of choice (one course must be capstone.)
- Option 2: one peninsular lit., one Spanish-American lit., one language/civilization, one capstone and one course of choice.

It should be noted that SPAN 4960: Special Readings in Spanish cannot be used to fulfill this requirement except by permission of the department chair. Students who plan to teach at any level should include courses SPAN 3160 and SPAN 3721, rather than their alternates.

- Students beginning at a level higher than SPAN 2160 due to placement testing must still complete 30 credits in order to receive the major.
- In addition, the student is required to take a Writing Intensive course in the major, normally designated sections of SPAN 3420 or 3430, and must complete either a related field or minor. For a related field, a minimum of 8 hours, including at least two upper-class courses, as approved by the student's advisor, outside the major field of study.
- It is highly recommended that students take SPAN 2310: Spanish Civilization as an elective and, if at all possible, study for a summer, a semester or a full year in a Spanish-speaking country.

### Minor in Afro-Romance Literatures in Translation

Students may obtain a minor in Afro-Romance literatures in translation by completing the courses listed below.

SPAN/FRENCH 1100, 1200, 2100
ITAL/PORT 1100, 1200

Three 2000-level literature-in-translation courses chosen from the following list (at least two language groupings must be represented):

FRENCH 2350: New World Francophone Literature in Translation
RM LAN 2310: Literature of the African Diaspora
SPAN 2340: Hispanic Minority Literature
SPAN 2350: Afro-Hispanic Literature

Two 3000-level or 4000-level courses chosen from the following list:

FRENCH 3710/SPAN 3710: Survey of Minority & Creole Languages of the US & the Caribbean
PORT 3001/PORT 3005: Topics in Portuguese

RM LAN 4310: Literature of the African Diaspora

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

### Minor in French

Students may obtain a French minor by completing a minimum of 15 credits beyond FRENCH 2100, of which at least 6 credits must be in literature. Courses taught in English (i.e., 2310, 2320, 2330, 2340) and cross-listed courses taught in English do not count toward the minor. The courses listed below are the most likely choice.

FRENCH 2160: Intermediate French Composition and Conversation
FRENCH 3160: Advanced French Composition and Conversation I
OR FRENCH 3280: Commercial French
FRENCH 3410: Introduction to Literary Analysis
FRENCH 3420: Introduction to French Literature I
FRENCH 3430: Introduction to French Literature II

Students beginning at a level higher than FRENCH 2160 due to placement testing must still complete the minimum of 15 additional credits in order to receive the minor. A minimum of 9 credits, including 3 in literature, must be taken in residence.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

### Minor in Italian Area Studies

Students may obtain a minor in Italian area studies by completing at least 9 credits in Italian language beyond ITAL 1200, e.g.: ITAL 2160, 3150 or 3160. An additional 6 credits must be chosen from the list below:

ITAL 2001/2005: Undergraduate Topics in Italian
ITAL 2310: Italian Civilization
ITAL 3001/3005: Topics in Italian
ITAL 3310: 20 <sup>th</sup> Century Italian Fiction in Translation
Italian culture/topics emphasis courses offered by other programs/departments (e.g., History, Art History, Music or International Studies).

Normally, 9 credits must be completed in residence at MU. However, students are permitted to count 6 credits toward the minor from an officially sanctioned semester or year-long foreign study program in Italy. Six credits toward the minor can also be earned in summer programs abroad, such as the summer intensive language program offered by the University of Bergamo (near Milan) or by the Centro Fiorenza in Florence or on the Island of Elba.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

### Minor in Luso-Brazilian Area Studies

Students may obtain a minor in Luso-Brazilian Area Studies by completing at least 9 credits in the Portuguese language beyond Portuguese 1200, e.g. Portuguese 2160, 3160, and 4960

An additional 6 credits may be chosen from the following list:

- PORT 2310: Brazilian Civilization
- PORT 3001/3005: Topics in Portuguese
- PORT 3420: Survey of Brazilian Literature
- PORT 3875: Brazilian Cinema
- SPAN 2330: Latin American Civilization

Luso-Brazilian culture/topics emphasis courses offered by other programs/departments (e.g. Anthropology, History, Music, Political Science).

Normally 9 credits must be completed in residence at MU. However, students are permitted to count 6 credits toward the minor from an officially sanctioned semester or year-long foreign study program in Brazil or Portugal. These include the MU in Rio de Janeiro program at the Pontificia Universidade Catolica and the CIEE Universidade Nova de Lisboa program.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a minimum GPA of 2.0 in the minor.

### **Minor in Romance Literatures in Translation**

To obtain a minor in Romance literatures in translation, students must complete the basic language sequence shown below.

- SPAN/FRENCH 1100, 1200, 2100
- ITAL/PORT 1100, 1200

Students must also complete three 2000-level literature-in-translation courses and two 3000-level literature-in-translation courses (one of which must be either ITAL 3310 or PORT 3001) chosen from the list below:

- FRENCH 2320: French Literature and Thought in English Translation I
- FRENCH 2330: French Literature in Translation II
- FRENCH 2350: New World Francophone Literature in Translation
- FRENCH 2370: French Women Writers (in translation)
- ITAL 2850: Italian Cinema
- ITAL 3310: 20<sup>th</sup> Century Italian Fiction in Translation
- ITAL 3820: Films of Federico Fellini
- PORT 3001/PORT 3005: Topics in Portuguese
- SPAN 2320: Spanish Literature in Translation
- SPAN 2340: Hispanic Minority Literature
- SPAN 2350: Afro-Hispanic Literature

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

### **Minor in Spanish**

Students may obtain a Spanish minor by completing a minimum of 15 credits beyond SPAN 2100, of which at least 6 credits must be in literature. Courses taught in English, i.e. 2310, 2320, 2330, 2340 and cross-listed courses taught in English do not count toward the minor. The courses listed below are the most likely choice.

- SPAN 2160: Intermediate Spanish Composition and Conversation
- SPAN 3150: Advanced Spanish Conversation
- OR SPAN 3721: Spanish Phonetics
- SPAN 3160: Advanced Spanish Composition
- OR SPAN 3280: Commercial Spanish
- SPAN 3420: Introduction to Hispanic Literature I

### **SPAN 3430: Introduction to Hispanic Literature II**

Students beginning at a level higher than SPAN 2160 due to placement testing must still complete the minimum of 15 additional credits to receive the minor. A minimum of 9 credits, including 3 in literature, must be taken in residence.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

# Department of Sociology

J. Gubrium, Chair  
 College of Arts and Science  
 312 Middlebush Hall  
 (573) 882-8331  
 sociologyug@missouri.edu

## Faculty

**PROFESSOR** E. E. Brent Jr., J. Galliher, J. F. Gubrium, I. Pearce  
**ASSOCIATE PROFESSOR** W. H. Brekhus, J. M. Hermsen, V. L. Johnson, C. Y. Lo  
**ASSISTANT PROFESSOR** E. Bjornstrom, S. Brooks, E. Brown, E. Morales, A. Prasad, S. Prasad, J. Rodriguez, R. Scott  
**PROFESSORS EMERITUS** B. Bank, J. K. Benson, B. Biddle, D. Granberg, P. Hall, R. M. Hessler, J. L. McCartney, A. C. Twaddle, C. E. Vaughan, T. Vaughan

Sociology is a discipline founded over 100 years ago to bring the scientific method to the study of human societies. It has pioneered in the development of methods and techniques designed to provide accurate and verifiable information about contemporary societies. It is the inventor of survey research and a host of statistical measures. The techniques created by sociologists are now used in all disciplines concerned with human behavior.

Sociologists today conduct research and reason from research findings to generate deeper understandings of how societies work. The generation of theoretical statements and the testing of those statements in a wide variety of social settings is the core of sociological work. Sociologists are knowledge builders, rather than change agents, although there is an emergent group of scholars who apply sociological knowledge to create changes in organizations, individuals and communities. Sociology contributes to human improvement by seeing that change can be based on credible information and reasoned understanding of how humans work together in groups or larger aggregates.

## Major Program Requirements - Sociology

A Bachelor of Arts with a major in Sociology consists of 30 credits organized to provide progressively more sophisticated levels of sociological analysis culminating in a capstone experience. It is expected that students start with entry courses, progress to basic courses and then to upper-level electives. In addition, students must complete all degree, College of Arts and Sciences and University graduation requirements, including University general education.

### Major core requirements

**Entry courses**.....6

SOCIOL 1000: Introduction to Sociology

SOCIOL 2200: Social Inequalities

**Basic courses**.....6

SOCIOL 2950: Social Research I

SOCIOL 3100: Recent Theories in

Sociology (prerequisite: SOCIOL 2200)

**Post-basic courses** .....9

Three additional sociology courses numbered 3000 or above; may include no more than 3 credits in SOCIOL 4940, and/or SOCIOL 4942

Additional hours in sociology ..... 6

An additional 6 credits in elective coursework in the major; may include no more than 3 credits in SOCIOL 4960

**Capstone course** .....3

SOCIOL 4970: Senior Seminar

Should be taken in the last semester of undergraduate work

**Departmental honors** .....6

SOCIOL 4995: Honors in Sociology

Students with a cumulative GPA of 3.3 are eligible for departmental honors in sociology. Qualified students who seek this option must write an honors thesis under the supervision of a sociology faculty member. Students who take the honors thesis option are not required to take SOCIOL 4970. Students enroll in SOCIOL 4995 for 3 credits each semester of the senior year.

### Statistics

A course in statistics is not required for the major. However, such a course is highly recommended, especially for students considering graduate or professional school.

### Suggested courses:

STAT 1200: Introductory Statistical Reasoning

STAT 1300: Elementary Statistics

SOCIOL 4120: Social Statistics

## Optional Tracks

The course work in sociology fits into five recommended tracks of study. Although sociology majors are not required to select a track, students who want a closer tie between the major and future employment are encouraged to do so. Each track has recommended courses in the major, complementary internships, and service learning opportunities. (Note: Tracks are not listed on transcripts or diplomas.) These tracks are outlined below.

### Track: Law, Justice and Society

SOCIOL 1000: Introduction to Sociology

SOCIOL 1650: Social Deviance

SOCIOL 3010: Social Problems

SOCIOL 3600: Criminology

SOCIOL 4500: Sociology of Social Policy

SOCIOL 4600: Contemporary Corrections

SOCIOL 4610: Society and Social Control

### Track: Power, Inequalities and Social Change

SOCIOL 1000: Introduction to Sociology

SOCIOL 2210: The Black Americans

SOCIOL 3200: Class, Status, and Power

SOCIOL 3210: Sociology of Globalization

SOCIOL 3320: Sociology of Gender

SOCIOL 3510: Public Opinion and Communication

SOCIOL 3520: Collective Behavior

SOCIOL 4220: Race and Ethnic Relations

SOCIOL 4230: Women, Development, and Globalization

### Track: Sexuality, Health and the Life Course

SOCIOL 1000: Introduction to Sociology

SOCIOL 1360: The Female Experience: Body, Identity, Culture

SOCIOL 2230: Social Perspectives on Aging

SOCIOL 3010: Social Problems

SOCIOL 3300: Queer Theories/Identities

SOCIOL 3320: Sociology of Gender

SOCIOL 3420: The Family

SOCIOL 3460: Technology and Society  
SOCIOL 3440: Sociology of Health  
SOCIOL 4210: Sociology of Aging  
WGST 4420: The Politics of Reproduction and Fertility Control

**Track: Culture, Identity and the Media**

SOCIOL 1000: Introduction to Sociology  
SOCIOL 2300: Self and Society  
SOCIOL 2310: Culture and Mass Media  
SOCIOL 3300: Queer Theories/Identities  
SOCIOL 3310: Social Psychology  
SOCIOL 3400: Politics of the Media  
SOCIOL 3430: The Sociology of Sport  
SOCIOL 3450: The Sociology of Religion  
SOCIOL 3510: Public Opinion and Communication  
SOCIOL 4320: Culture, Identity, and Interaction

**Track: Organizations, Work, Technology and the Economy**

SOCIOL 1000: Introduction to Sociology  
SOCIOL 3200: Class, Status, and Power  
SOCIOL 3210: Sociology of Globalization  
SOCIOL 3460: Technology and Society  
SOCIOL 3520: Collective Behavior  
SOCIOL 3700: Organizations and Institutions  
SOCIOL 3710: The Sociology of Work  
SOCIOL 4230: Women, Development and Globalization

**Departmental Honors**

See departmental honors in the degree requirements listed above.

**Minor in Sociology**

To minor in sociology, a student must complete a total of 15 credits of sociology course work as follows:

SOCIOL 1000: Introduction to Sociology  
SOCIOL 2200: Social Inequalities  
Two courses at the 3000-level or above  
One other sociology course at any level

Nine credits of course work toward the minor must be MU courses.

## Special Degree Programs

Office of Special Degree Programs  
College of Arts and Science  
114 Switzler Hall  
(573) 882-6060

### Majors

**Interdepartmental – A&S**

**Interdisciplinary Studies**

*Black Studies, Environmental Studies, Peace Studies, Women's and Gender Studies*

**International Studies**

*East Asian Studies, Environmental Studies, European Studies, International Business, Latin American Studies, Peace Studies, South Asian Studies*

**Interdivisional – Provost**

**Minors**

Black Studies  
East Asian Studies  
Latin American Studies  
Peace Studies  
South Asian Studies  
Women's and Gender Studies

Interdisciplinary programs provide for the special needs and interests of individual students who are not being served by one of the existing majors. The Office of Special Degree Programs is responsible for a variety of multidisciplinary majors, including Interdisciplinary Studies, International Studies and General Studies.

### Major Program Requirements - Interdisciplinary Studies

Students majoring in Interdisciplinary Studies may design an individual course of study. Students with very specific career plans and goals not easily accommodated in any one department may find this program suited for their needs. Others may find that this option permits a broader approach than the major found in a single department.

The Interdisciplinary Studies major is comprised of two or three components to total 36 credits. A component consists of course work from a single department or area, which may include programs outside the College of Arts and Science (e.g., Journalism, Business or Social Work). At least 18 hours must come from the College of Arts and Science. In addition to the 36 hours required in the major components, Interdisciplinary Studies students must also complete a 3-credit capstone.

Interdisciplinary Studies candidates must earn no less than a 2.0 GPA in each component. Interdisciplinary Studies students are bound by rules and practices of the College of Arts and Science that pertain to admission to degree programs, the awarding of credit and the awarding of degrees. Students must complete college as well as University requirements, including University general education.

## Major core requirements

Area of concentration (select one option) ..... 36

- Three components of 12 credits each
- Three components, one of 15, one of 12 and one of 9 credits
- Two components of 18 credits each
- Two components, one of 21 and one of 15 credits

All courses in the area must be at the 2000 level and at least 15 credits must be 3000 level or above.

At least one course must be completed at MU in each component, with no fewer than 12 credits total in courses in the area taken on this campus.

**Capstone requirement** (to be completed during final 45 hours of course work)

There are several ways a student can complete the capstone experience in interdisciplinary studies.

1. **Special Readings project:** With this option, the student completes an independent research project under the supervision of a faculty member. The project allows the student to explore an area of interest and is designed to be an academic challenge. The department is open to creative, innovative approaches to learning. The supervising faculty member is responsible for grading the project. The student is responsible for locating a supervising faculty member.
2. **Service Learning project.** Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Course will be submitted for Writing Intensive credit each semester. Restricted to Interdisciplinary, General and International Studies students.
3. **Internship:** Students work approximately 50 clock hours per credit at an agency, company or corporation of their choice. Grades are on a pass-fail basis. For an internship to be approved as a capstone experience, it must help the student solidify and explore the areas of concentration. Internships must have prior approval from the Special Degree Programs Office.
4. **Capstone course:** Students may have a specific course designated as a capstone course for the individual degree program. The course must be upper level, and the course must be taken in the last 45 hours of course work as a major. A course taken previously cannot retroactively be counted as a capstone course. Approval for the course must be provided in advance of registration from the Interdisciplinary Studies advisor.

## Emphasis Areas (Interdisciplinary Studies)

### Emphasis in Black Studies

An Interdisciplinary Area in the College of Arts and Science

Wilma King, Director  
313 Gentry Hall  
(573) 882-6229

The Black Studies Program is an interdisciplinary program leading to a dual major or minor in the College of Arts and Science.

### Emphasis core requirements

- Completion of an area of concentration in another Arts and Science program or department
- Completion of an interdisciplinary area of concentration of at least 32 credits in black studies and related courses

In selecting a language to meet general education requirements in the College of Arts and Science, students are encouraged to consider Spanish, Portuguese or French.

### Emphasis in Environmental Studies

<http://web.missouri.edu/~umcsnresiwww/index.html>

People in the environmental field work to protect and restore the natural services that clean water, build soil, scrub air, and maintain species that provide human food, shelter and well-being. Career opportunities fall into the five categories listed below with the majors that are the best preparation for each. The Environmental Studies website advising page can help you find the best category for you. For some majors, an Environmental Studies Certificate (ESC) is strongly encouraged. Because of the specific requirements of the major and the diverse ways they can be met, early advising is extremely important.

#### Advocacy, Outreach & Communication -

Environmental Studies or Business, Communication, Marketing, or Journalism plus an ESC.

#### Policy and Regulation -

Environmental Studies or Political Science plus an ESC.

#### Conservation and Natural Resources -

Biology, Environmental Science, Fisheries and Wildlife, Forestry, or Soil Science plus an ESC.

#### Environmental Engineering and Scientific Services -

Agricultural Systems Management, Biochemistry, Chemistry, Engineering, Environmental Science, Math, or Soil Science plus an ESC.

#### Outdoor and Environmental Education -

Parks, Recreation and Tourism, or Education plus an ESC.

#### Environmental Studies Major (in Special Degrees)

18 hours of proscribed General Education Courses

15 hours *Natural Dimensions Courses*

15 hours *Social Dimensions Courses*

9 hours of *Practicum Courses (Seminar, Internship, Capstone)*

A student can take Natural and Social Dimension courses organized into informal tracks: (Note: Tracks do not appear on diplomas or transcripts.

- Sustainable Lifestyles
- Water Soils and Climate
- Energy and Materials
- Conservation and Biodiversity
- Environmental Education

Students can also develop their own tracks with the assistance of the environmental studies program.

For details on the tracks, visit the environmental studies website: [web.missouri.edu/~umcsnresiwww/esmajor.shtml](http://web.missouri.edu/~umcsnresiwww/esmajor.shtml)

### Environmental Studies Certificate (ESC)

The certificate requires 6 hours of lower level courses (1000-2000), 3 hours of an environmentally related seminar (2000 level), and 6 hours of upper level courses (2000-4000). In addition, the student is expected to incorporate an environmental issue into their capstone experience.

The coursework must be *outside* the student's area (Science, Engineering, Soc/Beh Science, Humanities, Business, Education). The certificate is based on the expectation that students will already be taking environmental courses within their area.

**Natural Science, Engineering or Science Education** students can take informal "tracks" that emphasize policy, sustainable lifestyles, business and economics, environmental justice and ethics, cities and the built environment, or environmental education.

**Social or Behavioral Science, Humanities, Education or Business** students can take "informal" tracks that emphasize global processes and change, soils and water quality, biodiversity (plant or animal), development impacts, hands-on sustainability, or energy and materials.

Students can also develop their own track with the assistance of the environmental studies program.

For details on the tracks, visit the environmental studies website: [web.missouri.edu/~umcsnresiwww/escert.shtml](http://web.missouri.edu/~umcsnresiwww/escert.shtml)

## Emphasis in Peace Studies

Clarence Lo, Director  
326 Middlebush Hall  
(573) 882-1736

The peace studies emphasis area addresses a wide range of issues concerning peace and justice, including:

- Social, political, and cultural roots of conflict
- Economics of war and peace
- Distribution of the world's wealth
- Peace and the treatment of the environment
- Peaceful and non-peaceful uses of technology
- Moral and religious views of war and peace, justice and violence
- Images of peace and violence in literature and the arts
- Nonviolent social change and resolution of conflicts
- History of pacifism and nonviolent resistance to oppression
- Strategies for promoting global cooperation and world order
- Anticipation and prevention of aggression and armed conflict

The issues are examined at all levels—personal, group and international. Courses provide a basis for dealing with issues in a realistic way, explore principles and values necessary to set practical goals, and inventory methods for pursuing them effectively. Field experience in organizations that deal with injustice, human needs, and conflict is an integral component of core courses. Since issues of peace and conflict cut across disciplines, the curriculum includes courses offered by both the program itself and departments of the University.

Emphasis requirements .....	30
Core requirements (choose from courses below).....	15
PEA ST 1050: Introduction to Peace Studies .....	3
PEA ST 1120: Population and Ecology.....	3
PEA ST 2003-2005: Topics in Peace Studies .....	2-3
PEA ST 2180: Undergraduate Seminar I in Peace Studies.....	3
PEA ST 2181: Undergraduate Seminar II in Peace Studies.....	3
PEA ST 2182: Undergraduate Seminar III in Peace Studies.....	3
PEA ST 2183: Undergraduate Seminar IV in Peace Studies.....	3
PEA ST 2284: Global Environmental Policy Conflicts	3
PEA ST 2320: Spanish Literature in Translation .....	3
PEA ST 2410: Philosophies of War and Peace .....	3
PEA ST 2780: World Political Geography .....	3
PEA ST 3003, 3005: Topics in Peace Studies .....	1-3
PEA ST 3280: Internship in Peace Studies .....	1-3
PEA ST 3400: Politics of the Media.....	3
PEA ST 3520: Collective Behavior.....	3
PEA ST 3610: Ireland, 1100s to 1850.....	3
PEA ST 3611: Ireland, 1850-1923 .....	3
PEA ST 3612: Ireland, 1920-Present.....	3
PEA ST 4003, 4005: Topics in Peace Studies .....	2-6
PEA ST 4550: Gender and Human Rights in Cross Categorical Perspective .....	3
PEA ST 4970: Senior Thesis I .....	3
<b>Other cross listed courses.....</b>	<b>15</b>

## Emphasis in Women's and Gender Studies

Interdepartmental Program in the College of Arts and Science  
Joan Hermsen, Chair  
Rebecca Dingo, Director of Undergraduate Studies  
325 Strickland Hall  
(573) 882-2703

Students may earn a Bachelor of Arts in the College of Arts and Science with an interdisciplinary major and an emphasis on women's and gender studies. A minor is also available.

Advising of students and assistance in designing student-tailored academic plans is available from the Women's and Gender Studies Department Office.

The curriculum includes women's and gender studies core courses as well as cross-listed courses from several departments throughout the University. These courses assume that knowledge cannot be separated from the study of women and gender, and that gender and sexuality are fundamental categories of analysis in all disciplines. The department stresses interdisciplinary scholarship and teaching that are broadly comparative and range across multiple cultures, national and transnational contexts, and historical periods. Its faculty employ a broad range of theoretical approaches and methods.

Thirty credits are required in women's and gender studies. In addition to degree requirements, College and University requirements, including University general education requirements, must be met.

### Emphasis core courses .....15

WGST 1120: Bodies, Cultures and Nations .....	3
WGST 1332: Social Perspectives on Gender, Race and Class .....	3
WGST 2020: Feminist Theory I .....	3
WGST 3450: Feminist Methodologies.....	3
WGST 4990: Senior Research Seminar in Women's and Gender Studies (capstone).....	3

### Additional courses .....15

Courses selected from the following WGST core and cross-listed course lists. Three hours must be selected from core courses. 12 hours must be at 2000-level or above.

#### WGST Core Courses:

WGST 1001-1005: Topics in Women's and Gender Studies
WGST 2001-2005: Topics in Women's and Gender Studies
WGST 2030: Gender in India: Colonial Histories, Post-Colonial Challenges
WGST 2040: Women's Empowerment
WGST 2050: 16 and Pregnant: Adolescent Pregnancy in a Global Context
WGST 2080: Gender Freedom: Sexuality and Gender Beyond Borders
WGST 2250: Latinas in the U.S.
WGST 2260: Studies in Mass Media: Constructions of Gender, Race and Sexuality
WGST 2960: Sexual Health Advocacy and Service Learning
WGST 3001-3005: Topics in Women's and Gender Studies
WGST 3080: Sexuality and Gender Theory
WGST 3230: Studies in Sexual Politics
WGST 3240: Nonprofit Work and the Pursuit

of Social Justice

WGST 3560: Documenting Current Controversies in US/Mexican Immigration
WGST 3670: Themes in Gender and Globalization
WGST 3850: Gender, Hip Hop and the Politics of Representation
WGST 3960: Strategies for Effective Peer Education
WGST 4001-4005: Topics in Women's and Gender Studies
WGST 4020: Feminist Theory II: Problems in Feminist Thought
WGST 4110: Feminist Research and Criticism
WGST 4230: Women, Development, and Globalization
WGST 4420: The Politics of Reproduction and Fertility Control
WGST 4550: Gender and Human Rights in Cross Cultural Perspective
WGST 4600: Women and Health
WGST 4873-4875: Women's and Gender Studies Abroad
WGST 4940: Internship in Women and Gender Studies
WGST 4965: Special Readings in Women's and Gender Studies

#### Cross-listed Courses:

AR H A 4120: Women, Art and Society
ANTHRO 4370: Anthropology of Gender
ENGLSH 2180: Introduction to Women's Literature
ENGLSH 3180: Historical Survey of Women Writers
ENGLSH 4180: Major Women Writers
ENGLSH 4181: Themes in Literature by Women
ENGLSH 4480: Major African Diaspora Women Writers
ENGLSH 4780: Women's Folklore and Feminist Theory
FRENCH 2370: French Women Writers (in translation)
HIST 2400: Social History of U. S. Women
HIST 2410: African American Women in History
HIST 3220: U. S. Women's Political History, 1880-Present
HIST 3430: Sex Radicals in U. S. History
HIST 3570: European Women in the 19th Century
HIST 4310: Adoption, Child Welfare and the Family, 1850-Present
HIST 4660: European Women in the 20th Century
JOURN 4716: Women and the Media
PHIL 2500: Philosophy and Gender
POL SC 4730: Women and Politics
REL ST 3750: Women and Religions
REL ST 4750: Women, Religion and Culture
RUSS 3870: Russian Women and Film
SOC WK 4400: Domestic Violence
SOCIOL 1360: The Female Experience: Body, Identity, Culture
SOCIOL 3320: Sociology of Gender

## Major Requirements - International Studies

The International Studies major is a broad multidisciplinary program of liberal studies with a strong intercultural and international focus. The program provides a variety of regional/cultural and interdivisional emphasis areas, including East Asian Studies, Environmental Studies, European Studies, Latin American Studies, Peace Studies and South Asian Studies.

Designed to accommodate preprofessional interests as well as provide a sound foundation for more advanced study at the graduate level, this degree may be especially attractive for students planning to pursue careers in international business,

trade and diplomacy, international law, technical assistance and humanitarian relief and similar fields.

The major includes a common interdisciplinary core of 18 designated credits that students earn as part of their degree requirements. In addition, all International Studies students must take a minimum of 6 credits in foreign language study beyond the 12-13 credit minimum skills proficiency requirement of the College of Arts and Science. This requires a minimum of 18 credits. Given the rigorous requirements of this program, students should begin planning their course of study in their first semester.

International Studies degree candidates must earn no less than a 2.0 GPA in their upper-class (numbered 3000 or higher) foreign language courses, emphasis area and area support components. Students must also complete all degree, college and University graduation requirements, including University general education.

Requirements are similar to those for other majors earning BA degrees in the College of Arts and Science, except that International Studies students must complete an 18-credit common core of courses as part of these requirements.

**Major core requirements .....9**

- ANTHRO 2030: Cultural Anthropology ..... 3
- GEOG 1100: Regions and Nations of the World I..... 3
- OR GEOG 1200: Regions and Nations of the World II ..... 3
- POL SC 1400: International Relations..... 3
- OR POL SC 2700: Comparative Political Systems ... 3

**Three additional courses from the following .....9**

(At least one must be a humanities course)

- PEA ST 1050: Introduction to Peace Studies
- BIO SC 1060: Basic Environmental Studies
- ECONOM 1014: Principles of Microeconomics
- OR ECONOM 1015: Principles of Macroeconomics
- OR AG EC 1041: Applied Microeconomics
- GEOG 1200: Environmental Geology with Laboratory
- OR GEOG 1100: Principles of Geology with Laboratory
- SOCIOL 1000: Introduction to Sociology
- SOCIOL 2200: Social Inequalities
- WGST 1332: Social Perspectives on Women, Race and Class

The following are humanities courses:

- REL ST 2100: Indigenous Religions
- REL ST 2110: Religions of the World
- REL ST 2310: Religions of China and Japan
- PHIL 2100: Philosophy: East and West
- AR H A 1110: Ancient and Medieval Art
- AR H A 1120: Renaissance through Modern Art
- MUSIC NM 1310: Masterpieces of Western Music
- MUSIC NM 1313: Introduction to World Music
- GN HON 2112H: The Middle Ages and the Renaissance
- GN HON 2113H: The Early Modern World: The 17th-19th Centuries Enlightenment
- GN HON 2114H: The Modern Era
- PHIL 2410: Philosophies of War and Peace

**Foreign language .....6**

Two language courses beyond the basic 12-13 credit minimum skills proficiency requirement (total: 18-19 credits in a single language)

**Capstone requirement** (to be completed during final 45 hours of course work)

There are several ways a student can complete the capstone experience in international studies. Select one option:

1. **Special Readings project:** With this option, the student completes an independent research project under the supervision of a faculty member. Most projects result in a 15-20 page research paper. The project allows the student to explore an area of interest and is designed to be an academic challenge. The department is open to creative, innovative approaches to learning. The supervising faculty member is responsible for grading the project. The student is responsible for locating a supervising faculty member.
2. **Service Learning project.** Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. The course will be submitted for Writing Intensive credit each semester. Restricted to Interdisciplinary, General and International Studies students.
3. **Internship:** Students work approximately 50 clock hours per credit per semester at an agency, company or corporation of their choice. Grades are on a pass-fail basis. For an internship to be approved as a capstone experience, it must help the student solidify and explore the areas of concentration. Internships must have prior approval from the International Studies advisor.
4. **Capstone course:** Students may have a specific course designated as a capstone course for the individual degree program. This can be a course designated by a department or a course that serves the student well as a capstone course. The course must be 4000 level, and the course must be taken in the last 45 hours of course work as a major. A course taken previously cannot retroactively be counted as a capstone course. Approval for the course must be provided in advance of registration from the International Studies advisor.

### **Dual Majors (International Business)**

International Business is offered as a dual major program leading to the Bachelor of Science in Business Administration with an emphasis in International Business and a BA in International Studies. See the College of Business for more information.

### **Major in International Studies**

The major is comprised of three 12-credit blocks, plus electives, as described below. At least 30 credits must be at the 2000 level or higher; 18 must be taken in courses at the 3000-level or higher.

**Humanities and language.....12**

Could include additional language and literature courses from the language of major study, as well as course work from Philosophy, Religious Studies, Art History and Archeology, and Civilization courses.

**Social and behavior sciences** .....12  
Could include course work from Geography, History, Political Science, Economics, Anthropology, Sociology, Rural Sociology or Peace Studies.

**Focus area** .....12  
Course work from an area of the student's choice allowing the study of one area in depth. Students are encouraged to take 9 credits from a single department or area. The 3-credit capstone experience will equal 12 hrs. of credit. (See previous information on capstone requirement.)

## Study Abroad Experience

Students majoring in International Studies must study abroad for a minimum of four weeks. Prior to their overseas studies participation, students must have completed at least one course related to the country in which they plan to study.

## Emphasis Areas (International Studies)

### Emphasis in East Asian Studies

East Asian Studies is one of the emphasis areas in the International Studies major. The program is multidisciplinary, encompassing course work from the departments of Geography, History, Anthropology, Religious Studies, Political Science and Philosophy, as well as in Chinese, Japanese and Korean. The program focuses on creating an understanding and awareness of the culture, history, politics, geography and languages of the East Asian countries, with an emphasis in China, Japan or Korea. Students are encouraged to begin study of their foreign language no later than the sophomore year. Students should consult with the International Center about appropriate locations for their study abroad experience.

### Emphasis in European Studies

European studies is an emphasis area in the International Studies major. Students who are studying French, Spanish, German, Italian or Russian may wish to select European studies as their emphasis area. The student examines the politics, culture, history and geography of the European continent, with a focus on the country whose native language is being studied by the student. Given the multidisciplinary approach to this degree, students take courses that are specifically geared to a better understanding of the culture, history, and language of a given country, as well as a better understanding of the entire continent of Europe.

### Emphasis in Latin American Studies

Latin American Studies is offered as an emphasis area for the BA in International Studies. The Latin American Studies option is designed to offer, in addition to linguistic competency in Spanish or Portuguese, a broad base of knowledge about Latin American politics, literature, economics and culture.

This field of inquiry, alone or in combination with another discipline, is in high demand throughout the world and can provide students with an indisputable competitive edge in the contemporary professional arena. Students who graduate with an emphasis in Latin American Studies will be fully prepared to pursue graduate study in Latin American Studies programs offered around the country.

Students are encouraged to study abroad in one of many program opportunities in Spain, Mexico, Central and South America, Brazil or the Caribbean. It is important to begin planning an emphasis area with a member of the Latin American studies committee as early as feasible, during the freshman year if possible. An advisor can tailor a program to fit specific interests.

### Emphasis in Peace Studies

Students may opt for an emphasis in Peace Studies. Students with this emphasis examine issues related to global peace and social justice - in the international arena. Their studies would focus on relevant courses in Political Science, Sociology, Geography, Philosophy, Religious Studies, Economics, and Anthropology.

### Emphasis in South Asian Studies

The South Asian Studies emphasis offers courses in history, politics, philosophy, religion, culture, social life and languages of India. It thus provides the opportunity for study of an ancient and extensive civilization with a significant role in human history.

An emphasis in South Asian Studies prepares students to enter MA and PhD programs in this area of specialization, which often provide intensive summer language programs. An advanced degree opens a variety of professional and job opportunities for those planning to work in such fields as international business, trade and diplomacy, international law or agricultural development, among others.

## Minors

### Minor in Black Studies

Students seeking a minor in black studies must complete 15 credits, including those listed below.

BL STU 2000: Black Studies..... 3  
One course in each of three content areas (one must focus on black women)..... 9  
History  
Society  
Culture

- Students are also encouraged to take a course in three regional areas of study: Africa, African America, and the Black Diaspora.
- A minimum of 6 credits numbered 2000 or above and at least one 3000-level course must be taken.
- At least 9 credits must be in courses other than readings, methods, techniques or problems.
- A maximum of 3 credits of the minor can be taken in black studies courses outside the College of Arts & Science.

### Minor in East Asian Studies

Students select 15 credits from at least two departments. At least 6 credits must be at the 2000 level or above. The elementary levels of language (Japanese, Chinese, Korean) may not be used to meet any of these hour requirements for the minor. Intermediate level courses (at the 2000 level and higher) language courses may be used to meet these requirements. The Office of Special Degree Programs, 210 Switzler Hall, provides student advisement.

In addition to courses offered in Chinese, Japanese, and Korean

language programs (civilization courses, literature courses), there are relevant courses offered in Religious Studies, History, Political Science, Philosophy, and Geography. Students are encouraged to consult with the advisor in Special Degree Programs or instructors in Chinese, Japanese, or Korean.

### Minor in Women's and Gender Studies

A student earning a minor in women's and gender studies is required to take 15 credits in women's and gender studies courses, including the following:

WGST 1120: Bodies, Cultures and Nations .....	3
WGST 1332: Social Perspectives on Gender, Race and Class .....	3
Additional hours numbered 2000-level or above.....	6
Additional elective hours.....	3

### Minor in Latin American Studies

Students who have completed the language requirement in Spanish or Portuguese (or equivalent) may select, in conjunction with an advisor, 15 additional credits of approved course work. The minor in Latin American studies must be approved by the Director of Special Degree Programs.

### Minor in Peace Studies

A minor in peace studies requires a minimum of 15 credits. Requirements are PEA ST 1050: Introduction to Peace Studies and 12 additional credits selected in consultation with the program director, at least 9 selected from the core requirements for the area of concentration.

## Certificates

### Certificate in Environmental Studies

An Interdisciplinary Program in the Office of the Provost  
Jan Weaver, Director  
208 Tucker  
(573) 882-3037  
<http://web.missouri.edu/~umcsnrestiwwww/index.html>

Many environmental careers require the kind of discipline-specific education available in traditional majors, but with an added base of knowledge about environmental issues and the skills to address them. The Certificate in Environment Studies provides that base.

The Certificate is available to all majors. However, because of the variety of majors and the goal of the certificate program to compliment a specific course of study, students must select courses in consultation with the Environmental Studies advisor.

### Certificate Requirements

- 6 hours of Foundation Environmental Courses
- 3 hours of Environmentally-related Seminar
- 6 hours of Upper Level Environmental Courses

### Sample Certificate for a Sciences Major

SOCIOL 1120: Population and Ecology .....	3
GEOG 2660: Environmental Geography.....	3
ENV ST 2070: Introduction to Ecological Economics	3
<i>Social Dimensions Course</i> .....	3
<i>Social Dimensions Course</i> .....	3

### Sample Certificate for a Social/Behavioral Sciences or Humanities Major

BIO SC 1060: Basic Environmental Studies.....	3
ATM SC 1050: Introductory Meteorology.....	3
ENV ST 2110: Environmental Sustainability.....	3
<i>Natural Dimensions Course</i> .....	3
<i>Natural Dimensions Course</i> .....	3

*Natural and Social Dimensions Courses* are offered in other departments throughout the university. Check the Environmental Studies website or visit with the director to get an up-to-date list of courses that fit these categories.

Social Dimensions Course (3000 level).....	3
Elective (3000 level) .....	3
Elective .....	3
Total .....	120

### Multicultural Studies Certificate

The College of Arts and Sciences offers a Certificate in Multicultural Studies. Students earning the certificate will become familiar with multicultural and diversity issues. In an increasingly global environment, students earning this certificate will be better prepared to understand and to facilitate cross-cultural interactions in their future careers, as well as in their general life experiences.

### Requirements

Students are required to complete a coherent program of 15 credit hours from a list of approved courses\*. Approved courses for the certificate critically evaluate and examine issues of social inequality and social stratification (e.g., gender, race, ethnicity, religion, region, sexuality, and/or class inequality) globally and in the United States. Courses must be chosen from at least 2 different departments/programs. At least 6 credits must be completed at the 3000 level or above. One course (up to 3 credit hours minimum and 6 credit hours maximum) may include an applied experience of cultural difference\*. Approved research-based undergraduate courses, transcribed Study Abroad and other experiences approved through the Center for International Programs and Studies, and transcript-designated "Service Learning" coursework are among the possibilities. Only coursework in foreign languages that is numbered above 2100 is applicable, and the maximum number of such credit hours is 6. A grade of C- or higher must be earned in each course, and students must maintain a cumulative GPA of 2.0 for overall coursework counting towards the certificate. Consistent with MU policy on certificates, an undergraduate degree and certificate must be awarded simultaneously.

\*Contact Rebecca Martínez, Coordinator, Multicultural Studies Certificate, at [martinezr@missouri.edu](mailto:martinezr@missouri.edu) for a list of approved courses and approval of applied experience.

# Department of Statistics

Dongchu Sun, Chair  
College of Arts and Science  
146 Middlebush Hall  
(573) 882-6376  
www.stat.missouri.edu  
dooleyj@missouri.edu

## Faculty

**PROFESSOR** N. Flournoy, Z. He, P. L. Speckman, D. Sun,  
J. Sun, C. K. Wikle  
**ASSOCIATE PROFESSOR** S. Chakraborty, M. A. Ferreira,  
S. Holan, A. Micheas, J. Qiu, L. A. Thombs, M. Yang  
**ASSISTANT PROFESSOR** S. Guha, M. Robbins  
**ASSOCIATE TEACHING PROFESSOR** L. D. Ries  
**ASSISTANT TEACHING PROFESSOR** J. Fresen,  
L. B. Hearne, S. Lee

Information is needed to solve the many problems of today's world. How much information? What kind? After it is obtained, what must be done with it? Statisticians are trained to help answer these questions. Early admission into the Statistics Department will allow students to plan their programs so that the math and statistics prerequisites can be taken in the most efficient sequence.

The department offers BA, BS, MA and PhD degrees with a major in Statistics. A minor is also available.

## Credit for beginning courses:

(Applies to all students and all majors.)

- A student may not receive credit toward an undergraduate degree for more than one of STAT 1200, 1300 and 1400.
- A student may not receive credit toward an undergraduate degree for more than one of STAT 2500 and 2530.
- Subject to the above restrictions, a student may receive a maximum of 4 credits toward an undergraduate degree for any combination of STAT 1200, 1300, 1400, 2200, 2500 and 2530.
- A student may not receive credit toward an undergraduate degree for any statistics course numbered 2999 or below if a statistics course numbered 4000 or above was successfully completed prior to or concurrent with the course in question. Exceptions may be approved at the discretion of the department.

## Major Program Requirements - Statistics

The Department of Statistics approves majors in statistics only for students who have met the following criteria:

- Completion of at least one statistics course at the 3000-level or above (or equivalent)
- Cumulative GPA of at least 2.50 overall
- Have earned a grade of C or higher in each statistics course completed

Students are encouraged to supplement their work in statistics with courses from areas such as economics, biology, accounting, finance, marketing, management, psychology, sociology, engineering, agriculture and atmospheric science. In addition, students must complete all degree, college and university graduation requirements, including university general education.

## Options

Students may pursue either a BA or a BS degree. For both degrees, students may pursue either a traditional track or an applied track. Students who are interested in graduate study in statistics are strongly encouraged to follow the traditional track.

## Major core requirements - Bachelor of Arts

### Mathematics courses

#### Traditional track

MATH 1500: Analytical Geometry and Calculus I  
MATH 1700: Calculus II  
MATH 2300: Calculus III  
MATH 4140: Matrix Theory

#### Applied track

MATH 1500: Analytic Geometry and Calculus I  
OR MATH 1300: Finite Mathematics  
AND MATH 1400: Calculus for Social and  
Life Sciences I

6 additional credits in statistics (beyond those used to fulfill the statistics requirements of the degree) or approved statistically-oriented courses; must be numbered 4000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools

### Statistics Courses

#### Traditional Track

STAT 4970: Senior Seminar  
STAT 4710: Introduction to Mathematical Statistics  
OR STAT 4750: Introduction to Probability Theory

15 additional credits offered by the department, at least 12 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

#### Applied Track

18 additional credits offered by the department, at least 15 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

### Computing Courses

#### Both tracks

CMP SC 1040: Introduction to Problem Solving  
and Programming  
OR CMP SC 1050: Algorithm Design and Programming I

## Major core requirements - Bachelor of Science

### Mathematics courses

#### Traditional track

MATH 1500: Analytical Geometry and Calculus I  
MATH 1700: Calculus II  
MATH 2300: Calculus III  
MATH 4140: Matrix Theory

#### Applied track

MATH 1500: Analytic Geometry and Calculus I  
OR MATH 1300: Finite Mathematics  
AND MATH 1400: Calculus for Social and  
Life Sciences I

6 additional credits in statistics courses (beyond those used to

fulfill the statistics requirements of the degree) or approved statistically-oriented courses; must be numbered 4000 or above

### **Statistics courses**

#### **Traditional Track**

STAT 4970: Senior Seminar

STAT 4710: Introduction to Mathematical Statistics

OR STAT 4750: Introduction to Probability Theory

15 additional credits offered by the department, at least 12 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

#### **Applied Track**

18 additional credits offered by the department, at least 15 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

### **Computing courses**

#### **Both tracks**

CMP SC 1040: Introduction to Problem Solving and Programming

OR CMP SC 1050: Algorithm Design and Programming I

AND 3 additional credits in computer science or other approved computing courses (STAT 4110: Statistical Software and Data Analysis may be used as part of this requirement if it is not counted in statistics group above.)

### **Professional writing courses**

ENGLSH 2030: Professional Writing

### **Foreign language option for students pursuing a BS degree**

Students pursuing the BS degree may elect to take an alternative to a foreign language. Such students must complete no fewer than 12 upper-class credits that are not from the parent department, are not normally required of departmental majors and do not appear elsewhere in the graduation plan. This program must be carefully planned to form a coherent unit and must be approved by the director of undergraduate studies.

The following are examples of foreign language alternatives:

- mathematical sciences
- biological sciences
- behavioral sciences
- physical sciences
- business
- engineering
- economics

### **Minor in Statistics**

A minor in statistics requires a minimum of 15 credits in statistics courses numbered 3000 or above. The courses used to complete the minor must be chosen in consultation with the director of undergraduate studies and must include at least one of the following:

STAT 3500: Introduction to Probability and Statistics II

STAT 4710: Introduction to Mathematical Statistics

STAT 4750: Introduction to Probability Theory

A maximum of 3 of the 15 credits may be in:

STAT 4002: Topics in Statistics

OR STAT 4085: Problems in Statistics for Undergraduates

### **Departmental Honors**

To be admitted to the undergraduate honors program in the Department of Statistics, a student must have completed at least 12 of the 21 credits of statistics courses required for the major, have a grade-point average of at least 3.25 in all completed statistics courses, and identify a faculty member from the department who agrees to supervise the student's honors research project.

In order to receive the departmental honors designation, students who have been accepted into the program must graduate with a grade-point average of at least 3.25 in statistics courses, prepare a senior thesis based on their honors project, and present the results of the thesis in a departmental colloquium or other public forum approved by their mentor. They also must earn a grade of "B" or better in 3 credits of STAT 4999.

# Department of Theatre

Clyde Ruffin, Chair  
 College of Arts and Science  
 Rhynsburger Theatre  
 129 Fine Arts Center  
 (573) 882-2021  
<http://theatre.missouri.edu>

## Faculty

**PROFESSOR** S. Burgoyne, J. M. Miller, C. Ruffin  
**ASSOCIATE PROFESSOR** C. D. Black, M. H. Carver,  
 D. A. Crespy  
**ASSISTANT PROFESSOR** K. Brown, B. Carlson  
**ASSISTANT TEACHING PROFESSOR** J. A. Drtina,  
 C. Gleason  
**ASSOCIATE TEACHING PROFESSOR** K. S. Packard,  
 R. D. Packard

The Department of Theatre offers students an appreciation of theatre as a fine art, sharpens the talents of those who seek careers in theatre and provides students with methods of stimulating and using their imagination and intensifying their communication skills.

The department offers BA, MA and PhD degrees with a major in Theatre. A minor is also available.

## Major Program Requirements - Theatre

The major in theatre consists of core courses and an emphasis area. In addition, all students must complete all College of Arts and Sciences and University graduation requirements, including university general education. All courses used to satisfy requirements for the major must be completed with a grade of C or higher.

### Major core requirements ..... 15

- THEATR 1320: Beginning Scenic Construction Lab  
 OR THEATR 1340: Beginning Costume  
 Construction Lab ..... 3
- THEATR 2300: Production Workshop I ..... 1
- THEATR 2710: Introduction to Theatre History ..... 3
- THEATR 2800: Principles of Script Analysis ..... 3
- THEATR 3300: Production Workshop II ..... 1
- THEATR 4990: Capstone in Theatre ..... 2

### Select 3 hours from:

- THEATR 1720: African-American Theatre History .... 3
- THEATR 3700: World Dramatic Literature..... 3
- THEATR 3750: New American Theatre..... 3
- THEATR 3770: The Theatre Experience: From  
 Page to Stage and Screen ..... 3
- THEATR 4700: Studies in Theatre History ..... 3
- THEATR 4720: American Musicals ..... 3
- THEATR 4800: Studies in Dramatic Theory ..... 3
- THEATR 4820: Studies in Dramatic Literature..... 3
- THEATR 4830: Studies in Dramatic Criticism ..... 3

## Emphasis Areas

Theatre students must also complete an emphasis area in performance, design/technical theatre or writing for performance.

### Emphasis in Performance

- THEATR 4570: Theatrical Costume Design ..... 3

- Performance classes chosen from ..... 14
- THEATR 1250: World Theatre Workshop..... 2
- THEATR 1360: Stage Makeup..... 1
- THEATR 1420: Stage Movement for the Actor ..... 2
- THEATR 2200: Introduction to Performance Studies. 3
- THEATR 2410: Performance Workshop ..... 1
- THEATR 3200: Performance of Literature ..... 3
- THEATR 3230: Vocal Performance Technique ..... 3
- THEATR 3420: Acting I..... 3
- THEATR 3430: Acting II..... 3
- THEATR 3600: Theatrical Directing ..... 3
- THEATR 4220: Acting III ..... 3
- THEATR 4240: Theory and Practice of  
 Theatre of the Oppressed..... 3
- THEATR 4460: Musical Theatre Performance ..... 3
- THEATR 4600: Advanced Directing..... 3
- Design/technical classes ..... 2-3

### Emphasis in Design/Technical Theatre

- Design/technical classes chosen from..... 16
- THEATR 1360: Stage Makeup..... 1
- THEATR 2330: Stage Management..... 1
- THEATR 2360: Stagecraft ..... 3
- THEATR 2510: Introduction to Theatre Design ..... 3
- THEATR 3310: Costume Crafts ..... 3
- THEATR 3320: Theatrical Patternmaking ..... 3
- THEATR 3330: Advanced Costume Construction..... 3
- THEATR 3340: Scene Painting..... 2
- THEATR 3530: Computer Graphics in Theatre  
 Design ..... 3
- THEATR 3540: Advanced Stage Makeup ..... 1
- THEATR 3550: Sound Design ..... 3
- THEATR 3560: Scene Design ..... 3
- THEATR 4530: Stage Lighting Design ..... 3
- THEATR 4570: Theatrical Costume Design..... 3
- Performance classes..... 3

### Emphasis in Writing for Performance

- THEATR 2510: Introduction to Theatre Design ..... 3
- THEATR 2920: Beginning Playwriting ..... 3
- THEATR 3200: Performance of Literature ..... 3
- THEATR 3920: Intermediate Playwriting ..... 3
- Two courses chosen from..... 6
- THEATR 3600: Theatrical Directing ..... 3
- THEATR 3700: World Dramatic Literature..... 3
- THEATR: 3930: Screenwriting for Television  
 and Film ..... 3
- THEATR 4920: Advanced Playwriting: Problems..... 3
- THEATR 4220: Acting III ..... 3
- THEATR 4460: Musical Theatre Performance ..... 3
- THEATR 4600: Advanced Directing..... 3
- THEATR 4930: Adaptation of Literature  
 for the Stage..... 3
- THEATR 4935: Adaptation of Literature for Film..... 3

## Double Majors

Many students in theatre choose either a double major or a minor in another area. In either case, the student must see a theatre advisor for approval.

## Departmental Honors

To graduate with honors in theatre, a student must earn a

minimum overall MU GPA of 3.3 and earn a minimum GPA of 3.5 in courses in theatre completed at the University of Missouri.

### **Minor in Theatre**

A minor in theatre consists of two core courses and 12 additional credits in theatre.

<b>Minor core requirements .....</b>	<b>6</b>
THEATR 1320: Beginning Scenic Construction Lab	
OR THEATR 1340: Beginning Costume	
Construction Lab .....	3
THEATR 2800: Principles of Script Analysis .....	3





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# **College of Business**

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# College of Business

## Degrees Offered

**Combined Bachelor of Science and Masters in Accountancy (BSAcc/MAcc)**

**Bachelor of Science with a dual major in Business Administration (BSBA) and International Studies (BA)**

**Bachelor of Science with a major in Business Administration (BSBA) with emphasis areas in**

- Economics
- Finance and Banking
- Management
- Marketing
- Real Estate

**Minor in Business**

**Undergraduate Certificate in**  
Sales and Consumer Development

## Administration

Joan T. A. Gabel, Dean  
Allen Bluedorn, Associate Dean  
Mary Beth Marrs, Assistant Dean  
Vairam Arunachalam, Director, School of Accountancy  
Dan French, Chair, Finance Department  
Daniel Turban, Chair, Management Department  
S. (Ratti) Ratneshwar, Chair, Marketing Department

### Contact Information

111 Cornell Hall  
(573) 882-7073  
businessadvising@missouri.edu

### Academic Advising Contact

Undergraduate Advising Office  
111 Cornell Hall  
(573) 882-7073  
businessadvising@missouri.edu

The Robert J. Trulaske Sr., College of Business, established in 1914, educates students for professional opportunities and responsibilities in the private and public sectors. The college includes the School of Accountancy (the first established at a major public university) and the departments of Finance, Management and Marketing. The college offers an undergraduate degree in business administration, a combined bachelor's and master's degree program in accountancy, master's degrees in business administration, and doctoral degrees in accountancy and business.

Students' educational experiences are enhanced through the scholarly activities of the faculty, who conduct research on significant, timely issues. Students in the college are exposed to relevant theories and concepts applied to real-world operations of private and public enterprises. Students gain added practical insights through internships, field projects, guest speakers and executives-in-residence. The college's agencies provide

information, research, continuing education and managerial assistance to practitioners and organizations throughout Missouri and in other states.

## Admission

### Freshmen

Freshman applicants to the Robert J. Trulaske Sr., College of Business (students applying to MU from high school) will be admitted to the lower division if they meet campus admission requirements. Admission to the lower division does not guarantee admission to the BSBA degree program and emphasis areas or the Accountancy program. Admission to an upper-level emphasis area is based on the UM cumulative grade of record, successful completion of the business and professional core courses, and completion of the Professional Development requirements.

### Transfer Students

Students in good standing in another school or college at MU must submit a Transfer of Division form to the Trulaske College of Business. Such students may be admitted to the lower division if they can complete degree-program admission requirements by the completion of 60 credits (75 credits for Accountancy students).

External transfer students who request admission to the Trulaske College of Business will be admitted to the lower division if they can complete degree-program admission requirements by the completion of 60 credits. Students are encouraged to have their transcripts evaluated by an academic advisor in the Trulaske College of Business prior to their enrollment at MU. Course work completed with a grade of D- or better at an accredited two- or four-year institution will be accepted if the courses are appropriate equivalents of the required MU courses and if the equivalent MU courses do not require a grade in the C range. Only six hours of business course work at the 3000-level can be transferred for the degree requirements. The college does not accept developmental or vocational/technical course work.

Credits transferred from accredited community or junior colleges usually include general education, upper level or pre-accountancy admission requirements and unrestricted elective courses. The Trulaske College of Business accepts a maximum of 64 credits from a community or junior college toward the bachelor's degree. When more than 64 credits have been completed, the additional courses are evaluated on a course-by-course basis for applicability to lower-division requirements.

A student holding an associate of arts degree from an accredited Missouri Community College will have fulfilled general education requirements. However, this does not exempt the student from satisfying the specialized degree, major or emphasis prerequisites of the college in the areas of accounting, economics, math and statistics.

Students transferring to the college without an associate of

arts degree will have their transcripts evaluated on a course-by-course basis and must meet the entrance requirements of the college in the same way as other MU students. Students transferring to the Trulaske College of Business will be required to meet the Professional Development requirements based on the earliest semester of continuous enrollment in college after high school graduation.

### Probationary Admissions

Students are placed on academic probation if they are admitted to the college without fully meeting the good-standing requirements of the school. (See the section on Probation Suspension and Dismissal for these requirements.)

### Admission to the Business Administration Program

#### Capacity Limitations

Admission into the upper-level Bachelor of Science in Business Administration (BSBA), or International Business (BSBA) degree program is highly competitive, because enrollment is limited. Each of the individual emphasis areas (Economics, Finance and Banking, Management, Marketing or Real Estate) has its own capacity limitation. Students who have earned a 3.25 minimum UM cumulative GPA or higher will be guaranteed admission to the upper level emphasis area of their choice. Other students with at least a 2.6 minimum UM cumulative GPA will be admitted on a space available basis.

#### Preprofessional Information

To apply to the upper-level BSBA and a related emphasis area program, a student must have completed a minimum of 45 credits and met the Professional Development Program requirements. A TCOB student must be admitted by the semester after the 60th credit hour is earned. The following courses must be among the credits completed or in process at the time of application:

- \*ACCTCY 2036: Accounting I OR 2136H
- \*ACCTCY 2037: Accounting II OR 2137H
- \*\*ECONOM 1014: Principles of Microeconomics  
OR ECONOM 1024: Fundamentals of Microeconomics
- \*\*ECONOM 1015: Principles of Macroeconomics
- ENGLISH 1000: Exposition and Argumentation
- MANGMT 1010: Contemporary Business Practices
- MATH 1100: College Algebra
- MATH 1300: Finite Mathematics
- MATH 1400: Calculus for Social and Life Sciences I
- STAT 2500: Introduction to Probability and Statistics I

\* Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.

\*\* ECONOM 1051H may be taken in place of ECONOM 1014/1024 and ECONOM 1015.

### Admission to BSBA Degree and Emphasis Areas

In addition to meeting the previous requirements, students are admitted to an upper-level BSBA emphasis area based on UM cumulative grade point average. Students with exceptional circumstances may ask to be considered for admission based on both grades and other factors.

Students request an emphasis area when applying to the upper-division BSBA degree program. If the requested emphasis area is at capacity, students who qualify for admission to the upper-division BSBA degree program are given the opportunity to choose another emphasis area. Students are notified by email when they are eligible to apply for upper-level status. Students are admitted to upper level in February and September of each year.

Students who complete 60 credits without gaining admission to an upper-level BSBA emphasis area will not be eligible to re-enroll in the Trulaske College of Business, unless special accommodations have been made in the Undergraduate Advising Office.

A student may take no more than six credit hours of 3000 or higher business courses through Mizzou Online or non-MU courses off campus, excluding BUS AD 4500. Study abroad courses are excluded from this requirement.

### Admission to the Joint BSACC and MAcc Degree Program

In the School of Accountancy, the bachelor's and master's degree programs are merged into a 150-credit program. Students must be admitted to the BSACC/MAcc degree program by the time they have completed 60 hours. The following program prerequisites are required for admission.

- \*ACCTCY 2036: Accounting I  
AND ACCTCY 2037: Accounting II  
OR  
ACCTCY 2136H: Honors Accounting I  
AND ACCTCY 2137H: Honors Accounting II
- \*\*ECONOM 1014: Principles of Microeconomics  
OR ECONOM 1024: Fundamentals of Microeconomics
- \*\*ECONOM 1015: Fundamentals of Macroeconomics
- ENGLISH 1000: Exposition and Argumentation
- MANGMT 1010: Contemporary Business Practices
- MATH 1100: College Algebra
- MATH 1300: Finite Mathematics
- MATH 1400: Calculus for Social and Life Sciences I
- STAT 2500: Introduction to Probability and Statistics I

\*Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.

\*\*ECONOM 1051H may be taken in place of ECONOM 1014/1024 and ECONOM 1015

#### Minimum GPAs to be eligible to apply include each of the following:

- 3.0 UM cumulative grade of record
- 3.0 GPA in ACCTCY 2036/ACCTCY 2136H  
AND ACCTCY 2037/ACCTCY 2137H
- 3.0 GPA over the following pre-accountancy courses:  
ACCTCY 2036/2136H  
ACCTCY 2037/2137H  
ECONOM 1014 OR 1024  
ECONOM 1015  
ENGLISH 1000  
MATH 1300  
MATH 1400  
STAT 2500

\*Students must complete the PDP point requirement for admission to the School of Accountancy and for graduation:

- Students must earn a minimum of 70 PDP points (maximum of 100) at the lower division for official admittance to the upper division. Once admitted, students must earn a total of 200 PDP points to meet the requirement.

Admission decisions will be made at the end of the spring semester for *full admissions only*. Meeting the minimum requirements does not guarantee admission. Admission cutoffs will be revised each year in order to control accountancy undergraduate enrollment at a maximum of 230 students, the limit that can be served with current authorized faculty staffing and still maintain program quality and meet accreditation guidelines. Students meeting the minimum requirements will be selected for admission based on their UM grade point average until the enrollment for that year is reached. A limited number of students may be selected by considering grades and other criteria such as demonstrated commitment, experience, leadership and other exceptional circumstances.

Students not admissible to the 150 credit hour degree program in the School of Accountancy may meet Trulaske College of Business admission requirements and transfer into a business administration emphasis area, depending on available space.

A student may take no more than six credit hours of 3000 or higher business courses through Mizzou Online or non-MU courses off campus, excluding BUS AD 4500. Study abroad courses are excluded from this requirement.

## Degree Core Requirements

### Credit Hour Requirements

In addition to University general education and graduation requirements, students must meet the following requirements:

- Students must complete a minimum of 120 credits from accredited colleges or universities for all BSBA emphasis areas except International Business, which requires 136-141 credits. (See separate section for international business major requirements.) Additionally, the joint BSACC and the MAcc degree program requires students to complete a minimum of 150 credit hours.
- In completing the 120 credits for graduation, students may count no more than 30 credits within their emphasis area.

A student who has a degree in another curricular area may receive a Bachelor of Science in Business Administration degree upon completion of all requirements for the degree.

### Professional Development Program

In addition to completing required coursework to earn a Bachelor of Science, Business Administration degree, students must fulfill the requirements of the Professional Development Program (PDP). The goal of the PDP is to offer opportunities to all BS BA and Accounting students to develop core competencies and values necessary for success in their professional careers.

As a graduation requirement, the program is comprised of the following:

- Completion of designated professional activities to acquire points for admission to the upper division. Once admitted

to the upper division, students will continue to earn points to meet the graduation requirements. Specific activities may be required.

- Completion of BUS AD 3500 the semester immediately following admission to the upper division. This course is a pre-requisite to the completion of the required BUS AD 4500. These two courses cannot be completed concurrently without prior approval. BUS AD 3500 must be completed in residence.
- Completion of BUS AD 4500 once admitted to the upper division. This will include completion of a professional level internship/practicum experience. Practicums can be completed over a summer or semester-long period of time (intercession assignments will not meet the PDP requirement). Students must seek final approval of their internship/practicum experience from the PDP Director before beginning the assignment. BUS AD 4500 must be completed in residence.

If a student fails to meet the requirements of the PDP at either the lower or upper division, the student will not be allowed to continue in or graduate from the Trulaske College of Business

### Professional Development Graduation Requirement

- The student must earn a minimum of 70 PDP points (maximum of 100) at the lower division for official admittance to the upper division. Once admitted, students must earn a total of 200 PDP points to meet the requirement.
- The student must earn a C- (or higher) in BUS AD 3500 to satisfy the requirement.
- BUS AD 4500 is graded as Satisfactory/Unsatisfactory. Students must complete practicum course to a satisfactory level of 70% or greater to receive a passing grade for the course.

### Capstone

Students must complete MANGMT 4970: Strategic Management to meet the capstone requirement. Students must earn a C- or better to earn credit for this course.

### Required Work in Residence

Students must complete 30 of the last 36 hours of courses in residence at MU, enrolled in the Trulaske College of Business.

### Latin Honors

Graduation with Latin Honors is determined by grade point average from either the last 50 undergraduate credits in the UM system or overall UM System undergraduate credits, whichever is higher. Grade point average requirements for Latin Honors are 3.5 for *cum laude*; 3.7 for *magna cum laude* and 3.9 for *summa cum laude*.

### Academic Assessment

Students are required to complete a college-wide assessment exam in addition to a University assessment exam during their capstone course.

## Academic Regulations

### Credits by Examination

The Trulaske College of Business accepts CLEP subject examinations, departmental exams and Advanced Placement (College

Board) credit. More information may be obtained from academic advisors in the Trulaske College of Business and the Credit by Examination section in the beginning of this catalog.

## Maximum Credits Enrolled

A student with a cumulative GPA of 3.0 or higher may register for more than 18 credits for a fall or spring term, with permission of the assistant dean of undergraduate programs.

## Independent Study

Contact Mizzou Online (self paced) for a listing of courses that may be taken online. A student may take no more than six hours of 3000 or higher business courses through Mizzou Online (self-paced), excluding BUS AD 4500.

## Academic Standing - School of Accountancy

Accountancy students are in good academic standing if they maintain a cumulative UM grade point average of 3.0 or higher for all coursework *subsequent* to admission to the 150-hour Accountancy program. Failure to meet this requirement will result in a probationary semester, and if not rectified, dismissal from the program. Accountancy students are subject to the probation and dismissal policies set by the Trulaske College of Business (see below). An undergraduate who has been ineligible to enroll for a period of one year may be readmitted only on the approval of the director of the 150-hour program in accountancy. As a condition of readmission, the director may set forth stipulations with regard to minimum standards of academic work that must be maintained by the student. After readmission, if the student again becomes ineligible to enroll, his or her ineligibility is considered permanent. Accountancy students entering the graduate portion of the 150-hour program should consult The Graduate School Catalog for academic standing policies for graduate students.

## Probation, Suspension and Dismissal

### Grade Point Average Requirements

Minimum GPAs must be maintained in the following categories to remain in good standing with the Trulaske College of Business:

- Students in the Upper Level, must maintain a 2.50 GPA in all MU accounting and business courses.
- All students must earn a 2.00 term and cumulative GPA on courses completed in the UM System.

### Probation

See the Academic Standing section in the front of this catalog.

- A student in good academic standing whose term GPA subsequently falls below 2.0 but is 1.0 or above (0.5 or above for a first term Freshman) is placed on academic probation.
- A student whose cumulative GPA for courses offered by the Trulaske College of Business is below a 2.0 is placed on probation. (Courses offered by the college are those with the curricular designations of ACCTCY, BUS AD, ECONOM, FINANC, MANGMT and MRKTNG.) This only applies to students admitted to an upper level BSBA emphasis.
- A student placed on academic probation must establish a 2.0 term GPA, a 2.0 UM System cumulative GPA and a 2.0 MU Trulaske College of Business cumulative GPA within two successive terms of enrollment; otherwise, the student is ineligible to enroll.

- Students placed on probation may become ineligible to enroll in the Trulaske College of Business at the end of the first term of probation if they become subject to one or more of the first three dismissal provisions below.

### Dismissal

See University requirements outlined in the Academic Standing section of this catalog.

Students become ineligible to enroll in the Trulaske College of Business if one or more of the following occurs:

- The fall or spring term GPA falls below 1.0.
- For a student who has been admitted to upper level, the cumulative GPA for courses offered by the Trulaske College of Business is below a 2.0 GPA. This includes all MU accountancy and business courses regardless of whether the courses are completed before or after admission to a BSBA emphasis area.
- The student fails to remove probationary status at the completion of the second successive term on probation (summer terms excluded).

A student who has been ineligible to enroll for a period of one year may be readmitted only on the approval of the assistant dean of the college. As a condition of readmission, the assistant dean may set forth stipulations about minimum standards of academic work that must be maintained by the student. After readmission, if the student again becomes ineligible to enroll, his or her ineligibility is considered permanent.

## Satisfactory/Unsatisfactory Grades

The S/U grading system is limited to unrestricted elective courses.

## Enrolling in Other Institutions

The Trulaske College of Business has no restrictions on a student enrolling in another institution simultaneously as long as university residency requirements are met.

A student may take no more than six credit hours of online or transfer business course work at the 3000-level or higher.

## Student Services

### Advising

Students admitted to a degree program in the college are assigned an academic adviser. The academic adviser works with students in determining course work needed to complete a degree. In addition, students are assigned a faculty advisor in their emphasis area who can assist with career planning and selection of professional electives and emphasis support courses. Students are responsible for determining an appropriate schedule of courses each semester and are encouraged to meet with their academic advisor for assistance.

### Business Career Services

Business Career Services (BCS) is a valuable resource for all levels of TCoB students. BCS provides students individual career coaching, guidance and advice in areas such as resume and cover letter construction/revision, mock interviews, interview preparation, salary negotiations, and much more. Business Career Services partners with numerous companies serving as

a liaison to bridge employer with employee. BCS sponsored events such as Corporate Visit Days and Emphasis Panel (Accountancy, Finance & Banking, Management, Marketing, Real Estate, Sales, Entrepreneurial, Consulting, Government, Health Care, and Human Resources) provide students with firsthand knowledge of what is required to be competitive in the job market upon graduation from the Trulaske College of Business. All students are encouraged to register with BCS and begin utilizing these services as early as freshman year. BCS hosts three career fairs annually.

### **Professional Development Program**

The mission of the Professional Development Program is to provide every BSBA and lower division Accounting student with substantive professional development experiences during their degree program. Professional Development refers to activities, both inside and outside of the classroom, that provide students with the opportunity to develop and practice skills that are needed to perform successfully in professional roles after graduation. Students who graduate with a BSBA degree from the Robert J. Trulaske Sr., College of Business will have content knowledge and advanced professional competencies that are necessary for success in the business world.

## **School of Accountancy**

Vairam Arunachalam, PwC/Silvoso Distinguished Professor and Director, School of Accountancy  
Phyllis Moore, Director, 150-hour and Master of Accountancy Programs  
Lauren Milbach, Assistant Director, 150-hour and Master of Accountancy Programs

Robert J. Trulaske, Sr. College of Business  
303 Cornell Hall  
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### **Faculty**

**PROFESSOR** V. Arunachalam, J. R. Francis, I. K. Khurana  
**ASSOCIATE PROFESSOR** E. G. Mauldin, M. R. Pereira,  
K. W. Shaw, P. R. Wheeler  
**ASSISTANT PROFESSOR** K. Kim, M. H. Zhang, Q. Zhao  
**TEACHING PROFESSOR** B. M. Cunningham  
**ASSOCIATE TEACHING PROFESSOR** W. J. Moser,  
C. Prestigiacomio  
**ASSISTANT TEACHING PROFESSOR** K. Hockman,  
P. Kleen

### **Academic Advising Contact**

Phyllis Moore  
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### **Scholarship Contact**

Phyllis Moore  
Robert J. Trulaske, Sr. College of Business  
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The accountancy program at the University of Missouri has long been nationally recognized for its excellence. MU accountancy faculty have published leading textbooks and research articles and have served at high levels in numerous professional accounting associations. The school offers the combined BSAcc and MAcc degrees.

Students wanting to explore accountancy as a major should take ACCTCY 2036: Accounting I.

### **Major Program Requirements - Accountancy**

The undergraduate and master's degree programs with a major in accountancy are merged into an integrated 150-credit curriculum to provide high-quality preparation for a career as a professional accountant in public accounting, business or government.

The Bachelor of Science with a major in Accountancy is awarded along with the Master of Accountancy degree upon satisfactory completion of the 150-credit, integrated curriculum. In this integrated program, a minimum of 24 credits in accountancy courses at the 3000-level or above must be completed at MU.

### **School of Accountancy Graduation Requirements**

Course requirements ensure that at least 40 percent of a student's course work is earned in divisions other than business. The merged BSAcc and MAcc degrees require 150 total credits.

General Education*.....	23
Pre-Accountancy Courses.....	28
Accountancy Foundation Courses.....	9
Required Core Courses.....	30
Required Accountancy Courses.....	21
Professional Electives.....	9
Senior Capstone.....	3
Graduate Level Coursework**.....	30
<b>Total.....</b>	<b>minimum 150</b>

\*Additional 3 hours of humanities fulfilled in Accountancy foundation courses. Students also need to fulfill an International Studies Component (3 hours) to be selected with your advisor. These classes can be taken at the undergraduate or graduate level.

\*\*Can include certain Law School courses at the graduate level.

## Major Core Requirements

### University General Education

The following courses are degree specific major requirements for the 150-credit program in the School of Accountancy. Courses that satisfy University general education and core program prerequisite requirements are recommended for the freshman and sophomore years.

### Accountancy Foundation Courses

PHIL 1000: General Introduction to Philosophy OR PHIL 1100: Introduction to Ethics OR PHIL 1200: Logic and Reasoning (fulfills humanistic studies requirement).....	3
COMMUN 1200: Public Speaking.....	3
3 hours of Psychology or 3 hours of Sociology.....	3
International Component (See your academic advisor about completion of this requirement.)	

### Business and professional core

*ACCTCY 2036 OR ACCTCY 2136H: Accounting I.	3
*ACCTCY 2037 OR ACCTCY 2137H: Accounting II	3
ECONOM 1014: Principles of Microeconomics OR ECONOM 1024: Fundamentals of Microeconomics.....	3
ECONOM 1015: Principles of Macroeconomics.....	3
ENGLSH 1000: Exposition and Argumentation.....	3
MANGMT 1010: Contemporary Business Practices....	1
MATH 1100: College Algebra.....	3
MATH 1300: Finite Mathematics.....	3
MATH 1400: Calculus for Social and Life Sciences I...	3
STAT 2500: Introduction to Probability and Statistics I3	

\*Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.

### Required Core Courses

ACCTCY 2258: Computer-Based Data Systems.....	3
ECONOM 3229: Money, Banking and Financial Markets.....	3
ECONOM 3251: Theory of the Firm OR ECONOM 4351: Intermediate Microeconomics.....	3
FINANC 3000: Corporate Finance.....	3
MANGMT 3000: Principles of Management.....	3
MANGMT 3200: Business and Society.....	3
MANGMT 3540: Introduction to Business Law.....	3
MRKTNG 3000: Principles of Marketing.....	3

STAT 3500: Introduction to Probability and Statistics II.....	3
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### Required Accountancy Courses

ACCTCY 3326: Financial Accounting Theory and Practice I.....	3
ACCTCY 3328: Accounting Information Systems.....	3
ACCTCY 3346: Financial Accounting Theory and Practice II.....	3
ACCTCY 3347: Cost and Managerial Accounting.....	3
ACCTCY: 4353: Introduction to Taxation.....	3
ACCTCY: 4384: Auditing Theory and Practice I.....	3
Accountancy Elective.....	3

### Professional Electives

Nine credits must be taken as 2000-level or higher University non-business electives or 3000-level business electives

### Senior Capstone

MANGMT 4970: Strategic Management.....	3
<b>Graduate Level Coursework.....</b>	<b>30</b>

## Requirements for Master's Degree Only

A student who has a degree in a different curricular area or a bachelor's degree in accountancy from another college or university may earn a master's degree from the School of Accountancy upon completion of the requirements for the degree. The student's program must include a minimum of 30 credits beyond the bachelor's degree (or its equivalent) selected from courses carrying graduate credit. In addition, the student must meet the following stipulations:

- At least 15 of the 30 credits must be completed in 8000-9000-level courses.
- A minimum of 24 credits of advanced study must be completed under MU faculty.
- A maximum of 6 graduate credits may be transferred from another college or university.
- All requirements must be completed within eight years from the time of initial enrollment.

See the *Graduate Catalog* for more information including enrollment limitations, application requirements and graduate-level course descriptions.

# Departments of Finance, Management and Marketing

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403 Cornell Hall  
(573) 882-4055

Daniel B. Turban, Chair, Management Department  
403 Cornell Hall  
(573) 882-6556

S. (Ratti) Ratneshwar, Chair, Marketing Department  
403 Cornell Hall  
(573) 882-3282

## Advising Contact

Undergraduate Advising Office  
111 Cornell Hall  
(573) 882-7073  
businessadvising@missouri.edu

## Scholarship Information Contact

Aaron C. Cook, Scholarship Coordinator  
111 Cornell Hall  
(573) 882-7073

## Faculty

### FINANCE:

**PROFESSOR** S. Ferris, D. French, J. Howe  
**ASSOCIATE PROFESSOR** S. Yan  
**ASSISTANT PROFESSOR** Q. Hao, J. Lim, M. O'Doherty,  
S. Sandy  
**ASSISTANT TEACHING PROFESSOR** W. Allen  
**ASSOCIATE TEACHING PROFESSOR** J. Stansfield

### MANAGEMENT:

**PROFESSOR** A. C. Bluedorn, T. Dougherty, L. Franz,  
A. G. Jago, R. Johnson, A. Stam, D. Turban, J. Wall  
**ASSOCIATE PROFESSOR** T. Chiles, C. Franz,  
D. Greening, D. Moesel., C. Robert, K. Schnatterly  
**ASSISTANT PROFESSOR** L. Jiang, C. Tuggle  
**ASSOCIATE TEACHING PROFESSOR** G. Bier, S. Crews,  
B. S. Downey, M. B. Marrs, G. D. Martin, J. Swenson  
**ASSISTANT TEACHING PROFESSOR** D. Bumblauskas,  
T. Waid

### MARKETING:

**PROFESSOR** P. Bloch, S. Gopalakrishna, M. Mantrala,  
L. Scheer, S. Ratneshwar, M. Richins, B. Walker, S. Zou  
**ASSOCIATE PROFESSOR** D. Marinova  
**ASSISTANT PROFESSOR** C. Groening  
**ASSOCIATE TEACHING PROFESSOR** J. Bennett, J. Poor  
**ASSISTANT TEACHING PROFESSOR** C. W. Keene

## Department of Finance

Through the study of finance, students learn to independently analyze security markets, understand the basic valuation techniques and use their knowledge to make investment decisions. In addition, students learn basic theoretical concepts in corporate finance and their application to corporate financing and investment decisions. Course work focuses on the areas of

investments, portfolio management, real estate appraisal, financial institutions and corporate finance.

## Department of Management

Management is defined by the Academy of Management as including "all processes, structures, and behaviors that are related to the work of organizations, as well as the dynamics of industries, economies, cultures, and other environmental forces that affect organizations and their employees." Management course work at MU is quite diverse, covering the areas of human resource management, human behavior in organizations, organization theory, strategic management, entrepreneurship, information systems, e-commerce, operations management and business law.

## Department of Marketing

Marketing focuses on creating and managing customers. It deals with the strategies, tactics and business processes involved in researching markets, deciding which markets and segments to pursue, identifying what unique value to provide, and then assembling the products, services, people and partner firms needed to build, communicate and deliver that value.

## Exploratory Course

Students wanting to explore business administration as a major should take MANGMT 1010: Contemporary Business Practices.

## Double Emphasis

Students may have a dual emphasis of Finance and Real Estate, or may add on an economics emphasis to any other BSBA emphasis program.

## Major Program Requirements - Business Administration

Students in the Trulaske College of Business are in either the lower level (undeclared) or the upper level (admitted to an emphasis area). Students entering the Trulaske College of Business usually enter the lower level, while they take University general education and business preparation courses. The first two years of all business programs (except international business and accounting) involve the same course sequences. A student typically applies to the upper level at the end of the sophomore year or the beginning of the junior year.

A student may count a maximum of 30 credits in their emphasis area to meet the 120-credit requirement for the undergraduate degree.

Requirements above and beyond general education requirements are listed under upper level admission courses.

## Major Core Requirements

Course requirements ensure that 40 percent of a student's course work is earned in divisions other than business.

General Education (See University General Education Requirements) ..... 38  
Upper Level Admission Courses ..... 28  
Emphasis Specific Courses..... 21  
Emphasis Support Courses ..... 30  
\*Required Emphasis Courses

*Additional Emphasis courses	
*Emphasis Support Courses	
Senior Capstone .....	3
<b>Total.....</b>	<b>minimum 120</b>
<b>Upper Level Admission Courses .....</b>	<b>28</b>
*ACCTCY 2036: Accounting I	
OR ACCTCY 2136H: Honors Accounting I.....	3
*ACCTCY 2037: Accounting II	
OR ACCTCY 2137H: Accounting II.....	3
*ECONOM 1014 or 1024: Principles/Fundamentals of Microeconomics.....	3
*ECONOM 1015: Principles of Macroeconomics.....	3
*ENGLSH 1000: Exposition and Argumentation.....	3
*MANGMT 1010: Contemporary Business Practices..	1
*MATH 1100: College Algebra.....	3
*MATH 1300: Finite Mathematics .....	3
*MATH 1400: Calculus for Social and Life Sciences I..	3
*STAT 2500: Introduction to Probability and Statistics I.....	3
*Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.	

### Emphasis Areas

General Education Requirement.....	32
Upper Level Admissions Courses.....	28
Required Courses .....	27

### Emphasis in Economics

The sequence of courses for the BSBA with an emphasis in economics introduces the student to the tools of economic analysis and to their use in decision-making. It also may provide training in internal and external forecasting. Such analytical techniques are appropriate for industrial, commercial and financial organizations as well as government agencies.

<b>Required core courses.....</b>	<b>27</b>
ACCTCY 2258: Computer-Based Data Systems .....	3
OR CMP SC 1040: Introduction to Problem Solving and Programming .....	3
OR CMP SC 1050: Algorithm Design and Programming I .....	3
ECONOM 3229: Money, Banking and Financial Markets.....	3
FINANC 3000: Corporate Finance .....	3
MANGMT 3000: Principles of Management .....	3
BUS AD 3500: Professional Development in Business..	3
MANGMT 3540: Introduction to Business Law .....	3
MRKTNG 3000: Principles of Marketing .....	3
STAT 3500: Introduction to Probability and Statistics II.....	3
BUS AD 4500: Professional Development Program-Practicum .....	3
<b>Required economics courses .....</b>	<b>6</b>
ECONOM 4351: Intermediate Microeconomics .....	3
ECONOM 4353: Intermediate Macroeconomics .....	3
<b>Additional Economic Courses .....</b>	<b>9-12</b>
Courses selected from the following:	
ECONOM 3224: Introduction to International Economics .....	3
ECONOM 3256: Economics of Public Policy: Antitrust Economics .....	3
ECONOM 4311: Labor Economics.....	3
ECONOM 4312: Labor Markets Analysis .....	3
ECONOM 4315: Public Economics .....	3

ECONOM 4316: State and Local Finance .....	3
ECONOM 4320: History of Economic Thought.....	3
ECONOM 4322: Economics of Regulation and Antitrust.....	3
ECONOM 4325: The International Monetary System .....	3
ECONOM 4326: Economics of International Trade....	3
ECONOM 4329: The Banking Systems and the Money Market .....	3
ECONOM 4335: Economics for Decision Making.....	3
ECONOM 4340: Game Theory.....	3
ECONOM 4345: Economics of Education.....	3
ECONOM 4355: Industrial Organization and Competitive Strategy .....	3
ECONOM 4360: Economic Development .....	3
ECONOM 4361: Comparative Economic Systems.....	3
ECONOM 4362: Welfare Economics .....	3
ECONOM 4368: Macroeconomic Forecasting .....	3
ECONOM 4370: Quantitative Economics .....	3
ECONOM 4371: Introductory Econometrics .....	3
ECONOM 4384: Structural Change in Economic History.....	3
ECONOM 4970: Senior Seminar in Economics .....	3
ECONOM 4995: Honors Proseminar.....	3

### Emphasis Support Courses..... 12-15

12 credits Emphasis Support courses required if 12 credits in economics are taken (from required economics courses section); 15 are taken (from required economics courses section); 15 credits required if 9 credits in economics are taken.

Courses to be selected from:

- Accountancy: any 3000 or 4000 level class
- COMMUN 1200: Public Speaking
- Economics: any 4000 level class not used as an Economics elective
- ENGLSH 2030: Professional Writing
- Finance: any 3000 or 4000 level class
- Management: any 3000 or 4000 level class
- Marketing: any 3000 or 4000 level class
- Psychology: any 3000 or 4000 level class
- Sociology: any 3000 or 4000 level class
- Statistics: any 3000 or 4000 level class

### Capstone course - senior year (on campus).....3

Minimum grade of C- required

MANGMT 4970: Strategic Management.....	3
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### Total.....120

A student may count a maximum of 30 credits in economics to meet the 120-credit requirement for the undergraduate degree.

### Emphasis in Finance and Banking

The BSBA provides an emphasis area in finance and banking for the student anticipating a career in the financial section of a corporation, in a bank or other financial institution, in an investment management firm or in the financial division of a government or non-profit organization.

### General Education Requirements.....32

### Upper Level Admission Courses.....28

### Required Core Courses .....

ACCTCY 2258: Computer-Based Data Systems .....	3
OR CMP SC 1040: Introduction to Problem Solving and Programming .....	3
OR CMP SC 1050: Algorithm Design and Programming I .....	3
ECONOM 3229: Money, Banking and	

Financial Markets.....	3
FINANC 3000: Corporate Finance .....	3
MANGMT 3000: Principles of Management .....	3
MANGMT 3540: Introduction to Business Law .....	3
MRKTNG 3000: Principles of Marketing .....	3
STAT 3500: Introduction to Probability and Statistics II.....	3
BUS AD 3500: Professional Development in Business.	3
BUS AD 4500: Professional Development Program-Practicum .....	3
<b>Required Finance &amp; Banking courses.....</b>	<b>15</b>
FINANC 4010: Financial Management .....	3
FINANC 4020: Investments .....	3
ECONOM 3251: Theory of the Firm.....	3
OR ECONOM 4351: Intermediate Microeconomics .....	3
ACCTCY 4356: Financial Accounting Concepts .....	3
MANGMT 4010: Operations Management .....	3
<b>Additional Finance &amp; Banking courses.....</b>	<b>9</b>
FINANC 4030: Financial Intermediaries and Markets.	3
FINANC 4110: Financial Management Policy .....	3
FINANC 4120: Security Analysis .....	3
FINANC 4130: Management of Financial Institutions	3
FINANC 4185: Problems in Finance .....	cr. arr.
FINANC 4201: Topics in Finance (with academic advisor consent).....	3
FINANC 4220: Portfolio Management.....	3
FINANC 4320: Financial Futures and Options.....	3
FINANC 4500: Principles of Real Estate.....	3
FINANC 4510: Real Estate Appraisal .....	3
FINANC 4520: Real Estate Finance and Investment...	3
FINANC 4530: Real Estate Portfolio Analysis and REITs .....	3
FINANC 4620: Investment Strategy of Warren Buffet	3
FINANC 4820: Investment Fund Management .....	3
FINANC 4720: International Finance.....	3
<b>Emphasis Support Courses.....</b>	<b>6</b>
Courses to be selected from:	
Accountancy: any 3000 or 4000 level class	
COMMUN 1200: Public Speaking	
CMP SC 1050: Algorithm Design and Programming I (if not used as a "Required Core" class)	
CMP SC 2050: Algorithm Design and Programming II	
Economics: any 4000 level class not used as an Economics elective	
ENGLSH 2030: Professional Writing	
Finance: any 3000 or 4000 level class	
FINPLN 4189: Financial Planning: Applied Tax Law	
Management: any 3000 or 4000 level class	
Marketing: any 3000 or 4000 level class	
<b>Capstone course - senior year (on campus).....</b>	<b>3</b>
Minimum grade of C- required.	
MANGMT 4970: Strategic Management.....	3
<b>Total.....</b>	<b>120</b>

### Emphasis in International Business

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural environment courses with core and international business courses. Completion of this degree program requires 136-141 credits depending on emphasis.

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business.

### Social Sciences .....

GEOG 1100: Regions and Nations of the World I..... 3

OR GEOG 1200: Regions and Nations of  
the World II..... 3

POL SC 1400: International Relations..... 3

OR POL SC 2700: Comparative Political Systems ... 3

### State Requirement .....

### Behavioral Sciences .....

ANTHRO 2030: Cultural Anthropology .....

Choose one additional course from Anthropology (except  
2050, 2051, or 2052), Psychology, or Sociology..... 3

### Humanities .....

Civilization course in language studied..... 3

Literature course in language studied..... 3

Choose one course from the following..... 3

AR H A 1110: Ancient and Medieval Art..... 3

AR H A 1120: Renaissance through Modern Art..... 3

ENGLSH 2155: Introduction to World Literatures..... 3

MUSIC NM 1313: Introduction to World Music..... 3

PHIL 2100: Philosophy: East and West .....

PHIL 2410: Philosophies of War and Peace .....

REL ST 2110: Religions of the World .....

GN HON 2117H: The Emerging Canons of  
the Americas..... 3

Additional Humanity..... 3

### Biological & Physical Sciences .....

One course must include a lab

### Foreign Language.....

All in the same language

### Area Support.....

To be selected with the A&S advisor. Coursework typically  
includes classes in Culture, geography, government, or history  
related to language studied.

### Upper Level Admission Courses .....

### Required Business Core Courses.....

ACCTCY 2258: Computer-Based Data Systems .....

OR CMP SC 1040: Introduction to Problem.....  
Solving and Programming

OR CMP SC 1050: Algorithm Design and  
Programming I .....

ECONOM 3229: Money, Banking and

Financial Markets .....

OR ECONOM 3251: Theory of the Firm.....

FINANC 3000: Corporate Finance .....

MANGMT 3000: Principles of Management .....

BUS AD 3500: Professional Development in Business.

MANGMT 3540: Introduction to Business Law .....

MRKTNG 3000: Principles of Marketing .....

STAT 3500: Introduction to Probability and  
Statistics II.....

BUS AD 4500: Professional Development

Program-Practicum .....

### Business Area.....

To be selected with Business advisor, depending on emphasis  
area.

### Capstone course - senior year (on campus).....

Minimum grade of C- required

MANGMT 4970: Strategic Management .....

**Total..... 136-141**

### Emphasis in Management

Management is the directing and guiding of activities to produce a desired result, product or service. Managers are repeatedly required to make decisions that will have far-reaching effects. The basic functions all managers perform are planning, organizing, staffing, motivating and directing. Professional education in management can lead to a variety of career opportunities in the private and public sectors.

**General Education Requirements .....32**

**Upper Level Admission Courses .....28**

**Required Core Courses .....27**

ACCTCY 2258: Computer-Based Data Systems ..... 3

OR CMP SC 1040: Introduction to Problem

Solving and Programming ..... 3

OR CMP SC 1050: Algorithm Design and

Programming I ..... 3

ECONOM 3229: Money, Banking and

Financial Markets..... 3

OR ECONOM 3251: Theory of the Firm..... 3

FINANC 3000: Corporate Finance ..... 3

MANGMT 3000: Principles of Management ..... 3

BUS AD 3500: Professional Development in Business . 3

MANGMT 3540: Introduction to Business Law ..... 3

MRKTNG 3000: Principles of Marketing ..... 3

STAT 3500: Introduction to Probability and

Statistics II..... 3

BUS AD 4500: Professional Development

Program-Practicum ..... 3

**Required Management Courses .....9**

MANGMT 4010: Operations Management ..... 3

MANGMT 4020: Human Resource Management ..... 3

MANGMT 4030: Organizational Behavior ..... 3

**Additional Management Courses .....9**

Choose three courses from the following:

MANGMT 3300: Introduction to Business

Processes and Technologies..... 3

MANGMT 3901: Special Topics in Management .... 1-3

MANGMT 3975: Current Issues in International

Management..... 1-3

MANGMT 4050: Management of Service Operations 3

MANGMT 4060: Project Management Fundamentals 3

MANGMT 4110: Total Quality Management ..... 3

MANGMT 4120: Human Resource Management

Law ..... 3

MANGMT 4130: Advanced Organizational Behavior.. 3

MANGMT 4140: Business Communication..... 3

MANGMT 4201: Topics in Management..... 3

MANGMT 4210: Management Science..... 3

MANGMT 4220: Compensation Theory and Practice 3

MANGMT 4310: Production Systems Analysis..... 3

MANGMT 4320: Selected Problems in Human

Resource Management ..... 3

MANGMT 4330: Organizational Theory..... 3

MANGMT 4340: Crisis Management..... 3

MANGMT 4420: Collective Bargaining ..... 3

MANGMT 4450: Management of Electronic

Commerce..... 3

MANGMT 4460: Electronic Commerce Security..... 3

MANGMT 4480: Business Data Communications

and Networking ..... 3

MANGMT 4520: Change Management in Business.... 3

MANGMT 4540: Legal Aspects of Business

Organization and Operation ..... 3

MANGMT 4560: The Law of Commercial

Credit Transactions..... 3

MANGMT 4620: Web Development Fundamentals.... 3

MANGMT 4700: Principles of Entrepreneurship..... 3

MANGMT 4710: The Entrepreneurial Process ..... 3

MANGMT 4730: New Business Planning and

Management..... 3

MANGMT 4750: Entrepreneurial Innovation

Management: Enterprise Conception..... 3

MANGMT 4760: Entrepreneurial Innovation

Management: Enterprise Design ..... 3

MANGMT 4770: Entrepreneurial Innovation

Management Enterprise Operation ..... 3

**Emphasis Support courses .....12**

Courses approved by the student's management advisor selected from:

ACCTCY 2258: Computer-Based Data Systems\*

Accountancy courses 3000+

ANTHRO 3700: Cultures of Europe

Chinese, French, German, Hebrew, Italian,

Japanese, Korean, Portuguese, Romance Lang, Russian,

Spanish 2300+

COMMUN 1200: Public Speaking

COMMUN 3575: Business and Professional

Communication

COMMUN 4476: Organizational Communication

CMP SC 1050 Algorithm Design and

Programming I \*

CMP SC courses 2000+

ECONOM 3000+

Electrical and Computer Engineering 2000+

ENGLSH 2030: Professional Writing

FINANC courses 3000+

GEOG 2710: Economic Geography

HIST 4420: American Urban History

Industrial and Manufacturing Systems Eng courses 2000+

INFOTC 2610: Audio/Video I

INFOTC 2810: Fundamentals of Network Technology

Marketing courses 3000+

MANGMT 4060: Project Management Fundamentals

MANGMT 4330: Organizational Theory

(if not used for additional MANGMT)

PHIL 2400: Ethics and the Professions

PHIL 2420: Ethical Issues in Business

PHIL 4500: Theories of Ethics

POL SC 2700: Comparative Political Systems

POL SC 4420: Politics of International Economic Relations

POL SC 4540: American Foreign Policies

POL SC 4600: Latin American Politics

POL SC 4610: European Political Systems

POL SC 4720: Politics of Development

PSYCH 2310: Social Psychology

PSYCH 3010: Research Methods in Psychology

PSYCH 3110: Theories of Learning

PSYCH 3120: Human Learning

PSYCH 3130: Decisions, Values and Choice

PSYCH 3840: Individual Differences

PSYCH 4310: Theories of Personality

PSYCH 4340: Attitude Change

PSYCH 4410: Psychology of Aging

PSYCH 4810: Industrial/Organizational Psychology	
PSYCH 4830: Psychology of Women	
SOCIOL 3310: Social Psychology	
SOCIOL 3320: Sociology of Gender	
SOCIOL 3400: Politics of the Media	
SOCIOL 3520: Collective Behavior	
SOCIOL 3700: Organizations and Institutions	
SOCIOL 3710: The Sociology of Work	
SOCIOL 4310: Advanced Social Psychology	
SOCIOL 4315: Social Demography	
<b>Capstone Course - senior year (on campus)</b> .....	<b>3</b>
Minimum grade of C- required	
MANGMT 4970: Strategic Management .....	3
<b>Total</b> .....	<b>120</b>

### Emphasis in Marketing

Marketing focuses on the activities involved in the creation and sale of goods and services that serve prospective customers' needs and wants. The BSBA with an emphasis in marketing is suitable for students who anticipate careers in areas such as retail management, sales, buying and supply chain management; marketing research; product and brand management; marketing communications; customer relationship management; international marketing; and service marketing.

**General Education Requirements** .....32

**Upper Level Admission Courses** .....28

**Required Core Courses** .....27

ACCTCY 2258: Computer-Based Data Systems ..... 3

OR CMP SC 1040: Introduction to Problem Solving

and Programming..... 3

OR CMP SC 1050: Algorithm Design and

Programming I ..... 3

ECONOM 3229: Money, Banking and

Financial Markets..... 3

OR ECONOM 3251: Theory of the Firm..... 3

FINANC 3000: Corporate Finance ..... 3

MANGMT 3000: Principles of Management ..... 3

BUS AD 3500: Professional Development in Business. 3

MANGMT 3540: Introduction to Business Law ..... 3

MRKTNG 3000: Principles of Marketing ..... 3

STAT 3500: Introduction to Probability and

Statistics II..... 3

BUS AD 4500: Professional Development

Program-Practicum ..... 3

**Required Marketing Courses** .....6

MRKTNG 4000: Marketing Management ..... 3

MRKTNG 4050: Marketing Research ..... 3

**Additional Marketing Courses**.....12

Choose from the following

MRKTNG 3901: Special Topics in Marketing\* ..... 1-3

MRKTNG 3942: International Business Internship\* 1-3

MRKTNG 3975: Current Issues in

International Marketing\* ..... 1-3

MRKTNG 3985: Problems in International Business\* 3

MRKTNG 4185: Problems in Marketing\* ..... 1-3

MRKTNG 4201: Topics in Marketing ..... 3

MRKTNG 4220: Consumer Behavior ..... 3

MRKTNG 4250: Retail Marketing ..... 3

MRKTNG 4350: Business-to-Business Relationships.. 3

MRKTNG 4380: Buying and Supply Chain

Management..... 3

MRKTNG 4410: Personal Selling..... 3

MRKTNG 4420: Sales Management ..... 3

MRKTNG 4440: Services Marketing..... 3

MRKTNG 4450: Marketing Channels..... 3

MRKTNG 4550: Integrated Marketing

Communications..... 3

MRKTNG 4650: e-Marketing..... 3

MRKTNG 4720: Global Marketing..... 3

MRKTNG 4750: Marketing, Society, and

Government ..... 3

MRKTNG 4880: Contemporary Issues in

Marketing..... 3

MRKTNG 4940: Marketing Practicum\* ..... 3

\*Only one may be used to fulfill additional marketing course requirement.

**Emphasis Support Courses**.....12

A list of suggested emphasis support courses for marketing majors is available at the College of Business undergraduate advising office. Pre-approved emphasis support courses include:

- Any 2000+ course in: Astronomy, Biochemistry, Biological Engineering, Biological Science, Chemical Engineering, Chemistry, Civil & Environmental Engineering, Computer Science, Electrical & Computer Engineering, Geography, Industrial & Manufacturing Systems Engineering, Mathematics, Mechanical & Aerospace Engineering, Physics
- Any 2300+ course in: Chinese, French, German, Hebrew, Italian, Japanese, Korean, Portuguese, Romance Languages, Russian, Spanish
- Any 3000+ course in: Accountancy, Agricultural Economics, Anthropology, Communication, Economics, Food Science, Hospitality Management, Philosophy, Psychology, Rural Sociology, Sociology, Statistics
- Any 4000+ course in: Architectural Studies, Atmospheric Sciences, Black Studies, English, Environmental Studies, Finance, Fisheries & Wildlife, Forestry, History, Information Science & Learning Technologies, Interdisciplinary Studies, International Studies, Journalism, Linguistics, Management, Natural Resources, Parks Recreation & Tourism, Political Science, Religious Studies, Soil Science, Textile & Apparel Management, Women's & Gender Studies
- Other 3000+ level courses taken in fulfillment of requirements for an official minor or dual major
- Any of the specific courses listed below

NOTE: Only courses not used to fulfill other Marketing, Trulaske College of Business, or University General Education requirement (except some WI) qualify as emphasis support electives. Check the *Undergraduate Course Catalog* for prerequisites.

CHINSE 2160: Intermediate Chinese I Conversation

and Composition..... 3

COMMUN 1200: Public Speaking..... 3

ENGLISH 2030: Professional Writing..... 3

FRENCH 2100: Elementary French III..... 3

FRENCH 2160: Intermediate French

Composition and Conversation..... 3

GERMAN 2100: Intermediate German I..... 3

GERMAN 2160: Intermediate German II: Language

and Culture ..... 3

HIST 3820: Twentieth Century China ..... 3

ITAL 2160: Intermediate Composition and

Conversation ..... 3

JAPNSE 2160: Japanese Conversation and

Composition..... 3

MATH 1360: Geometric Concepts.....	3
MATH 1700: Calculus II.....	5
MATH 1800: Introduction to Analysis I.....	5
MRKTNG 3901: Special Topics in Marketing .....	1-3
MRKTNG 3942: International Business Internship..	1-3
MRKTNG 3975: Current Issues in International Marketing.....	1-3
MRKTNG 3985: Problems in International Business..	3
MRKTNG 4185: Problems in Marketing.....	1-3
MRKTNG 4940: Marketing Practicum .....	3
PHIL 2420: Ethical Issues in Business.....	3
PHIL 2600: Rational Decisions .....	3
PHIL 2700: Elementary Logic.....	3
POL SC 2700: Comparative Political Systems.....	3
POL SC 2800: Introduction to Political Theory .....	3
PORT 2160: Intermediate Portuguese .....	3
PSYCH 2310: Social Psychology .....	3
PSYCH 2320: Introduction to Personality.....	3
RUSS 2130: Second-Year Russian I .....	4
RUSS 2160: Second-Year Russian II.....	4
S A ST 3130: Advanced Hindi Readings I.....	4
S A ST 3160: Advanced Hindi Readings II in South Asian Studies .....	4
SPAN 2100: Elementary Spanish III.....	3
SPAN 2160: Intermediate Spanish Composition and Conversation.....	3

Note: A maximum of 6 credits from MRKTNG 3901, 3942, 3975, 3985, 4185, and 4940 can be counted towards emphasis support courses.

<b>Capstone course - senior year (on campus).....</b>	<b>3</b>
Minimum grade of C - required	
MANGMT 4970: Strategic Management .....	3
<b>Total.....</b>	<b>120</b>

### Emphasis in Real Estate

This curriculum, leading to a BSBA with an emphasis in real estate, provides a basic education for students contemplating a career in real estate, real estate management or associated fields.

<b>General Education Requirements .....</b>	<b>32</b>
<b>Upper Level Admissions Courses.....</b>	<b>28</b>
<b>Required Core Courses .....</b>	<b>27</b>
ACCTCY 2258: Computer-Based Data Systems .....	3
OR CMP SC 1040: Introduction to Problem Solving and Programming .....	3
OR CMP SC 1050: Algorithm Design and Programming I .....	3
ECONOM 3229: Money, Banking and Financial Markets.....	3
OR ECONOM 3251: Theory of the Firm.....	3
FINANC 3000: Corporate Finance .....	3
MANGMT 3000: Principles of Management .....	3
BUS AD 3500: Professional Development in Business .	3
MANGMT 3540: Introduction to Business Law .....	3
MRKTNG 3000: Principles of Marketing .....	3
BUS AD 4500: Professional Development Program-Practicum .....	3
STAT 3500: Introduction to Probability and Statistics II.....	3

### Real Estate

<b>Required courses .....</b>	<b>18</b>
FINANC 4010: Financial Management .....	3

FINANC 4020: Investments .....	3
FINANC 4500: Principles of Real Estate .....	3
FINANC 4510: Real Estate Appraisal .....	3
FINANC 4520: Real Estate Finance and Investment ..	3
MANGMT 4010: Operations Management.....	3
<b>Additional Courses.....</b>	<b>9</b>
ACCTCY 4353: Introduction to Taxation.....	3
ACCTCY 4356: Financial Accounting Concepts .....	3
AG EC 4340: Rural Real Estate Appraisal.....	3
FINANC 3300: Personal Risk Management and Insurance .....	3
FINANC 4110: Financial Management Policy .....	3
FINANC 4720: International Finance.....	3
FINANC 4120: Security Analysis .....	3
FINANC 4130: Management of Financial Institutions	3
FINANC 4220: Portfolio Management.....	3
FINANC 4320: Financial Futures and Options.....	3
FINANC 4530: Real Estate Portfolio Analysis and REITs .....	3
FINANC 4620 Investment Strategy of Warren Buffet .....	3
FINANC 4820 Investment Fund Management .....	3
FINANC 4030 Financial Intermediaries and Markets..	3
ARCHST 4660: Housing Concepts and Issues .....	3
MANGMT 4560: The Law of Commercial Credit Transactions.....	3
MRKTNG 4420: Sales Management .....	3
<b>Emphasis support courses .....</b>	<b>3</b>
Trulaske College of Business or economics courses numbered 2000 or higher and non-business courses selected and approved by the department	
<b>Capstone course - senior year (on campus).....</b>	<b>3</b>
Minimum grade of C- required	
MANGMT 4970: Strategic Management .....	3
<b>Total.....</b>	<b>120</b>

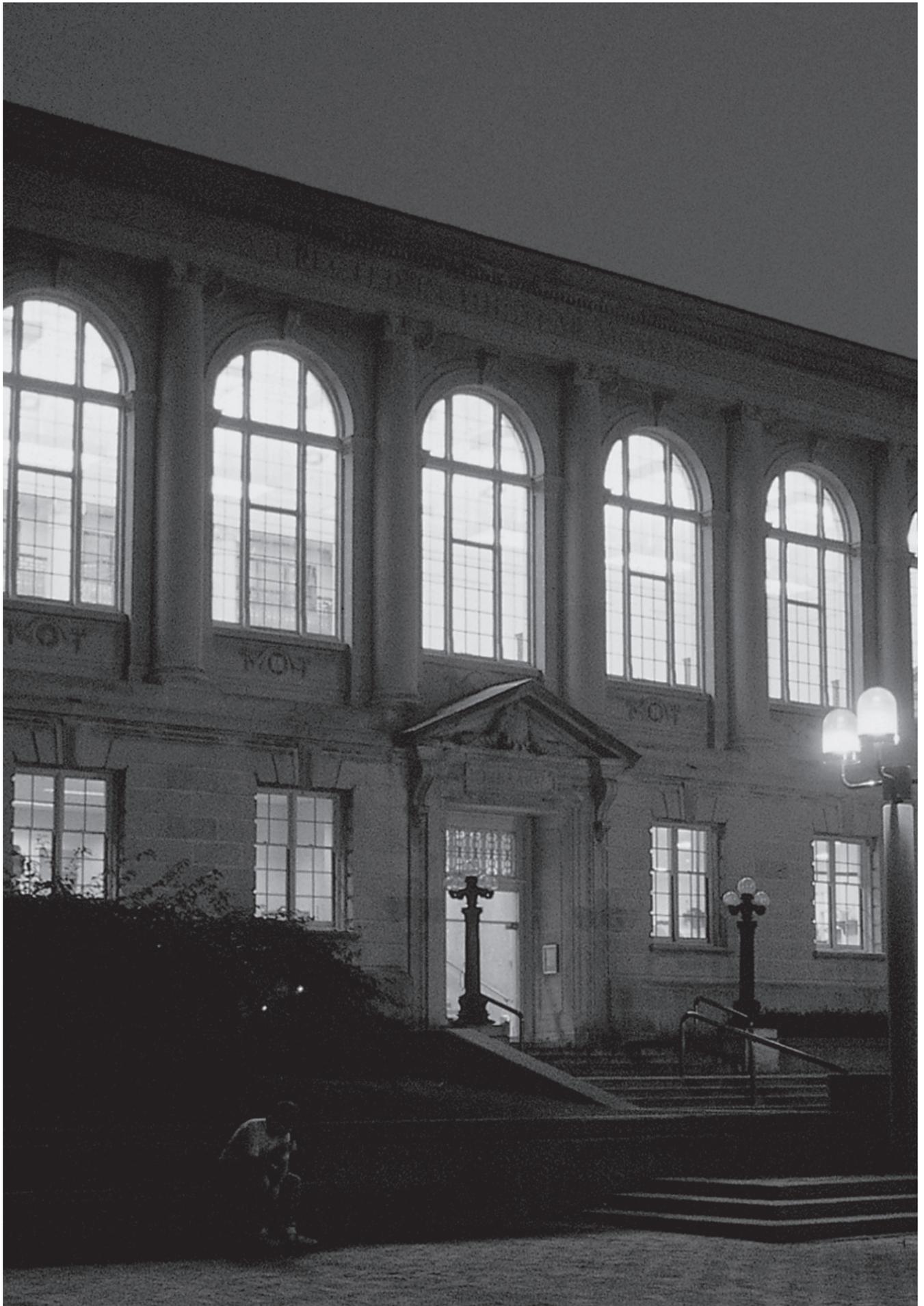
### Minor in Business

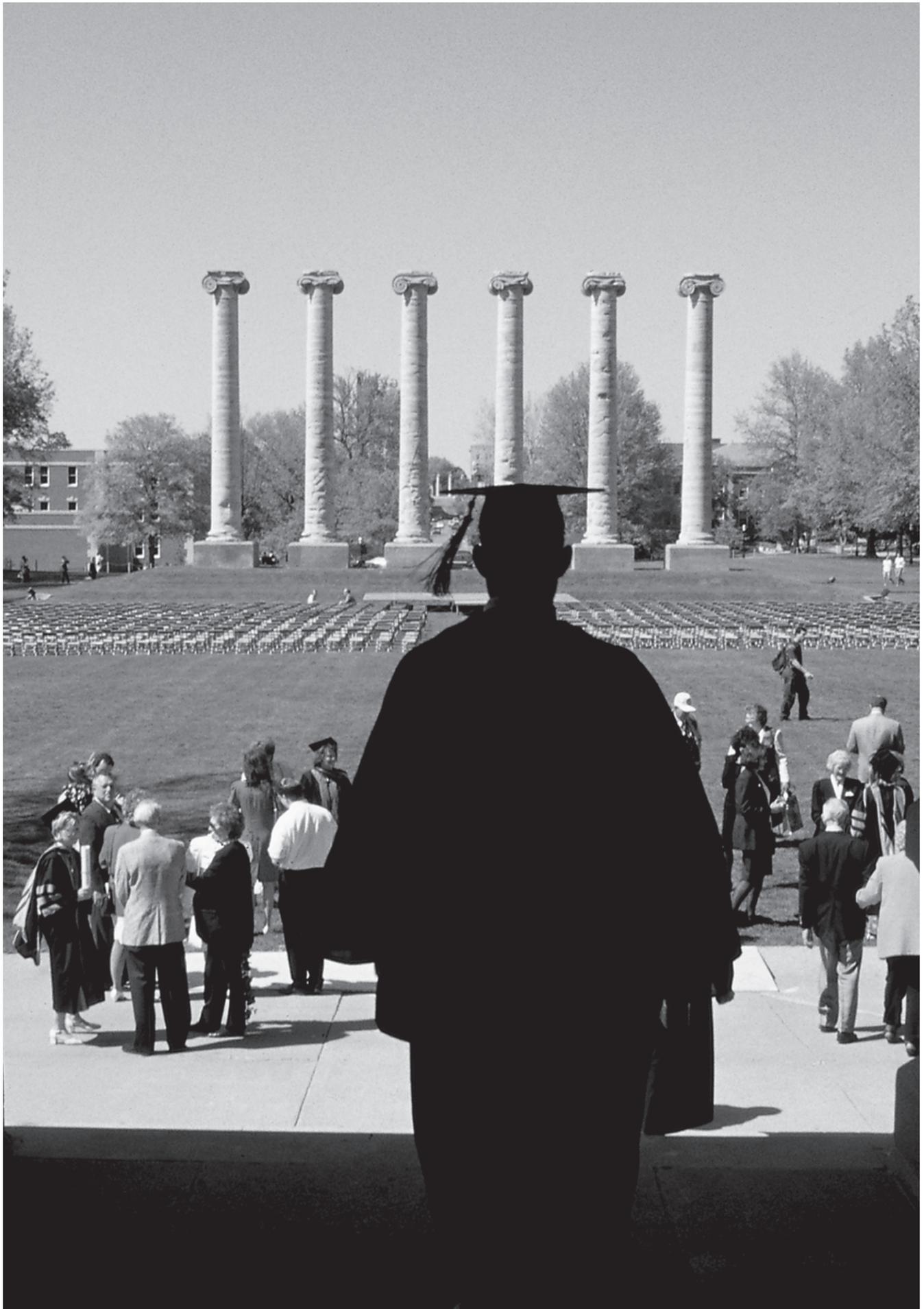
The business minor has the same rigor and content as the fundamental courses taken by business students. It provides flexibility in undergraduate studies and better prepares students for jobs and for graduate school. The business minor includes courses that are highly complementary. For most students, the requirements for the business minor are far more valuable than a similar number of courses in one or two areas.

15 of the 18 hours must be taken in residence and a 2.0 GPA in all business courses and those required for the business minor is required. See a business advisor for questions regarding the business minor.

ACCTCY 2010: Introduction to Accounting .....	3
OR ACCTCY 2036: Accounting I.....	3
ECONOM 1014: Principles of Microeconomics .....	3
OR ECONOM 1015: Principles of Macroeconomics.....	3
OR ECONOM 1051: General Economics .....	5
MANGMT 3000: Principles of Management .....	3
FINANC 2000: Survey of Business Finance.....	3
OR FINANC 3000: Corporate Finance.....	3
MRKTNG 3000: Principles of Marketing .....	3
Business Elective .....	3
(any Trulaske College of Business course above 3000 level)	
<b>Total .....</b>	<b>18</b>







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# **College of Education**

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# College of Education

## Degrees Offered

The Bachelor of Science in Education (BS Ed) leads to certification to teach in the State of Missouri. The Bachelor of Educational Studies (BES) is designed for individuals interested in working in a field related to education, but who do not want to pursue teacher certification. Emphasis areas are listed in italics below.

Bachelor of Science in Education (BS Ed) – with majors in

Early Childhood Education

Elementary Education with emphasis in

*Elementary Education*

Middle School Education with emphasis areas in

*Language Arts, Mathematics,*

*Science, Social Studies*

Secondary Education with emphasis areas in

*Art Education, Biology, Chemistry,*

*Earth Science, Language Arts,*

*Mathematics Education, Music Education,*

*Physics, Social Studies*

Special Education with emphasis in

*Cross-Categorical*

Bachelor of Educational Studies (BES) with a major in

Interdepartmental Studies

In addition to the bachelor's degrees above, the College offers masters, educational specialist and doctoral degrees in a variety of areas. Check the Graduate Catalog for complete information.

### Certification in Agriculture Education

The Agricultural Education program is listed under the College of Agriculture, Food and Natural Resources section of this catalog.

### Certification in Family and Consumer Sciences Education

The Family and Consumer Sciences Education program is listed under the College of Human Environmental Sciences section of this catalog.

## Administration

Daniel Clay, Dean,

Joanne H. Hook Endowed Chair in Educational Renewal

### College of Education Operations Center

Mike Pullis, Associate Dean Administration, Research & Continuous Improvement

Kathyn Chval, Interim Associate Dean Academic Affairs

(573) 882-7832

[www.education.missouri.edu](http://www.education.missouri.edu)

[umccoecertinfo@missouri.edu](mailto:umccoecertinfo@missouri.edu)

The College of Education, established in 1868, is the oldest teacher preparation program west of the Mississippi River. Today's graduates of the college are employed in a variety of educational institutions and non-school settings. The college serves the educational community through research-based professional practice and a variety of learning constructs applied to real-world experiences. The college is a member of the American Association of Colleges for Teacher Education and a candidate member of the Teacher Education Accreditation

Council.

All programs are fully accredited by the North Central Association of Secondary Schools and Colleges. All programs that lead to earning a certificate by the Missouri Department of Elementary and Secondary Education are fully approved by the State Board of Education. The Missouri Department of Elementary and Secondary Education accredits all teacher certification programs at MU. The Missouri Department of Elementary & Secondary Education --Office of Educator Quality is working with representative stakeholders groups to redesign the standards for educator preparation including certification requirements. These changes and implementation schedule will be communicated to students through individual advising sessions, meetings, and/or other university communications. If there are any questions and/or concerns, please contact the Director of Educator Preparation in the Office of Educator Quality.

The Bachelor of Science degree offers programs with the following certification levels:

- Early Childhood Education (certification for birth-grade 3)
- Elementary Education (certification for grades 1-6)
- Middle School Education (certification for grades 5 - 9)
- Secondary Education (certification for grades 9-12)
- Special Education, Art, and Music (certification for grades K-12)

### Title II Report

In 2011, the College of Education at the University of Missouri (MU) submitted its annual Title II report to the state regarding the performance of the 2009-2010 and 2010-2011 program completers on the mandatory Praxis Tests. In 2009-2010, 100 percent of MU program completers passed the required Praxis Assessment for their certification area. In 2010-2011, 99.2 percent passed the required Praxis Assessment. The state average passing rate was 96 percent.

The total undergraduate enrollment in the College of Education for 2009-2010 was 1228 and for 2010-2011 was 1295. These programs are sequenced into three phases and require field-based experiences every semester. A full semester (16-week) student teaching internship is required. Clinical faculty with a 6:1 student/faculty ratio supervise this 640-hour experience. Students with an emphasis in Elementary Education or Special Education participate in a full-year student teaching internship.

## Admissions

Even for students meeting selective admission criteria, admission to some program areas is dependent on capacity, resulting in the selection of the best-qualified applicants. In addition to meeting minimum Phase II criteria, the faculty may exercise professional judgment in the selection of students through personal interviews and program specific essays.

Admission to a specific program is a prerequisite to many upper-level education courses and associated field experiences (including the teaching internship). A student admitted to a professional program (Phase II) must maintain the standards

met at the time of admission. Continued assessment will be made of the characteristics associated with effective performance in the role of a professional at each level and in the program. See specific requirements for admission to each of the three phases of the chosen major.

Procedures for admission to the professional program (Phase II) for the Bachelor of Educational Studies degree parallel those for the Bachelor of Science in Education degree. To be admitted, the applicant must meet the requirements described under phase requirements and have completed a minimum of 24 hours in education coursework.

### Freshman Admission

Undergraduate students may enter the College of Education as first-year students at MU.

### Transfer Admission

The College of Education accepts transfer students consistent with the transfer/articulation policy of the Missouri Department of Higher Education. The transfer policy does not waive or alter any course requirements for the Bachelor of Science in Education or the Bachelor of Educational Studies degrees. Grades received from other accredited institutions are recorded on the MU transcript as they were earned (A = A, etc.). Courses from other University of Missouri institutions are calculated into the MU GPA of Record and grades received from other accredited institutions are calculated into the overall grade point average for admission to the College of Education.

Students transferring to the College of Education with a completed Associate of Arts (AA) degree will be considered to have completed the first two years of university general education requirements. Students transferring with a completed Associate of Arts in Teaching (AAT) degree will be considered to have completed the first two years of university education and lower division (Phase I) professional education coursework. Additional course work may be needed to satisfy prerequisites or degree requirements for Phase II and Phase III of the chosen program.

### International Admission

International students enrolled in the BS Ed program must have earned a score of 600 (paper-based) or 100 (internet-based) on the TOEFL exam. International students enrolled in the BES program must have a score of 550 (paper-based) or 79 (internet-based) on the TOEFL exam.

### Exploratory Courses

Students wishing to explore Teacher Education may enroll in LTC 11XX for 1 credit in the emphasis area of interest. There is also an undecided category for those students interested in exploring the field of education without selecting a specific major or emphasis.

### Preprofessional Information

Many of the program areas contain preprofessional course work that must be completed with specific course grades prior to the selective admission process to Phase II of the program or the teaching internship (Phase III). Contact the Advising and Certification Services Office for the specific course work required for the area of interest.

## Professional Education Sample Program

See degree, major and emphasis requirement listings for additional courses that would be beneficial to complete during the freshmen and sophomore years specific to the major and emphasis.

### Professional Education Sample Program-Secondary Social Studies Education

Phase I.....	9
LTC 11XX: Orientation .....	1
ESC PS 2010: Inquiry Into Learning I.....	3
ESC PS 2014: Inquiry Into Learning I- Field Experience .....	1
LTC 2040: Inquiring Into Schools, Community, and Society I.....	3
LTC 2044: Inquiry Into Schools, Community, and Society: Field.....	1
Phase II .....	21
<u>Begins only in the fall semester of each year</u>	
Semester 1	
LTC 4560: Teaching Reading in the Content Areas .....	3
LTC 4530: Introduction to Social Studies.....	3
LTC 4534: Secondary Social Studies I Field Experience .....	1
Semester 2	
SPC ED 4020: Inquiry Into Learning II .....	3
LTC 4541: Teaching Social Studies.....	3
LTC 4544: Secondary Social Studies II Field Experience.....	1
Semester 3	
ED LPA 4060: Inquiring Into Schools, Community, and Society II .....	3
LTC 4550: Assessment in Social Studies.....	3
LTC 4554: Secondary Social Studies III Field Experience.....	1
Phase III.....	14
Completion of Phases I & II required for admittance	
LTC 4971: Internship and Capstone Seminar .....	14

### Grade Point Average

The College of Education uses the MU GPA of record to assess students' academic standing and progress. Both the MU GPA of record and overall grade point average at the level required (see Calculation of Grade Point Averages for levels) are used to determine eligibility for admittance and progression.

### Time Limits on Credits Earned

Transfer credit is evaluated by the Office of Admissions. All course work must meet the current state minimum requirements for teacher certification. Course work completed in the discipline must be evaluated by faculty within that area to be applicable.

### Capstone Options

All students graduating from the College of Education are required to complete a capstone experience. For students completing a BS Ed, the internship experience (Phase III) serves as the capstone.

## Graduation Requirements

University requirements state that students must earn 30 of the last 36 credits applicable to their degree in MU courses. For the BS Ed, these courses must include the student teaching internship. For the BES, they must include an approved capstone course for a minimum of two semester hours and may include completion of the CAAP exam.

## Academic Regulations

### Calculation of Grade Point Averages (GPA)

To remain in good standing with the college, a student must earn a minimum MU term and cumulative GPA of record, as described below.

0 – 29 credits	2.600
30 – 59 credits	2.700
60 credits and above	2.750

### Satisfactory/Unsatisfactory Grades

In addition to University policies on S/U grading, professional education courses, excluding field experiences and orientation, may not be completed under the S/U grading system.

### Advanced Standing

In addition to University standards for advanced-standing credit, *content* courses, as defined by teacher certification, must be completed with an MU cumulative GPA of record of 2.500 or better to satisfy Missouri requirements for certification. Advanced-standing credit includes course work used to satisfy degree requirements, including any elective portion of the degree program.

Courses taken from other institutions after students have matriculated to MU must have prior approval.

### Probation, Suspension and Dismissal

A student in good standing (see Calculation of Grade Point Averages below) whose MU GPA of record and/or cumulative grade point average falls below the level outlined is placed on scholastic probation. In addition, any student admitted to the College of Education who does not meet the minimum entrance standards (e.g., admitted to MU by the Committee on Entrance and Revision of Records, admission due to extenuating circumstances or admission of a returning student) will enter on scholastic probation.

A student on scholastic probation whose MU term grade point average for a subsequent enrollment semester is at or above the level specified, but whose MU cumulative grade point average is below the level required for good standing is placed on conditional scholastic probation. A student may be on conditional scholastic probation for two enrollment semesters only. If the MU cumulative grade point average is not at the level required for the student's classification at the conclusion of the period of conditional scholastic probation, the student is ineligible for continued enrollment in the College of Education.

A student whose MU term and cumulative GPA of record falls below 2.000 is ineligible for enrollment at MU. (Exception: a first-semester freshman whose MU term GPA is below 1.000 may, at the discretion of the associate/assistant dean for

academic programs, be placed on conditional scholastic probation instead of being declared ineligible.)

### Graduation with Departmental Honors

The College of Education maintains a Dean's List that includes all College of Education undergraduates who are enrolled in 12 or more credits of graded (A-F) course work, and who have a 3.500 or higher MU term GPA.

The College of Education awards Latin Honors designations based on the following MU cumulative GPA\*:

<i>cum laude</i>	3.600-3.740
<i>magna cum laude</i>	3.750-3.890
<i>summa cum laude</i>	3.900-4.000

\*Please note that our current policy is under review, however, the current policy is in effect through Fall semester 2014.

Students must earn a minimum of 60 credits on the MU campus to be eligible for Latin Honors designation. Determination of eligibility is based on the grade point average attained during the final portion of the program (i.e., the final 60 credits on the MU campus). In cases where the overall MU cumulative grade point average is higher than that calculated for the final 60 credits, the higher overall grade point average will be used. In no case will a Latin Honors designation be conferred for an individual whose overall MU GPA is less than 3.000.

To graduate with College of Education Honors, the student must meet the selection criteria (maintain a cumulative GPA based upon all MU coursework of 3.5 or higher; complete a minimum of 8 semester hours of credit in College of Education honors courses). The courses for the Education Honors program include Undergraduate Honors Reading (3 credit hours); Undergraduate Honors Research Seminar (minimum of 5 credit hours over two academic semesters). Students interested in participating in Education Honors should talk to their advisor prior to the spring semester of their sophomore year.

In addition, College of Education students may participate in a University Honors Program. (See the Honors College information in the front section of this catalog).

## Academic Affairs

The College of Education offers services to assist undergraduate students interested in pursuing a degree in Education.

### Advising & Certification Services

101 Hill Hall  
573-882-5659  
Education\_advising@missouri.edu

A student entering the College of Education works with a professional advisor who assists with professional and academic planning. On progression to Phase II in most program areas, a student is assigned a faculty advisor within the area of certification. It is the student's responsibility to meet with advisors as early and as regularly as possible so that requirements may be met without losing credit or carrying excessively heavy loads during the junior and senior years. In addition, prior to eligibility for the full-year internship in Elementary and Special Education, students must have all programmatic requirements met. In all other programs, students must have all programmatic

requirements met prior to the internship semester.

## Education and Career Services

105 Hill Hall  
573-882-5069

The Education Career Services Office, located in 105 Hill Hall, specializes in the development of cover letters and resumé, preparation for interviews, and implementation of an effective job search. Students will find considerable support in building a professional credential file needed for the field of education. In addition, this office provides information about job openings, school district contacts, and career fairs, as well as hosts on-campus interviews with potential employers.

Students will find additional assistance at [www.hiremiz-zoutigers.com](http://www.hiremiz-zoutigers.com), but also the Education Career Services website at <http://caps.missouri.edu>, which contains extensive resources exclusively for the job seeker in the field of education.

## Field Experience Office

102 Hill Hall  
573-882-4364

The Field Experience Office, located in 102 Hill Hall, supports students in all phases leading up to and including the student teaching internship. The professional staff make regular contact with school district faculty and administrators in Columbia and around the state to assure that students encounter high-quality field experiences where they gain knowledge and assume progressive responsibilities within classroom settings. In addition, this office provides guidance to any student who requests additional help to prepare for student teaching.

## Office of Recruitment

202 Townsend Hall  
573-882-7772

The Office of Recruitment, located in 202 Townsend Hall, serves as a welcome center for prospective and current students as well as their families. Through student tours and recruitment events, the staff showcase the College of Education and highlight opportunities and services provided to our students. In addition, the staff advise and assist prospective students in understanding College of Education degree programs, admission requirements, and financial assistance options.

## Office of Scholarship Services

303 Townsend Hall  
573-884-7848  
[GardnerRu@missouri.edu](mailto:GardnerRu@missouri.edu)

The Office of Scholarship Services helps students pursue scholarships and fellowships. This office disseminates information about scholarship opportunities and deadlines to current and potential students. Students become eligible for College of Education scholarships when they submit their annual application for University of Missouri scholarships. The Scholarship Coordinator then assists the Financial Awards Committee, which consists of College of Education faculty members, as they determine recipients based on the criteria for each scholarship.

The scholarship website lists the numerous scholarships available for undergraduate students majoring in Education: [http://education.missouri.edu/academics/financial\\_assistance/scholarships-undergraduate.php](http://education.missouri.edu/academics/financial_assistance/scholarships-undergraduate.php)

## Office of Student Activities

102 Hill Hall  
573-884-6566

The Office of Student Activities, located in 102 Hill Hall, plans and executes multiple events and programs throughout the year for College of Education students. Major annual events include Fall Welcome Week and Ed Week in which a combination of events, programs, speakers and activities bring together students, faculty and professional staff in the College. The Coordinator also serves as sponsor to the College of Education Undergraduate Student Council.

## Academic Programs

### Major Program Requirements - BSEd

In addition to University requirements, such as University general education and graduation requirements, students must complete the following degree requirements and additional major (and in some cases emphasis and option) requirements.

- Oral communication proficiency (demonstrate competency on communication standards in Phase I, II, and III of the Teacher Education course work)
- Computer and information proficiency (demonstrate competency on technology standards in Phase I, II, and III of the Teacher Education course work)
- POL SC 1100 (course may also be used as part of the behavioral and social science portion of University general education requirements)
- HIST 1100, 1100H, 1200, 1200H or 2210 (course may also be used as part of the behavioral and social science portion of University general education requirements)
- World international requirement: All majors must complete a course that reflects the study of world/international topics (course may also be used as part of the humanities and/or fine arts portion of University general education requirements).
- Multicultural studies requirement: Students address this requirement by demonstrating competence on diversity markers in Phases I, II, and III of the Teacher Education course work.

### Professional Education

The College of Education professional education requirements include those that are common to all majors as well as requirements that are specific to each major. Students must meet the following requirements:

- Course GPA of 2.000 or better with an overall professional education GPA of at least 2.500 (required for Missouri Teacher Certification)
- MU GPA of record and overall GPA of 2.750
- GPA of 2.500 in the content area for students majoring in a degree leading to certification in a subject (K-12, 9-12, 5-9 or PK-3)

## Teacher Education Courses

Students proceed through three phases as they complete the baccalaureate program. Each phase includes training in technology as well as clinical experience. University general education and content requirements are completed each semester in addition to the required program area courses.

### Phase I (Inquiry into Learning, Schools, Communities and Society I)

This phase provides students with an immersion into the discipline and culture of teaching and learning before focusing on a teaching specialty. It includes five courses for a total of 9 credits: LTC 11XX, ESC PS 2010 and 2014, LTC 2040 and 2044. Experiences in this phase incorporate the teacher's roles in facilitating learning at all levels of development. Students also focus on how problems of schools, family, community and society affect educators. The emphasis in Phase I is on oral and written communication. All students in the BSEd degree program complete these courses regardless of major. Students majoring in Special Education complete an additional course in Phase I, SPC ED 4300, for a total of 12 hours in Phase I.

### Phase II (Inquiry into Learning, Schools, Communities and Society II)

This phase occurs over a three-semester sequence and focuses increasingly on a chosen teaching emphasis and on interdisciplinary teaching. Experiences in this phase focus on career exploration, general instructional strategies, human development, classroom and behavior management and educational measurement. This phase provides students with experience in the methods of teaching in a specific subject area as well as emerging problems and practices within the field of education. Certain degree programs have limited enrollments. The number of credits is dependent on the selected program. See specific majors for courses required in Phase II.

Application to Phase II is required. Students become eligible for consideration for admittance to Phase II in a specific program after meeting the following criteria:

- Current enrollment in the College of Education
- 2.750 MU GPA of record and overall GPA (on a 4.000 scale)
- 235 on each sub-test of the CBASE
- ENGLSH 1000 with a "C" range grade
- MATH 1100 with a "C" range grade
- Satisfactory completion of LTC 11XX: Orientation Seminar or designated alternative
- Satisfactory completion of any selected additional degree requirements as prerequisites to Phase II courses in the certification major (list available from the Teacher Education Office or the Advising and Certification Services office.
- COMMUN 1200 or equivalent with a "C-" or higher.
- Possession of characteristics associated with effective performance in a professional role at the level(s) and in the major(s) selected
- Demonstrated competence of Phase I mid-preparation benchmarks (as documented by Phase I instructors)
- Additional requirements as approved by the faculty for areas with enrollment limitations which currently are Early Childhood, Elementary, Secondary and Middle School Social Studies, Secondary Language Arts and Special Education.
- Demonstration of competence of Phase I learning mark-

ers as demonstrated by satisfactory completion of Phase I courses. (LTC 11XX, grade of "S"; ESC PS 2014 and LTC 2044, grade of "S" in each course; ESC PS 2010 and LTC 2040, grade of "C" (2.00) or higher in each course).

- Completion of application for progression.

### Phase III (Internship-LTC 4971)

Phase III occurs during the last semester with student placement in a public school district for the entire semester, for approximately 14 credit hours.

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

- Admission to Phase III in the program area
- Successful completion of Phase II
- A minimum of 90 completed credit hours
- Completion of at least the preceding semester in residence
- A minimum 2.750 MU GPA of record and an overall GPA of 2.750 (on a 4.000 scale)
- Completion of specific prerequisite professional education and subject area course requirements for the level at which the teaching internship is to be accomplished

Teaching internship assignments are available in several districts across the State of Missouri. Applications are accepted approximately a year preceding internship. More information concerning student teaching internships may be obtained from Field Experience Office, 102 Hill Hall, in the College of Education.

### Phase IV (Induction Years Program)

Phase IV occurs after the student graduates and begins the first year of teaching and includes follow-up evaluations.

## Teacher Certification

### Licensures

Completion of the BSEd and any additional requirements for certification are required before the graduate is eligible for Missouri Teacher Certification.

Recommendation for initial certification after graduation requires an acceptable score on the Praxis II specialty area examination for each major. The examination should be taken during the last year of the program and official scores submitted to the University of Missouri. Those seeking certification(s) in an additional area(s) must submit an official passing score for the Praxis II specialty area examination for each area where applicable, as well as completing any additional programmatic requirements.

The Department of Elementary and Secondary Education also requires that students seeking additional certification in other teaching subjects take the Praxis II exam in those additional subjects in order to be considered a Highly Qualified Teacher.

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

- Cumulative MU GPA of record of 2.750
- Overall GPA of 2.750 for all college course work completed
- GPA of 2.500 in all content area course work
- 2.000 in each professional education course with overall 2.500 GPA on all professional education course work

- Satisfactory score on the Praxis II area specialty test required by the State of Missouri
- An official copy of the student's transcript with baccalaureate degree posted submitted to the Advising & Certification Services office in 101 Hill Hall
- Satisfactory completion of program specific culmination requirement.
- Completed the online application for a Missouri Teacher's Certificate through the Department of Elementary and Secondary Education (DESE) web application.

### Requirements for Additional Certifications

An individual completing an MU program in teacher education leading to a Missouri certificate to teach may obtain certification in additional areas by meeting requirements established by the Missouri Department of Elementary and Secondary Education. For specified areas of course work recommended for additional state certifications, contact Advising and Certification Services, 101 Hill Hall.

## Teacher Education

Dr. Wendy Sims, Director of Teacher Education  
 Department of Learning, Teaching and Curriculum  
 202 Townsend Hall  
 573-882-0560  
 WhiteJess@missouri.edu

### Faculty

#### Educational, Leadership and Policy Analysis

(not a complete list, select faculty who teach undergraduate education courses)

**ASSOCIATE PROFESSOR** P. Placier

#### Education, School and Counseling Psychology

(not a complete list, select faculty who teach undergraduate education courses)

**ASSOCIATE PROFESSOR** D. Bergin, T. C. Riley-Tillman, S. Whitney

**ASSOCIATE TEACHING PROFESSOR** R. Scholes

#### Information Science and Learning Technology

(not a complete list, select faculty who teach undergraduate education courses)

**PROFESSOR** J. Laffey

#### Learning Teaching and Curriculum

**PROFESSOR** L. H. Barrow, J. Baumann, B. Dougherty, R. F. Fox, A. Hoard, S. Palonsky, B. B. Reys, R. E. Reys, R. D. Robinson, T. Sadler, W. Sims

**ASSOCIATE PROFESSOR** E. A. Baker, L. Bennett, K. B. Chval, P. J. Friedrichsen, C. Gilles, D. L. Hanuscin, N. Knipping, J. Lannin, J. E. Tarr, K. Unrath

**ASSOCIATE PROFESSOR EMERITUS** M. Volkmann

**ASSISTANT PROFESSOR** T. Castro, O. Chavez-Lopez, C. Kuby, A. Lannin, M. Major, R. Pinnow, L. Sanchez, M. Siegel, B. Silvey

**EMERITUS RESEARCH PROFESSOR** D. A. Grouws

**ASSISTANT TEACHING PROFESSOR** A. Ashcraft, A. Barbis, L. Kingsley, L. Neier, J. Ostrow, B. Smith

**ASSISTANT CLINICAL PROFESSOR** A. Waldron

#### Department of Special Education

**PROFESSOR** T. Lewis, J. Stichter

**ASSOCIATE PROFESSOR** E. Lembke, R. McCathren, M. Pullis, M. Stormont, D. Van Garderen

**ASSISTANT PROFESSOR** C. Thomas, D. Van Garderen

**ASSISTANT CLINICAL PROFESSOR** K. Lampitt

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

The requirements for the Bachelor of Science in Education are specified in three areas: University general education, professional education and a teaching major. All students preparing to be teachers in early childhood, elementary, special education, middle or secondary schools, regardless of the major field, are required to complete the University general education program. Students transferring from other institutions are required

to fulfill the equivalencies of these courses.

## Major Program Requirements – Early Childhood Education (Birth – Grade 3)

(For University graduation and University general education requirements, see the front section of the catalog.)

<b>Mathematics or statistics</b> .....	<b>3</b>
STAT 1200: Introductory Statistical Reasoning .....	3
(This course fulfills the mathematics reasoning proficiency requirement.)	
<b>Humanities</b> .....	<b>12</b>
Must include one course in literature and one course in art or music. (Students who cannot read music must take a basic music theory course that enables them to read music.)	
<b>Science (a lab is required in both Biological and Physical sciences)</b> .....	<b>6-9</b>
PHYSICS 2330: Exploring the Principles of Physics .....	4
<b>Social/Behavioral sciences</b> .....	<b>12</b>
PSYCH 1000: General Psychology .....	3
POL SC 1100: American Government .....	3
American History .....	3
One course in either Sociology, Rural Sociology or Anthropology .....	3
<b>Subject/concentration (*before entering Phase II)</b> .....	<b>9</b>
NUTR S 1034: Nutrition, Current Concepts and Controversies .....	3
H D FS 3420: Early and Middle Childhood .....	3
H D FS 2300: Multicultural Study of Children and Families .....	3
OR H D FS 4300: Black Families .....	3
<b>Phase II</b> .....	<b>50</b>
<b>Inquiring into Schools, Communities and Society (ISCS)</b> .....	<b>6</b>
SPC ED 4020: Inquiry into Learning II .....	3
ED LPA 4060: Inquiring into Schools, Community, and Society II .....	3
<b>Field experience</b> .....	<b>11</b>
LTC 4124: Emergent and Developing Literacy Early Childhood Field Experience (Semester I) .....	2
LTC 4134: Teaching & Learning Math, Sci. & Soc Studies w/Young Children Field Experience (Semester II) .....	3
H D FS 3700: Child Development Laboratory .....	6
OR LTC 4170: Pre-Kindergarden Student Teaching .....	6
<b>Inquiry into Curriculum and Pedagogy (ICP)</b> .....	<b>33</b>
LTC 4091: Early Childhood Seminar I .....	2
LTC 4140: Early Childhood Seminar II (Fall only) .....	3
LTC 4160: Motor Development in Young Children .....	2
LTC 4130: Teaching and Learning Math, Science and Social Studies w/ Young Children .....	8
LTC 4110: Working with Infants and Toddlers .....	3
LTC 4120: Emergent and Developing Literacy in Early Childhood .....	5
LTC 4200: Young Children's Emergent Language .....	2
LTC 4210: Children's Literature .....	2
LTC 4240: Art for Children .....	2
LTC 4250: Music for Children .....	2
H D FS 4720: Child and Family Advocacy (Spring only) .....	3

### Electives

One elective course from an area within the College of Arts and Science is required.

## Major Program Requirements – Elementary Education (Grades 1 – 6)

(For required University graduation and University general education requirements, see the front section of the catalog.)

<b>Statistics</b> .....	<b>3</b>
STAT 1200: Introductory Statistical Reasoning .....	3
(This course fulfills the mathematics reasoning proficiency requirement.)	
<b>Humanities</b> .....	<b>9</b>
Must include one course in literature and one course in art or music. (Students who cannot read music must take a basic music theory course that enables them to read music.)	
<b>Science (lab required in both Biological &amp; Physical Sciences)</b> .....	<b>6-9</b>
PHYSICS 2330: Exploring the Principles of Physics .....	4
<b>Social/Behavior sciences</b> .....	<b>15</b>
PSYCH 1000: General Psychology .....	3
One course in economics .....	3
One course in geography .....	3
POL SC 1100: American Government .....	3
American History .....	3
<b>Health Education</b> .....	<b>2</b>
LTC 1200: Elements of Health Education .....	2

### Major core requirement

Some combination of University general education requirements and concentration area requirements must produce a total of 21 credits in one of the following categories:

- Social and Behavioral sciences
- Humanities studies and Fine Arts
- Biological and Physical science
- Mathematics

<b>Phase II</b> .....	<b>39</b>
<b>Inquiring into Learning, Schools, Communities, and Society II</b> .....	<b>6</b>
SPC ED 4020: Inquiry into Learning II .....	3
ED LPA 4060: Inquiring into Schools, Community, and Society II .....	3
<b>Inquiry into Curriculum and Pedagogy with Field Experience</b> .....	<b>35</b>
LTC 4030: Physical Education Activities for the Elementary School .....	2
LTC 4211: Essential Literacy: Reading .....	3
LTC 4221: Essential Literacy: Writing .....	2
LTC 4231: Advanced Applications of Literacy .....	3
LTC 4241: Inquiry into Literacy Applications .....	3
LTC 4240: Art for Children .....	2
LTC 4250: Music for Children .....	2
LTC 4260: Elementary Social Studies .....	3
LTC 4280: Teaching Science in Elementary Schools .....	3
LTC 4300: Learning and Teaching Number and Operation in the Elementary School .....	3
LTC 4310: Learning and Teaching Geometry in the Elementary School .....	3
LTC 4194: Elementary Education Field Experience I. .....	3
LTC 4294: Elementary Education Field Experience II .....	3

## Major Program Requirements – Middle School (Grades 5 – 9)

Within the Middle School major, students must select one emphasis field of study and one option field of study. (Note that

emphasis areas appear on transcripts, but option areas do not.)

- Emphasis field of study choose one from: mathematics, science, social studies or English/language arts
- Option field of study choose one from: mathematics, science, social studies, English/language arts, or art (grades K-9)

In addition to University general education requirements and the Phase I and Phase II requirements, students must also complete content requirements for both their emphasis area field of study and option area field of study. (See *Emphasis Area Field of Study Content Requirements and Option (second field) Area Requirements.*)

**Health Education .....2**

LTC 1200: Elements of Health Education ..... 2

**Inquiring into Schools, Communities and Society (ISCS) .....6**

SPC ED 4020: Inquiry into Learning II..... 3

ED LPA 4060: Inquiring into Schools, Community, and Society II ..... 3

**Inquiry into Curriculum and Pedagogy (all students).....3-7**

LTC 4410: Teaching, Engaging and Assessing Middle-Level Students ..... 3

LTC 4420: Adolescent Literacy..... 3  
(not required for English/Language Arts emphasis or option areas)

LTC 4424: Middle School Literary Field Experience... 1  
(not required for English/Language Arts emphasis or option areas)

**Inquiry into Curriculum and Pedagogy (for the emphasis area ..... 8-12**

**Mathematics .....8**

LTC 4360: Intro. Teaching Mathematics in Middle and Secondary Schools ..... 3

LTC 4364: Intro. Teaching Math in Middle and Secondary Schools Field Experience ..... 1

LTC 4370: Teaching and Modeling Middle School Mathematics ..... 3

LTC 4374: Teaching and Modeling Middle School Mathematics Field Experience ..... 1

**English/language arts .....12**

LTC 4380: Teaching Middle School Language Arts I .. 3

LTC 4384: Teaching Middle School Language Arts I Field Experience ..... 1

LTC 4390: Teaching Middle and Secondary English/Language Arts II ..... 3

LTC 4394: Teaching Middle School Language Arts II Field Experience..... 1

LTC 4400: Teaching Middle and Secondary English/Language Arts III..... 3

LTC 4404: Teaching Middle School Language Arts III Field Experience ..... 1

**Social Studies .....8**

LTC 4324: Middle School Social Studies Field I..... 1

LTC 4334: Middle School Social Studies Field Experience II..... 1

LTC 4530: Introduction to Social Studies..... 3

LTC 4550: Assessment in Social Studies..... 3

**Science ..... 8**

LTC 4340: Middle School Science I..... 3

LTC 4344: Middle School Science Field I..... 1

LTC 4350: Middle School Science II..... 3

LTC 4354: Middle School Science Field Experience.... 1

**Inquiry into Curriculum and Pedagogy (for the option) ..... 4-8**

**Mathematics .....4**

LTC 4360: Intro. Teaching Mathematics in Middle and Secondary Schools ..... 3

LTC 4364: Intro. Teaching Math in Middle and Secondary Schools Field Experience ..... 1

**English/language arts .....8**

LTC 4380: Teaching Middle School Language Arts I .. 3

LTC 4384: Teaching Middle School Language Arts I Field Experience ..... 1

LTC 4390: Teaching Middle and Secondary English/Language Arts II (replaces LTC 4420)..... 3

LTC 4394: Teaching Middle School Language Arts II Field Experience (replaces LTC 4424)..... 1

**Social Studies .....4**

LTC 4530: Introduction to Social Studies..... 3

LTC 4324: Middle School Social Studies Field I..... 1

**Science .....4**

LTC 4340: Middle School Science I..... 3

LTC 4344: Middle School Science Field I..... 1

**Art .....8**

LTC 4730: Overview of Art Education ..... 3

LTC 4734: Overview of Art Education Field Experience ..... 1

LTC 4740: Inquiry into Art Education: Pre-School Through Middle School..... 3

LTC 4744: Inquiry into Art Education: Pre-School Through Middle School Field Experience ..... 1

**Emphasis Area Field of Study Content Requirements-Middle School Education**

In meeting the major area requirements, 3-9 credits in each area may also be used to meet University general education requirements.

**Emphasis in Math.....29**

MATH 1300: Finite Mathematics ..... 3

MATH 1360: Geometric Concepts ..... 3

MATH 1160: Precalculus Mathematics ..... 5

MATH 2320: Discrete Mathematical Structures..... 3

MATH 4060: Connecting Geometry to Middle and Secondary Schools (Fall only) ..... 3

MATH 4070: Connecting Algebra to Middle and Secondary Schools (Spring only)..... 3

MATH 4080: Calculus Connections (Fall only)..... 3

STAT 1200: Introductory Statistical Reasoning ..... 3

STAT 4050: Connecting Statistics to Middle and Secondary Schools (Spring only)..... 3

**Emphasis in Science .....31**

CHEM 1310: General Chemistry I ..... 2  
AND CHEM 1320: General Chemistry II with Lab. 3

AND CHEM 1330: General Chemistry III with Lab 3

PHYSICS 1210: College Physics I..... 4  
AND PHYSICS 2330: Exploring the Principles of Physics ..... 4

GEOL 1100: Principles of Geology with Laboratory... 4  
OR GEOL 1200: Environmental Geology with Laboratory..... 4

ATM SC 1050: Introductory Meteorology .....	3
BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
AND BIO SC 1060: Basic Environmental Studies ....	3
OR BIO SC 3100: Community Biology.....	3
OR NAT R 1060: Ecology and Conservation of Living Resources .....	3
<b>Emphasis in Social Studies .....</b>	<b>33</b>
American History including HIST 1100 & 1200 .....	9
World History including HIST 1500 or 1510.....	9
POL SC 1100: American Government .....	3
Economics .....	3
Geography .....	3
PSYCH 1000: General Psychology .....	3
Non-Western History or Asian Geography .....	3
<b>Emphasis in Language Arts .....</b>	<b>27</b>
ENGLISH 2010: Intermediate Composition .....	3
ENGLISH 2100: Writing about Literature.....	3
ENGLISH 3310: Survey of American Literature: 1865-Present .....	3
ENGLISH 4600: Structure of American English.....	3
ENGLISH 4610: History of English Language .....	3
English electives (at least one course from each category) 12	
19th century literature/African American literature/ Folklore (ENGLISH 2400, 3420, 4120, 4420) .....	3
20th century literature/literature by and about women (ENGLISH 3180, 4180, 4181, 4780) .....	3
Synthesize literary study (genres, comparative lit., critical theory, major authors) (ENGLISH 4004, 4060, 4100, 4170).....	3
Writing (ENGLISH 1510, 1530, 3010, 4510, 4530) .....	3
<b>Option (second field) Area Requirements-Middle School Education</b>	
In meeting the option area requirements, 3–9 credits in each area may be met by courses also used to meet University gen- eral education requirements.	
<b>Math Option.....</b>	<b>23</b>
MATH 1160: Precalculus Mathematics .....	5
STAT 1200: Introductory Statistical Reasoning .....	3
MATH 1300: Finite Mathematics .....	3
MATH 1360: Geometric Concepts .....	3
MATH 4060: Connecting Geometry to Middle and Secondary Schools .....	3
MATH 4070: Connecting Algebra to Middle and Secondary Schools .....	3
MATH 4080: Calculus Connections.....	3
<b>Science Option .....</b>	<b>21</b>
CHEM 1310: General Chemistry I .....	2
AND CHEM 1320: General Chemistry II with Lab. 3	
BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
GEOLOGY 1100: Principles of Geology with Laboratory... 4	
PHYSICS 2330: Exploring the Principles of Physics .... 4	
NAT R 1060: Ecology and Conservation of Living Resources.....	3
OR BIO SC 1060: Basic Environmental Studies .....	3

<b>Social Studies Option .....</b>	<b>21</b>
American History including HIST 1100 and 1200 .....	6
World History including HIST 1500 .....	6
Geography .....	3
POL SC 1100: American Government .....	3
Economics .....	3

<b>English/Language Arts Option.....</b>	<b>21</b>
ENGLISH 2010: Intermediate Composition .....	3
ENGLISH 2100: Writing about Literature.....	3
ENGLISH 3310: Survey of American Literature: 1865-Present .....	3
English electives (one course from each area).....	12
19th century literature/African American Literature/ Folklore: (ENGLISH 2400, 3420, 4120, 4420)	
20th century literature/literature by and about women: (ENGLISH 3180, 4180, 4181, 4780) .....	3
Synthesize literary study (genres, comparative lit, critical theory, major authors): (ENGLISH 4004, 4060, 4100, 4160, 4170).....	3
Writing: (ENGLISH 1510, 1530, 2030, 3010, 4510, 4530) .....	3

<b>Art K-9 Option.....</b>	<b>21</b>
ART GNRL 1020: Appreciation of Art .....	3
ART GNRL 1040: Basic 3-D Design .....	3
ART DRAW 1050: Drawing I.....	3
ART CERM 2100: Beginning Ceramics.....	3
ART FIBR 2300: Beginning Fibers.....	3
ART PNT 2500: Beginning Painting .....	3
ART PRNT 2700: Beginning Printmaking.....	3
OR ART PRNT 2730: Serigraphy .....	3

## Major Program Requirements - Secondary Education (Grades 9 – 12)

In addition to University general education requirements and the Phase I and Phase II requirements, students must also complete content requirements for their emphasis area. Each emphasis area below outlines the specific content area requirements.

During Phase II, all Secondary Education majors complete the requirements listed below.

<b>Inquiring into Schools, Communities, and Society .....</b>	<b>6</b>
SPC ED 4020: Inquiry into Learning II.....	3
ED LPA 4060: Inquiring into Schools, Community, and Society II .....	3

## Emphasis in Art Education (Grades K-12)

Students who wish to teach art usually pursue the BSEd degree. BA and BFA candidates may acquire art teaching certification by completing the art education requirements not already completed in the BA or BFA programs.

<b>Phase II .....</b>	<b>14</b>
<b>Field experience .....</b>	<b>3</b>
LTC 4734: Overview of Art Education Field Experience (semester I).....	1
LTC 4744: Inquiry into Art Education: Pre-School Through Middle School Field Experience (semester II) .....	1
LTC 4754: Inquiry into Art Education: Secondary Field Experience (semester III) .....	1

<b>Inquiry into Curriculum and Pedagogy</b> .....	<b>11</b>
LTC 4730: Overview of Art Education.....	3
LTC 4740: Inquiry into Art Education: Pre-School Through Middle School.....	3
LTC 4750: Inquiry into Art Education: Secondary.....	3
LTC 4560: Teaching Reading in the Content Areas .....	2

**Subject/Concentration** ..... **47-48**  
 (9 credits may be counted in completing the general education humanities requirement; 6 of the 12 must be at 2000 or above. One 2000-level course must be designated Writing Intensive.)

<b>Art History</b> .....	<b>12</b>
ART GNRL 1020: Appreciation of Art .....	3
AR H A 1110: Ancient and Medieval Art* .....	3
OR AR H A 1120: Renaissance through Modern Art	3
AR H A 2830: American Art and Architecture* .....	3
AR H A 3740: Nineteenth Century European Art* .....	3
OR AR H A 3750: Modern Art in Europe and America.....	3
OR AR H A 3760: Contemporary Art.....	3

\*or the equivalent approved by the faculty advisor

<b>Studio</b> .....	<b>26-27</b>
ART DRAW 1050: Drawing I.....	3
ART GNRL 1030: Basic 2-D Design.....	3
ART FIBR 2300: Beginning Fibers.....	3
ART DRAW 2200: Drawing II.....	3
ART PNT 2510: Beginning Watercolor Painting.....	3
OR ART PNT 2500: Beginning Painting .....	3
ART SCUL 2800: Beginning Sculpture .....	3
OR ART GNRL 1040: Basic 3-D Design.....	3
ART CERM 2100: Beginning Ceramics.....	3
ART PRNT 2700: Beginning Printmaking.....	3
OR ART PRNT 2730: Serigraphy .....	3
IS LT 4361: Introduction to Digital Media .....	3
OR ART GRDN 1400: Beginning Digital Imaging..	1
AND ART GRDN 2400: Advanced Digital Imaging .....	1

<b>Electives in studio art/art history</b> .....	<b>9</b>
Recommended courses include:	
Upper level Art History max. 3 hrs.,	
ART DRAW 2210; ART PHOT 2600; ART FIBR 3300;	
ART PNT 3500, 3510	
OR ART DRAW 3200, 3220; ART SCUL 3800	

## Emphasis in Language Arts

<b>Phase II</b> .....	<b>14</b>
<b>Field experience</b> .....	<b>3</b>
LTC 4474: Teaching Secondary English/Language Arts I Field Experience (semester I).....	1
LTC 4484: Teaching Secondary English/Language Arts II Field Experience (semester II).....	1
LTC 4494: Teaching Secondary English/Language Arts III Field Experience (semester III) .....	1
<b>Inquiry into Curriculum and Pedagogy</b> .....	<b>11</b>
LTC 4470: Teaching Secondary English/Language Arts I .....	3
LTC 4480: Teaching Middle and Secondary English/Language Arts II .....	3
LTC 4490: Teaching Middle and Secondary English/Language Arts III .....	3
LTC 4560: Teaching Reading in the Content Areas .....	2
<b>Subject/concentration</b> .....	<b>30</b>

ENGLSH 2100: Writing About Literature.....	3
ENGLSH 2010: Intermediate Composition .....	3
ENGLSH 3210: Survey of British Literature: Romanticism to the Present.....	3
ENGLSH 3300: Survey of American Literature: Beginning to 1865.....	3
ENGLSH 3310: Survey of American Literature: 1865–Present.....	3
ENGLSH 4150: World Literatures .....	3
ENGLSH 4320: 20th-Century American Literature....	3
ENGLSH 4600: Structure of American English.....	3
ENGLSH 4610: History of the English Language.....	3
4000 level English Elective (faculty approved) .....	3

<b>Electives: select one course from each of the five areas (at least 6 4000-level credits)</b> .....	<b>15</b>
British Literature (ENGLSH 4210, 4220, 4240, 4250, 4260).....	3
African American/Ethnic Literature (ENGLSH 3420, 4120, 4420).....	3
Literature by and about women (ENGLSH 4180, 4181, 4780).....	3
Literary Synthesis (ENGLSH 4004, 4060, 4100, 4160).....	3
Writing (ENGLSH 1510, 1530, 2030, 3010, 4510, 4530).....	3

## Emphasis in Mathematics Education

<b>Physical and Biological Science</b> .....	<b>4-5</b>
Physical science must be PHYSCS 1210 or 2750	
<b>Health Education</b> .....	<b>2</b>
LTC 1200: Elements of Health Education .....	2
<b>Phase II</b> .....	<b>14</b>
<b>Field experience</b> .....	<b>3</b>
LTC 4574: Intro. Teaching Math in Middle and Secondary School Field Experience .....	1
LTC 4584: Teaching Math in Secondary Schools: Algebra Field Experience .....	1
LTC 4594: Teach Math in Sec Sch: Focus on Geometry/Probability.....	1
<b>Inquiry into Curriculum and Pedagogy</b> .....	<b>11</b>
LTC 4571: Introduction to Teaching Mathematics in Middle and Secondary Schools .....	3
LTC 4581: Teaching Mathematics in Secondary Schools: Algebra .....	3
LTC 4590: Teach. Math in the Sec. Schools: Focus on Geometry, Probability, and Statistics .....	3
LTC 4560: Teaching Reading in the Content Area .....	2
<b>*Subject/concentration</b> .....	<b>34</b>
*Mathematics courses must be taken on a graded basis. (A-F). Calculus sequence (MATH 1500, 1700, 2300) must be completed with a minimum cumulative GPA of 2.50 for admission to Phase II.	
MATH 1500: Analytic Geometry and Calculus I.....	5
(fulfills math and Math Reasoning Proficiency requirement as part of University general education requirements)	
MATH 1700: Calculus II .....	5
MATH 2300: Calculus III .....	3
MATH 2320: Discrete Mathematical Structures .....	3
MATH 4060: Connecting Geometry to Middle and Secondary Schools (Fall only).....	3
MATH 4140: Matrix Theory.....	3

MATH 4510: Higher Algebra (Fall only) .....	3
MATH 4350: Introduction to Non-Euclidean Geometry (Spring only) .....	3
STAT 4050: Connecting Statistics to Middle and Secondary Schools (Spring only).....	3
CMP SC 1040: Introduction to Problem Solving and Programming .....	3
<b>Two elective courses at 3000-level or above .....</b>	<b>6</b>
Recommended electives include:	
MATH 4100: Differential Equations .....	3
MATH 4300: Numerical Analysis .....	3
MATH 4310: Numerical Linear Algebra.....	3
MATH 4500: Applied Analysis.....	3
MATH 4700: Advanced Calculus of One Real Variable I.....	3
MATH 4580: Mathematical Modeling II .....	3
MATH 4560: Nonlinear Dynamics, Fractals and Chaos.....	3
MATH 4330: Theory of Numbers.....	3
MATH 4720: Introduction to Abstract Algebra I.....	3
MATH 4150: History of Mathematics.....	3
MATH 4335: College Geometry .....	3
MATH 4340: Projective Geometry.....	3
MATH 4345: Foundations of Geometry .....	3
MATH 4400: Introduction to Topology .....	3
STAT 4750: Introduction to Probability Theory .....	3

### Emphasis in Music Education (Grades K-12)

#### Humanities/Fine Arts (may also fulfill University general education requirements).....

MUS H LI 1322: Introduction to Music in the United States .....	2
MUS H LI 2307: History of Western Music I .....	2
MUS H LI 2308: History of Western Music II.....	2
Elective in another Humanities/Fine Arts area.....	3

**Vocal and Instrumental Certification:** Students wishing to be certified in both vocal and instrumental music must meet all requirements described in both the sections for vocal and instrumental.

#### Phase II .....

#### Field experience .....

LTC 4674: Teaching Music I Field Experience.....	1
LTC 4684: Teaching Music II Field Experience.....	1
LTC 4694: Teaching Music III Field Experience .....	1

#### Inquiry into Curriculum and Pedagogy .....

LTC 4670: Teaching Music I.....	3
LTC 4681: Teaching Music II .....	2
LTC 4690: Teaching Music III.....	3
LTC 4560: Teaching Reading in the Content Areas .....	2

#### Subject/concentration

Instrumental .....	62-64
Vocal .....	57-60

#### Music Theory .....

MUS THRY 1220: Syntax, Structure and Style of Music I.....	2
MUS THRY 1221: Syntax, Structure and Style of Music II .....	2
MUS THRY 2220: Syntax, Structure and Style of Music III.....	2
MUS THRY 2221: Syntax, Structure and Style of Music IV .....	2

MUS THRY 1230: Aural Training and Sight Singing I 2	
MUS THRY 1231: Aural Training and Sight Singing II.....	2
MUS THRY 2230: Aural Training and Sight Singing III .....	2
MUS THRY 2231: Aural Training and Sight Singing IV .....	2
MUS THRY 4220: 20th Century Composition Techniques.....	2

#### Conducting and Techniques .....

#### MUS I VT 2631: Basic Conducting and Score Reading 2

##### Instrumental tracks only

MUS I VT 2634: Rehearsal Clinic: Band Conducting..	1
MUS I VT 2634: Rehearsal Clinic: Band Conducting..	1

Instrumental Techniques: six courses, not including the course in the major instrument

MUS I VT 2648: Percussion .....	1
MUS I VT 2640: Strings I.....	1
MUS I VT 2641: Strings II .....	1
MUS I VT 2637: Woodwinds I.....	1
MUS I VT 2638: Woodwinds II .....	1
MUS I VT 2645: Brass I.....	1
MUS I VT 2646: Brass II .....	1
MUS THRY 4229 Band Arranging.....	2
OR MUS THRY 4227: Orchestration .....	2
MUS I VT 3642: Seminar in String Techniques .....	1
OR MUS I VT 3646: Marching Band Techniques ....	2
MUS I VT 3644: Jazz Methods and Materials .....	1
Vocal music: choose from voice class, lessons or choir.....	1

#### Vocal tracks only

MUS I VT 2633: Rehearsal Clinic: Choral Conducting.....	2
MUS I VT 2633: Rehearsal Clinic: Choral Conducting (must be repeated).....	2
MUSIC NM 1612: Elementary Folk Guitar Class .....	1
MUS I VT 3643: Symposium in Instrumental Music... 2	
MUS I VT 3670: Diction in Singing: Italian .....	1
MUS I VT 3671: Diction in Singing: German .....	1
MUS I VT 3672: Diction in Singing: French .....	1
MUS THRY 4230: Choral Arranging .....	2

#### Instrumental and vocal tracks: all of the above (plan on an extra year)

#### Studio instruction, piano, recital .....

#### Studio Instruction:

Four semesters of MUS APMS 2455 on major instrument .....	8
MUS APMS 3455 (two semesters on major instrument)4	

#### Piano Proficiency: must enroll in piano class until profi- ciency completed

MUS I VT 1610: Group Piano for Music Majors I.....	1
MUS I VT 1611: Group Piano for Music Majors II.....	1
MUS I VT 2610: Group Piano for Music Majors III ...	1
MUS I VT 2611: Group Piano for Music Majors IV ...	1
(remedial, taken only if proficiency is not demonstrated with MUS I VT 2610)	

#### Ensembles

Students must enroll in one ensemble every semester of full-time enrollment except the student teaching semester. Students majoring in vocal and instrumental must take one ensemble in each area per semester. One semester of Marching Mizzou is required for band instrument majors.

## Recital Attendance

Students must enroll in MUS GENL 1091 for a minimum of six semesters.

For Piano pedagogy or strings, see advisor.

## Emphasis in Science

Students may select from Biology, Chemistry, Earth Science or Physics. In addition to the University general education requirements and secondary professional requirements, students who intend to teach science must complete a core of courses in the sciences and related fields.

Students also have the choice to complete additional coursework for a unified science endorsement. The unified science endorsement allows a teacher to teach any of the beginning sciences. A list of required courses for each of the unified science endorsement areas can be found at the end of the list of required courses for each of the science areas.

### Phase II .....14

### Field experience .....3

- LTC 4634: Teaching Middle and Secondary Science I Field..... 1
- LTC 4644: Teaching Middle and Secondary Science II Field..... 1
- LTC 4654: Teach Sci Second Sch: Phil, Hist, Sci Inq, Curr, Assm, & Tech III Fld ..... 1

### Inquiry into Curriculum and Pedagogy .....11

- LTC 4631: Teach. Sci. Second. Sch.: Phil., Hist., Sci. Inq., Curr., Assm., & Teach I ..... 3
- LTC 4641: Teach Middle and Secondary Science II ..... 3
- LTC 4651: Teach. Sci. Second. Sch.: Phil., Hist., Sci., Inq., Curr., Assm., & Tech. III ..... 3
- LTC 4560: Teaching Reading in the Content Areas .... 2

## Required course work in each science area:

### Biology ..... 56-60

- BIO SC 1500: Introduction to Biological Systems with Laboratory ..... 5
- BIO SC 2200: General Genetics ..... 4
- BIO SC 2300: Introduction to Cell Biology..... 4
- BIO SC 4600: Evolution ..... 3
- BIO SC 1200, 3210, 4320, 4660 ..... 3-5
- BIO SC 3650: General Ecology ..... 5
- Biology Elective Course..... 3-5
- MPP 3202: Elements of Physiology..... 5
- OR BIO SC 3700: Animal Physiology..... 5
- CHEM 1310: General Chemistry I ..... 2
- AND CHEM 1320: General Chemistry II with Lab. 3
- AND CHEM 1330: General Chemistry III with Lab 3
- GEOL 1200 Environmental Geology with Laboratory 4
- PHYSICS 1210: College Physics I..... 4
- MATH 1400: Calculus for Social and Life Sciences I ..... 3
- OR STAT 1400: Elementary Statistics for Life Sciences..... 3

### Unified Science - Biology Endorsement .....11

All courses required for Biology plus:

- ASTRON 1010: Introduction to Astronomy..... 4
- ATM SC 1050: Introductory Meteorology..... 3
- PHYSICS 1220: College Physics II..... 4

### Chemistry ..... 56-57

- CHEM 1310, 1320, 1330: General Chemistry I, II, III ..... 8
- CHEM 2100, 2110, 2130: Organic Chemistry I, II..... 8
- CHEM 3200: Quantitative Methods of Analysis with Lab ..... 4
- CHEM 3300: Fundamentals of Physical Chemistry .... 3
- BIOCHM 3630: General Biochemistry..... 3
- BIO SC 1500: Introduction to Biological Systems with Laboratory ..... 5
- ATM SC 1050: Introductory Meteorology ..... 3
- OR ASTRON 1010: Introduction to Astronomy..... 4
- GEOL 1200: Environmental Geology with Laboratory 4
- PHYSICS 1210: College Physics I..... 4
- AND PHYSICS 1220: College Physics II ..... 8
- MATH 1500: Analytic Geometry and Calculus I..... 5
- AND MATH 1700: Calculus II ..... 5

### Unified Science - Chemistry Endorsement ..... 18-21

All courses required for Chemistry plus:

- BIO SC 1200, 3210, 4400, 4320, 4660 ..... 3-5
- OR PLNT S 4500 ..... 4
- BIO SC 2200: General Genetics ..... 4
- BIO SC 3650: General Ecology ..... 5
- BIO SC 4600: Evolution..... 3
- ATM SC 1050: Introductory Meteorology ..... 3
- OR ASTRON 1010: Introduction to Astronomy..... 4

### Earth Science.....51

- GEOL 1200: Environmental Geology with Laboratory4
- GEOL 1250: The World's Oceans..... 3
- GEOL 2150: The Age of Dinosaurs ..... 3
- GEOL 2350: Historical Geology ..... 3
- GEOL 2360: Historical Geology Laboratory ..... 1
- GEOL 2400: Surficial Earth Processes and Products with Laboratory ..... 4
- GEOL 2500: Regional Geology Field Trip..... 3
- GEOL 3250: Mineralogy..... 5
- GEOL 3800: Sedimentology with Lab ..... 4
- GEOL 4150: Structural Geology ..... 4
- ATM SC 1050: Introductory Meteorology ..... 3
- BIO SC 1010: General Principles and Concepts of Biology ..... 3
- AND BIO SC 1020: General Biology Laboratory ..... 2
- OR BIO SC 1500: Introduction to Biological Systems with Laboratory ..... 5
- CHEM 1310: General Chemistry I ..... 2
- AND CHEM 1320: General Chemistry II with Lab. 3
- PHYSICS 1210: College Physics I..... 4
- ASTRON 1010: Introduction to Astronomy ..... 4
- MATH 1400: Calculus for Social and Life Sciences I..... 3

### Unified Science - Earth Science Endorsement..... 22-24

- BIO SC 1200, 3210, 4400, 4320, 4460 ..... 3-5
- OR PLNT S 4500 ..... 4
- BIO SC 2200: General Genetics ..... 4
- BIO SC 3650: General Ecology ..... 5
- BIO SC 4600: Evolution..... 3
- CHEM 1330: General Chemistry III with Lab..... 3
- PHYSICS 1220: College Physics II..... 4

### Physics .....59

- BIO SC 1010 and 1020 OR 1500..... 5
- CHEM 1310: General Chemistry I ..... 2
- CHEM 1320: General Chemistry II with Lab ..... 3

GEOL 1200: Environmental Geology with Laboratory	4
MATH 1500: Analytic Geometry and Calculus I	5
MATH 1700: Calculus II	5
MATH 2300: Calculus III	3
MATH 4100: Differential Equations	3
PHYSCS 2750: University Physics I	5
PHYSCS 2760: University Physics II	5
PHYSCS 3150: Introduction to Modern Physics	3
PHYSCS 4060: Advanced Physics Laboratory I	3
PHYSCS 4080: Major Themes in Classical Physics	3
PHYSCS 4110: Light and Modern Optics	4
<b>Electives</b>	<b>9</b>
PHYSCS 3010, 4190, 4310, 4500 (choose 3 of the 4)	
<b>Unified Science - Physics Endorsement</b>	<b>25-27</b>
BIO SC 1200, 3210, 4400, 4320, 4660	3-5
OR PLNT S 4500	4
BIO SC 2200: General Genetics	4
BIO SC 3650: General Ecology	5
BIO SC 4600: Evolution	3
CHEM 1330: General Chemistry III with Lab	3
ASTRON 1010: Introduction to Astronomy	4
ATM SC 1050: Introductory Meteorology	3
<b>Emphasis in Social Studies</b>	
<b>Health Education</b>	<b>2</b>
LTC 1200: Elements of Health Education	2
<b>Phase II</b>	<b>14</b>
<b>Field experience</b>	<b>3</b>
LTC 4534: Secondary Social Studies I Field Experience	1
LTC 4544: Secondary Social Studies II Field Experience	1
LTC 4554: Secondary Social Studies III Field Experience	1
<b>Inquiry into Curriculum and Pedagogy</b>	<b>11</b>
LTC 4530: Introduction to Social Studies	3
LTC 4541: Teaching Social Studies	3
LTC 4550: Assessment in Social Studies	3
LTC 4560: Teaching Reading in the Content Areas	2
<b>Subject/Concentration</b>	<b>54</b>
<b>American History (3 credits counted in general education)</b>	<b>12</b>
HIST 1100: Survey of American History to 1865	3
HIST 1200: Survey of American History since 1865	3
American history electives	6
<b>World History (3 credits counted in general education)</b>	<b>12</b>
HIST 1500: Foundations of Western Civilization	3
OR HIST 1510: History of Modern Europe	3
One course in non-Western civilization (India, China, Japan, Latin America, Africa [excluding South African History])	3
World history electives	6
<b>Political Science</b>	<b>6</b>
POL SC 1100: American Government (counted in general education)	3
POL SC 1400: International Relations	3
OR POL SC 2700: Comparative Political Systems	3
<b>Economics (3 credits counted in general education)</b>	<b>6</b>
ECONOM 1014: Principles of Microeconomics	3
OR ECONOM 1024: Fundamentals of Microeconomics	3
ECONOM 1015: Principles of Macroeconomics	3

<b>Geography</b>	<b>9</b>
GEOG 1100: Regions and Nations of World I	3
GEOG 1200: Regions and Nations of World II	3
One advanced geography course (numbered 2000 or higher)	3
<b>Behavioral sciences</b>	<b>6</b>
Any combination of psychology, sociology or anthropology	
Elective course from one of the areas listed within the Subject Concentration	3

## Major Program Requirements – Special Education

In addition to University general education and graduation requirements as well as all degree requirements, students must also complete the following requirements as part of Phase I:	
SPC ED 4300: Introduction to Special Education	3
<b>Health Education</b>	<b>2</b>
LTC 1200: Elements of Health Education	2
<b>Phase II</b>	<b>11</b>
<b>Inquiring into Schools, Communities, and Society</b>	<b>3</b>
ED LPA 4060: Inquiring into Schools, Community, and Society II	3
<b>Field Experience</b>	<b>8</b>
SPC ED 4940: Cross-Categorical Special Education: Practicum I	2
SPC ED 4941: Practicum in Cross-Categorical II	3
<b>Inquiry into Curriculum and Pedagogy</b>	<b>36</b>
LTC 4600: Diagnosis and Remediation of Learning Problems in Math-Middle	3
SPC ED 4310: Behavior Management for Exceptional Students	3
SPC ED 4320: Assessment and Evaluation in Special Education	3
SPC ED 4325: Language Development of Exceptional Students	3
SPC ED 4330: Collaboration and Consultation in Special Education	3
SPC ED 4370: Literacy in Special Education	3
SPC ED 4375: Cross Categorical Special Education	3
SPC ED 4380: Methods in Cross-Categorical Special Education	4
SPC ED 4390: Methods in Vocational Education for the Disabled and Disadvantaged	3
LTC 4211: Essential Literacy: Reading	3
LTC 4300: Learning and Teaching Number and Operation in the Elementary School	3
LTC 4194: Elementary Education Field Experience I	2
<b>Electives</b>	<b>9</b>

## Major Program Requirements – Educational Studies (BES)

The educational studies major is the only option for the BES degree. It may be selected by students desiring to work in a field related to education; however, this degree does not lead to teacher certification. Students interested in the BES degree may complete an individualized major course of study developed with an advisor in the department. Students must have completed a minimum of 24 hours of Education coursework prior to admission.

In addition to University requirements, such as University

general education and graduation requirements, students must complete the following degree requirements.

- World/international: All majors must complete a course that reflects the study of world/international topics (course may also be used as part of the behavioral and social science portion of University general education requirements).
- Multicultural studies: Students address this requirement by demonstrating competence on multicultural studies course.
- A minimum of 24 credits in the study of the field of education
- A minimum of 24 credits in a concentration option unique to other majors available at MU

The Bachelor of Educational Studies (BES) degree prepares students for education-related careers. The College of Education will not recommend certification to teach in the public schools on the basis of the BES degree.

Procedures for admission to Phase II in the Bachelor of Educational Studies degree parallel those for the Bachelor of Science in Education degree. To qualify for admission to Phase II, the applicant must meet the following requirements:

- Regular admission to the College of Education
- 2.750 UM and overall GPA (on a 4.000 scale)
- ENGLSH 1000 with a grade in the C range
- MATH 1100 with a grade in the C range
- Completion of at least 45 credits
- Possession of characteristics associated with effective performance in a professional role at the level(s) and in the area(s) of emphasis selected
- Completion of an application for the BES with the appropriate signatures/approval

### **Certificate Requirements**

None are available. For certification to teach, see Licensure information previously cited in the College of Education information.

### **Minor Program Requirements**

The College of Education does not offer a minor at the undergraduate level. A minor in College Teaching is offered as part of a Master's, Education Specialist or Ph.D. degree.



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# **College of Engineering**

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# College of Engineering

## Degrees Offered

Bachelor of Science in Biological Engineering (BS BE)  
Bachelor of Science in Chemical Engineering (BS ChE)  
with emphasis areas in

*Biochemical*

*Environmental*

*Materials*

Bachelor of Science in Civil Engineering (BS CIE)  
Bachelor of Science in Computer Engineering (BS CoE)  
Bachelor of Science in Computer Science (BS CMPSC)\*  
Bachelor of Science in Electrical Engineering (BS EE)  
Bachelor of Science in Industrial Engineering (BS IE)  
Bachelor of Science in Information

Technology (BS)

Bachelor of Science in Mechanical Engineering (BS ME)  
with emphasis areas in

*Aerospace Engineering*

\*For the Bachelor of Arts in Computer Science (BA) refer to the  
*College of Arts and Sciences.*

## Minor

Computer Science  
Engineering  
Information Technology  
Medical/Health Physics  
Naval Science  
Nuclear Engineering  
Radioenvironmental Sciences

See the *Graduate Catalog* for information on MS degrees with majors in biological engineering, chemical engineering, civil engineering, computer engineering, computer science, electrical engineering, and industrial engineering, mechanical and aerospace engineering, nuclear engineering.

PhD degrees are available with majors in biological engineering, chemical engineering, civil engineering, computer science, electrical and computer engineering, industrial engineering, mechanical and aerospace engineering, informatics, and nuclear engineering.

## Administration

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When engineering classes at the University of Missouri began in 1849, a strong tradition was born that continues to grow. Today, the College of Engineering includes the first electrical engineering department established west of the Mississippi River and the only industrial engineering program in Missouri. The college offers fully accredited degree programs in biological, chemical, civil, computer, electrical, industrial and mechanical engineering, along with computer science and information technology. All programs offer both undergraduate and

graduate degrees. Naval science is under the academic administration of the college as well.

The hallmark of the College of Engineering is excellence in teaching and scholarly pursuits. The college seeks to involve undergraduates in the exciting world of technological discovery, provide students with the highest quality curriculum, and prepare them to go out into the world with the education they need to make a difference.

## Admissions

### Direct Freshman Admission to Engineering

Entering freshmen are expected to have completed 17 units of approved high school course work (in grades 9-12), including 4 units in English, 4 in mathematics and 3 in science with laboratory. Mathematics should include 2 units of algebra, 1 unit of plane and solid geometry (combination course), and ½ unit of trigonometry. Additional senior mathematics is recommended.

For direct admission to the College of Engineering, the applicant must meet the qualifications listed below (these numbers are subject to change).

- ACT-Math of at least 24 AND
- ACT-Composite of at least 24 OR high school class rank in the upper 25 percent

The average ACT scores for first-time freshmen admitted to the College of Engineering for fall 2011 were ACT-Composite 28.1, ACT-Math 28.5 and ACT-English 27.4.

### Pre-Engineering Program (PEP)

Freshmen who do not meet the criteria for direct admission to the College of Engineering are admitted initially into the Pre-Engineering Program. Although admitted to the College of Arts and Science, each PEP student receives advising by an engineering advisor.

PEP reduces freshman pressures while preserving alternatives. Because PEP students are enrolled in the College of Arts and Science, degree options in the College of Arts and Science are available to those who may decide to change their focus from engineering.

Most first-semester PEP students enroll in one preparatory math course and three courses in the College of Arts and Science, which count in both the engineering and arts and science degree programs. The prime objective is to strengthen math preparation sufficiently for success in engineering.

PEP students are eligible to transfer to the College of Engineering when they meet the following requirements:

- Satisfactory completion of 24 credits
- GPA of 2.0 or higher both Cumulative and last graded term
- A grade of C- or better in MATH 1500: Analytic Geometry and Calculus I or, for Information Technology students,

MATH 1320: Elements of Calculus

- Academic good standing

## Academic Good Standing

### Declared and Undeclared Status

Freshmen engineering students may start with a departmental affiliation or with an undeclared status and defer the selection of a particular department for the first 2-3 semesters. Those choosing the latter route are assigned to special faculty advisors.

Undeclared students should discuss course selection with the academic advisor each semester to keep options open among departmental curricula.

It also is possible to transfer from one department to another during the early part of the curriculum. Students who transfer must satisfy the specific degree requirements of the new department.

### Engineering Dean's Scholars Program

The purpose of the Engineering Dean's Scholars Program is to recognize, mentor and train the highest-achieving students in scholarship and leadership. Engineering Dean's Scholars participate in the Engineering Scholars Freshman Interest Group (FIG) which will be housed in Hudson or Gillett Residence Hall. Faculty-scholar lunches are held several times during the semester to allow the scholars to meet with engineering faculty and to learn about the engineering profession and undergraduate research opportunities.

Scholars participate in leadership or mentoring activities during their sophomore, junior and senior years. Examples of such activities include serving as engineering ambassadors or peer advisors for an engineering FIG. Students chosen for peer advisor positions have their room and board covered in exchange for their services.

Engineering Dean's Scholars are awarded a \$1000 scholarship in addition to the \$2000 Engineering Achievement Award. The Dean's Scholarship is renewable for up to eight semesters with 3.5 cumulative GPA at the end of each spring semester.

Students who have ACT math and composite scores of 32 and a high school rank in the top 10 percent of their class will be sent applications upon admission. Students who are close to these criteria may request an application by contacting the engineering dean's office at the address below. Consideration of students who do not meet the suggested minimum criteria will be contingent upon available space in the program. Applications are due March 15.

Mizzou Engineering Dean's Scholars Program  
W1025 Lafferre Hall  
University of Missouri  
Columbia, MO 65211  
(573) 882-4092

### Transfer Students

Students wishing to transfer to MU from an accredited college or university are subject to University regulations described in this catalog.

The MU College of Engineering cooperates with many

colleges through articulation agreements that help pre-engineering students transfer to MU with maximum ease and minimum loss of credits. A student may take the first two years at the participating school and then transfer to MU for the junior and senior years in engineering. After the program is completed, the student is awarded a BS degree in the chosen engineering field.

To be recommended for the BS degree from the College of Engineering, a student transferring from an accredited institution must complete at least 30 upper-level credits in the degree program at a UM System campus. At least 21 of the 30 credits must be upper-level engineering courses approved by the department awarding the degree.

A student transferring with senior standing from another UM System campus must complete the last 15 credits in residence on the campus where the degree program is located. Twelve of these 15 credits must be in engineering and approved by the department awarding the degree.

Any student whose enrollment in any college-level academic program resulted in dismissal, departure or who are on probation will not be admitted to the College of Engineering

### International Admission

Admission of international students is determined on an individual basis by a committee of representatives from the Admissions Office and the College of Engineering.

Before registering for classes at the University, international students must take the MU English Language Test, developed for international students. Students passing the test are eligible to take ENGLSH 1000 and any other required English courses.

International students whose test scores indicate that additional English training is needed, including those with transferred English credit, are required to register for an English-language support class. The course, developed for international students, should be taken during the first semester of enrollment. This course does not count toward graduation credit, but regular attendance is required and failure to attend will result in dismissal. The English-language support class taken must be satisfactorily completed before the student can enroll in ENGLSH 1000. Students not satisfactorily completing the class in the first semester of enrollment must re-enroll in the second semester. If the student does not satisfactorily complete the English-language support class in the second term of enrollment, the student will not be permitted to re-enroll in the College of Engineering.

### Graduation Requirements

The curriculum provides a solid foundation of mathematics and physical sciences followed by the application of these sciences in engineering specialties. The balance of the curriculum encompasses communication skills, English, social sciences and humanities courses.

Many freshmen are eligible to start with calculus. However, some can profit from additional pre-calculus preparation, which is an addition to the undergraduate curricula.

Students should access the engineering web site (<http://engineering.missouri.edu>) for details regarding social and behavioral sciences and humanities and fine arts requirements.

In addition to the University's general education and graduation requirements, the departments in the College of Engineering may require further specific courses to better equip students to perform in their chosen fields of study.

While many students complete the BS degree program in four years, some may find it advisable to extend the curriculum in order to carry lighter semester loads, add preparatory courses or compensate for part-time work.

## GPA Requirements for Graduation from the College of Engineering

- GPA of record of at least 2.0
- GPA of at least 2.0 in all engineering courses offered by one of the four campuses of the UM System. "Engineering courses" include all courses that are offered through the College of Engineering or its equivalent on the four campuses, or that have "Engineering" in the curricular designator. Only the last grade in a repeated course will be used in the calculation.

## Academic Regulations

### Degree with Honors Requirements

Latin Honors are granted to students who meet the following cumulative GPA requirements:

<i>summa cum laude</i>	3.9
<i>magna cum laude</i>	3.7
<i>cum laude</i>	3.5

### Departmental Honors

The college maintains an undergraduate honors program to further challenge those who have established a minimum GPA of 3.0 at the beginning of the junior year. A comparable grade point average is required of transfer students. The program leads to an undergraduate honors thesis on a research or advanced design project, provides for additional curricula flexibility and contains features that ease the transition to graduate school.

Opportunities available to honors students include:

- More personal attention from an honors advisor
- Independent study or undergraduate research with a senior faculty member whose specialty interests the honors candidate

A student who successfully completes the engineering honors program, including the independent project, will be designated an "Honors Scholar in Engineering." Interested students should contact their departmental office.

Qualified engineering students are also welcome to join the programs of the Honors College and may enroll in various honors courses and honors sections of regular courses.

## Courses in Basic Skills

No basic skills courses may be taken to fulfill graduation requirements.

## Curriculum of Record

The curriculum of record is the curriculum a student must satisfy to meet graduation requirements. For students who maintain continuous, full-time enrollment, the curriculum of record is the one approved by the College of Engineering at the time the student achieves upper-division status in the discipline of choice. For others, the curriculum of record is decided by the department faculty.

## Academic Probation and Dismissal

(See Academic Standing in the front of this catalog.)

1. A student whose term and cumulative UM GPA are 2.0 or higher is in good academic standing. A "term" is defined as a semester or summer session.
2. A student will be placed on academic probation if while in good academic standing the student has a term GPA less than 2.0 but equal to or greater than 1.0.
  - While on academic probation, a student must enroll in and complete each semester at MU at least 12 credits of course work necessary for the degree. Courses taken through MU's Mizzou Online (self-paced) count as part of these 12 credits. Part-time students must enroll in at least as many credits each semester as the college rules governing part time enrollment.
  - A student will be removed from probation at the end of the term when the term and cumulative GPA are 2.0 or higher, provided the student completed 12 or more hours applicable toward the degree
  - A student will be continued on probation if while on probation the student has a term GPA greater than or equal to 2.0, but whose cumulative GPA is below 2.0.
3. A student will be dismissed from the College of Engineering if the student:
  - Receives a term GPA of less than 1.0
  - Receives a term GPA of less than 2.0 while on probation.
4. Readmission:
  - If the appeals committee allows a student to re-enroll, it may set conditions such as courses to be taken, minimum grades, total hours, etc to which the student must adhere.
  - A student who has been dismissed for academic reasons may be readmitted upon a successful appeal to the academic appeals committee of the college. Students who are subject to dismissal (IE) and who wish to appeal their case for continuation must write an appeal letter and submit it to the chair of the academic appeals committee.
  - Similarly, students who wish to re-enroll in the college of Engineering after having been out of school as a result of a dismissal must write a letter of appeal to the College of Engineering academic appeals committee requesting readmission.
  - Letter of appeal may be addressed to: Engineering Academic Appeals Committee, W1025 Lafferre Hall, University of Missouri, Columbia, MO 65211. A personal visit with the director of undergraduate studies of the students depart-

ment and advisor before appealing by letter is often helpful, both to the student and to the committee.

- The primary concern of the appeals committee is the likelihood of future success. Accordingly, any appeal should include an explanation for past poor performance and reason for expecting better in the future.

5. A student who has been twice dismissed will normally be ineligible for readmission.

### **Satisfactory/Unsatisfactory Grading Option**

Under Satisfactory/Unsatisfactory (S/U) grading, an S is assigned for a grade in the A, B or C range, and a U is assigned for a grade in the D range or for an F. Neither an S nor a U will be calculated into a student's grade point average. A student enrolled in the College of Engineering may not take any math, science or engineering course that counts toward degree requirements under the S/U grading option, unless the course is only offered S/U. In addition, any course specifically required (by course number) in the curriculum may not be taken S/U. This includes ENGLSH 1000 or 1000H. The 18 credits taken to fulfill the University general education distribution requirement may be taken S/U.

#### **Restrictions**

- First-semester freshmen are ineligible to take any course S/U unless it is only offered S/U.
- Only one course per semester may be taken S/U.
- Students on academic probation are not allowed to take any course S/U.
- To be eligible for the Dean's List each term, a student must complete 12 graded credits (S/U courses are not considered "graded").

## **Student Services**

### **Advising**

Each student in the College of Engineering is assigned a faculty advisor who assists the student in reaching academic and professional goals. Students are encouraged to meet with their advisors as often as needed. Engineering students have advising holds placed on their accounts each semester and must meet with their advisor to have the hold lifted in order to enroll each semester.

### **Diversity in Engineering Program**

The Diversity in Engineering Program (DEP) supports increased enrollment and graduation rates among students from underrepresented minority groups in the College of Engineering. The DEP office provides student programming designed to create a user-friendly environment for students pursuing a degree in engineering from the University of Missouri. This effort includes models for successful outreach, recruitment, early research experience, counseling, undergraduate retention, academic enrichment, mentoring and information about graduate study.

DEP provides a support network between students, faculty, and staff to ensure academic success through programming ranging from free tutoring to time management and study skills sessions. Career information sessions, resume review, and mock interviews are also provided to ensure professional preparedness.

DEP also offers outreach opportunities for students to interact with the local community that include tutoring, mentoring, and giving presentations to local elementary, junior high and high school students.

### **Learning Communities**

The college cosponsors several living/learning options for engineering students. The college believes that an environment conducive to the formation of networks, with aspects of social and academic interaction, enhances the retention and ultimate success of students in the engineering curriculum. Students selecting these options generally earn higher grades and are more likely to graduate than the average engineering student.

The Engineering Learning Community (ELC) is a special co-ed environment that offers engineering majors a full range of academic support and activities. ELC allows engineering students to live together, study together and have fun together. Freshman Interest Groups (FIGs) support incoming freshmen. Members of a FIG are co-enrolled in three courses during the first semester of the freshman year with a group of up to 20 students. Each community has its own computer lab, peer tutors, study groups and quiet hours.

### **Professional Engineering Registration**

The revised statutes of Missouri (Section 327.221) require that each applicant for registration as a professional engineer in Missouri must be a graduate of and hold a degree in engineering in a curriculum accredited by the Accreditation Board for Engineering and Technology. The MU undergraduate programs in biological, chemical, civil, computer, electrical, industrial and mechanical engineering at MU are so accredited.

Senior students are strongly encouraged to take the Fundamentals of Engineering Exam leading to the Fundamentals in Engineering (FE) status as a first step toward registration.

The MU undergraduate programs in biological, chemical, civil, computer, electrical, industrial and mechanical engineering are accredited by the Engineering Commission of ABET, [www.abet.org](http://www.abet.org).

## **Mission**

The College of Engineering will continuously improve the quality of its primary areas of responsibility—teaching, research and service. In so doing, the College:

- Provides engineering students and practicing professionals with the expertise and new knowledge required to solve society's complex technological problems
- Develops and utilizes enabling technologies for teaching, research, service and outreach
- Prepares students and practicing professionals to compete in a global economy
- Instills students with a commitment to life-long learning

# Department of Biological Engineering

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J. Viator, G. Yao  
**ASSISTANT PROFESSORS** S. Ding, H. Hunt, S. Sengupta

Biological engineering is a science-based engineering discipline that integrates engineering and biological sciences in one curriculum. The MU biological engineering program is a broadly-based curriculum that prepares students for careers in three areas:

- Biomedical engineering (including pre-medicine)
- Bioprocess engineering
- Bioenvironmental engineering

Biological engineering graduates are hired by biotechnology, medical, pharmaceutical, food and agricultural companies, and by government agencies. Some attend graduate and medical schools. Graduates are well prepared to take the Fundamentals of Engineering exam during their senior year, which is the first step toward obtaining a Professional Engineer license.

The Bachelor of Science with a major in Biological Engineering (BS BE) program at MU is accredited by the Engineering Commission of ABET, [www.abet.org](http://www.abet.org). The biological engineering curriculum was developed to meet the mission, program objectives and student outcomes described below.

## Mission and Objectives

The department mission is to educate biological engineers to integrate engineering and biological sciences in the contexts of health, sustainability and environmental stewardship, thus preparing them for productive careers characterized by continual professional growth.

## Program Educational Objectives

The undergraduate program leads to a Bachelor of Science degree in Biological Engineering, producing graduates who will, within 3-5 years:

1. Show proficiency in engineering analysis, design and development (Outcomes a, b, c, d, e)
2. Interact effectively with life science and other professionals. (Outcomes a, b, c, d, e, g)
3. Integrate biological and engineering sciences for the design and development of innovative systems and processes for improved health, bio-resource utilization,

and environmental protection. (Outcomes a, b, c, d, e, f, g, k, l)

4. Exhibit professionalism as they continually add value to their chosen field of endeavor. (outcomes h, i, j)
5. Succeed in advanced study in engineering, medicine or veterinary medicine, if pursued. (Outcomes a, b, d, e, g, k, l)

## Student Outcomes

By the time of graduation, Biological Engineering students will possess:

- a. an ability to apply knowledge of mathematics, science and engineering
- b. an ability to design and conduct experiments, as well as to analyze and interpret data
- c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d. an ability to function on multi-disciplinary teams
- e. an ability to identify, formulate and solve engineering problems
- f. an understanding of professional and ethical responsibility
- g. an ability to communicate effectively
- h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- i. a recognition of the need for, and an ability to engage in, life-long learning
- j. a knowledge of contemporary issues
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- l. an ability to integrate engineering and biological sciences to develop systems and processes for improved health, bio-resource utilization, and environmental protection

## Exploratory Course

Students who want to learn more about the field should take BIOL EN 1000: Introduction to Biological Engineering.

## Major Program Requirements - Biological Engineering (BS BE)

The curriculum encompasses basic sciences, social and behavioral sciences, humanities and fine arts, engineering sciences and topics, and program core courses. The core courses cover topics of biological engineering principles and design. In a capstone design course, each student completes a design project under the direction of a faculty advisor. Technical electives allow students to place emphasis on biomedical, bioprocess or bioenvironmental engineering. The requirements listed below are in addition to University general education requirements.

### Major core requirements

<b>Math and Statistics</b> .....	<b>19</b>
MATH 1500: Analytic Geometry and Calculus I .....	5
MATH 1700: Calculus II .....	5
MATH 2300: Calculus III .....	3
MATH 4100: Differential Equations .....	3
Statistics (from approved list) .....	3
<b>Basic sciences</b> .....	<b>29</b>
PHYSICS 2750: University Physics I .....	5
PHYSICS 2760: University Physics II .....	5

CHEM 1320: General Chemistry II with Lab .....	3
CHEM 2100: Organic Chemistry I .....	3
BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
Biology and related science (from approved list).....	8
<b>Engineering topics--general .....</b>	<b>14</b>
ENGINR 1100: Engineering Graphics Fundamentals .....	2
ENGINR 1200: Statics and Elementary Strength Materials .....	3
ENGINR 2200: Intermediate Strength of Materials ...	3
Fluid Mechanics (from approved list) .....	3
Thermodynamics (from approved list) .....	3
<b>Engineering topics--major .....</b>	<b>22</b>
BIOL EN 1000: Introduction to Biological Engineering .....	1
BIOL EN 2000: Professional Development in Engineering.....	2
BIOL EN 2080: Introduction to Programming for Engineers.....	3
BIOL EN 2180: Engineering Analysis of Bioprocesses .....	3
BIOL EN 3180: Heat and Mass Transfer in Biological Systems .....	3
BIOL EN 4380: Applied Electronic Instrumentation ..	4
BIOL EN 4980: Biological Engineering Design .....	3
<b>Technical electives .....</b>	<b>24</b>
Upper-level engineering courses with 12 credits in a technical emphasis.	

## Department of Chemical Engineering

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Chemical Engineering at the University of Missouri focuses on education and research involving industrial chemicals, materials, environmental, and life-science processes. We aim to be a reservoir of talent for the research, design, and management of complex process challenges. The Department strives to provide its faculty and students with an environment for research, learning, and professional growth.

The faculty of the MU Department of Chemical Engineering prepares its students for careers in a broad range of fields and to assume leadership roles in society through a well-rounded general and rigorous technical education. The technical curriculum challenges students with a broad education in Chemical Engineering theory and practice, and to improve their skills in problem solving, critical thinking, and appreciation of the relationship between technology and society. Innovative development and use of technology facilitates both research and teaching, creating a diverse, learning environment.

MU Chemical Engineering program aims to develop versatile professionals who can excel in a variety of career environments. Our curriculum is focused on the basic sciences, engineering topics, and problem solving and design. A flexible program offering environmental, material, and biochemical options allows our graduates to move into non-traditional careers as well as traditional chemical engineering. Additionally, we build teamwork and design skills by integrating team design projects, laboratories, and reports into our curriculum.

The educational objectives of the Chemical Engineering program at the University of Missouri are to prepare graduates who, after the first five years of their professional career, have:

1. Established themselves as practicing professionals through increased responsibilities beyond their original entry-level position, or if engaged in post-baccalaureate study are making timely progress towards an advanced degree;

- Continuing education through special training, professional licensure, or additional certifications; and
- Participation in professional extension through mentorship, community activities, and/or serving local/national professional societies.

Some of our graduates work in the traditional areas of chemical engineering such as the petroleum and chemical industries. Many graduates practice their profession in the areas of microelectronics, pharmaceuticals, materials, polymers, environmental protection, consumer products, or as managers in business, government careers, and engineering consultants. Still others use the chemical engineering degree as a foundation for pursuing advanced studies in medicine, law, business, or the basic sciences.

### Exploratory Course

A student wanting to explore chemical engineering as a major should take CH ENG 1000: Introduction to Chemical Engineering (2).

### Major Program Requirements - Chemical Engineering (BS ChE)

Each graduate must complete the required curriculum designed to demonstrate knowledge and integration of chemical engineering science and practice using analytical, computational and experimental techniques. In addition, each graduate must have a comprehensive background in advanced chemistry. Graduates have a detailed working knowledge of the entire spectrum of chemical engineering activities.

All requirements listed below are in addition to University graduation requirements, including University general education, and College of Engineering requirements.

#### Major core requirements

##### Required entry-level courses

MATH 1500: Analytic Geometry and Calculus I .....	5
MATH 1700: Calculus II .....	5
MATH 2300: Calculus III .....	3
MATH 4100: Differential Equations .....	3
PHYSCS 2750: University Physics I.....	5
PHYSCS 2760 University Physics II .....	5
CHEM 1320: General Chemistry II with Lab .....	3
CHEM 1330: General Chemistry III with Lab.....	3
CHEM 2100: Organic Chemistry I .....	3
CHEM 2110: Organic Chemistry II .....	3
CHEM 2130: Organic Laboratory I.....	2
CHEM 3200: Quantitative Methods of Analysis with Lab .....	4
Approved elective .....	3
Approved statistics elective .....	3

##### Chemical engineering core

CH ENG 1000: Introduction to Chemical Engineering.....	2
CH ENG 2225: Mass and Energy Balance .....	3
CH ENG 2226: Engineering Process Computations and Laboratory.....	3
CH ENG 3234: Principles of Chemical Engineering I .....	3
CH ENG 3235: Principles of Chemical Engineering II .....	3

CH ENG 3243: Chemical Engineering Laboratory I .....	3
CH ENG 3261: Chemical Engineering Thermodynamics I .....	3
CH ENG 3262: Chemical Engineering Thermodynamics II .....	3
CH ENG 4363: Chemical Reaction Engineering and Technology.....	3
CH ENG 4370: Process Control Methods and Laboratory.....	3
CH ENG 4385: Chemical Engineering Design I .....	3
CH ENG 4980: Process Synthesis and Design .....	3
ENGINR 1200: Statics and Elementary Strength of Materials .....	3
ENGINR 2100: Circuit Theory for Engineers.....	3
Approved technical elective .....	3
Advanced chemistry elective .....	3
Approved chemical engineering elective .....	9

#### Emphasis in Biochemical

BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
BIO SC 2200: General Genetics .....	4
BIO SC 2300: Introduction to Cell Biology .....	4
BIOCHM 4270: Biochemistry .....	3
CH ENG 4315: Introduction to Bioprocess Engineering .....	3
CH ENG 4316: Biomass Refinery Operations .....	3
ENGINR 1200: Statics and Elementary Strength of Materials .....	3
ENGINR 2100: Circuit Theory for Engineers.....	3

#### Emphasis in Environment

ENGINR 1200: Statics and Elementary Strengths of Materials.....	3
ENGINR 2100: Circuit Theory for Engineers.....	3
CV ENG 3200: Fundamentals of Environmental Engineering .....	4
CH ENG 4311: Chemodynamics .....	3
CH ENG 4312: Air Pollution Control.....	3
CH ENG 4220: Hazardous Waste Management .....	3
LAW 5545: Environmental Law .....	3

#### Emphasis in Materials

ENGINR 1200: Statics and Elementary Strengths of Materials .....	3
ENGINR 2100: Circuit Theory for Engineers.....	3
ENGINR 2200: Intermediate Strength of Materials ...	3
CH ENG 4317: Chemical Processing in Semiconductor Device .....	3
CH ENG 4319: Introduction to Polymers Materials ..	3
CH ENG 4321: Introduction to Ceramics.....	3
Advanced chemistry elective .....	3
Approved materials elective .....	3

# Department of Civil and Environmental Engineering

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Civil engineering is about community service, development, and improvement. Civil engineers are involved in all levels of the planning, design, construction, and operation of facilities essential to modern life, ranging from infrastructure development and maintenance, waste disposal, transit systems, water supply and treatment systems, and offshore energy exploration structures. Civil engineers are problem solvers, meeting the challenges of pollution, traffic congestion, drinking water supply and energy needs, national security, communication, urban redevelopment, and sustainable community planning. At MU, a civil engineering student can specialize in four basic areas:

- Environmental/water resources engineering (water supply, wastewater treatment, solid waste disposal, hazardous waste management, and surface and groundwater)
- Geotechnical engineering (foundations, slopes, dams, earthquakes, pavements, landfills, groundwater, and non-destructive evaluation)
- Structural engineering (reinforced concrete and steel buildings and bridges)
- Transportation engineering (traffic, safety, operations, planning, and multi-modal simulation)

The Department of Civil and Environmental Engineering offers a Bachelor of Science in Civil Engineering (BSCIE).

The Department of Civil and Environmental Engineering provides extensive laboratories for concrete and steel materials testing, soils testing, fluid mechanics, traffic operations, and chemical and microbiological analysis related to water supply and waste-water treatment.

Most graduates take the Fundamentals of Engineering Exam. Graduates are encouraged to become registered professional engineers and to continue their education throughout their careers.

## Educational Mission

The educational mission of the MU program in civil engineering is to prepare students for the profession of civil engineering. It does this by providing educational opportunities for two major constituencies: the undergraduate student working toward a BSCIE, the graduate student studying and conducting research leading to an MS and/or PhD.

The educational objectives of the Bachelor of Science in Civil Engineering describe the expected accomplishments of graduates during the first 5 to 6 years after graduation. It is expected that nearly all students completing the requirements of the Bachelor of Science in Civil Engineering will engage in the life-long learning necessary to advance professionally in the field of civil engineering and contribute to society and the profession through involvement in professional or other service activities.

It is expected that most graduates will

1. Enter the profession of civil engineering with proficiency in environmental engineering, geotechnical engineering, structural engineering, transportation engineering and water resources engineering. In doing so, these students will
  - a. Take and pass the Fundamentals of Engineering exam
  - b. Gain employment as an engineer-in-training
  - c. Take and pass the Professional Engineers Exam, and
  - d. Be licensed to practice engineering in one or more states

It is expected that some graduates will

1. Begin careers in civil engineering-related industries, especially construction and other careers not requiring professional licensure
2. Begin and complete graduate study in civil engineering at MU or other Carnegie doctoral extensive universities, and
3. Begin and complete graduate/professional study in other associated fields

The following list of outcomes describes what graduates are expected to know and to be able to do when they complete the program. At graduation, graduates will have:

- a. Ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, geology and general chemistry to civil engineering problems
- b. Ability to conduct laboratory experiments and to critically analyze and interpret experimental data related to soil mechanics, fluid mechanics and civil engineering materials
- c. Ability to perform civil engineering design by means of design experiences integrated throughout the professional component of the curriculum
- d. Ability to function on teams that must integrate contributions from different areas of civil engineering toward the solution of multidisciplinary projects
- e. Ability to identify, formulate and solve civil engineering problems
- f. Understanding of professional practice issues in civil engineering including professional and ethical responsibility, procurement of work, bidding vs. quality based selection processes, how design professionals and construction professions interact to construct a project and the importance of professional licensure and continuing education

- g. Ability to write and speak effectively
- h. The broad education necessary to understand the impact of civil engineering solutions in a global and societal context
- i. Recognition of the need for, and an ability to engage in, life-long learning
- j. Knowledge of contemporary issues as they relate to civil engineering problems and solutions
- k. Ability to use the techniques, skills and modern engineering tools necessary for civil engineering practice, particularly in areas of environmental/water resources, geotechnical, structural and transportation engineering

### Major Program Requirements - Civil Engineering (BSCIE)

Engineering topics start with basic computer and graphics courses. These are followed with basic engineering science courses, which ground the students in the fundamentals necessary for future course work and a sophomore design experience.

Engineering topics courses in the junior year provide students with the basic fundamentals in the areas of environmental engineering, geotechnical engineering, hydrology, water resources, structural engineering, transportation/traffic engineering, engineering economics, and probability and statistics. Many of these topics courses contain elements of civil engineering design. Elective courses in the senior year enable students to specialize or obtain a broad educational background across the civil engineering discipline.

Design is integrated throughout the curriculum. The capstone design project is supplied by consultants or governmental agencies. The course requires working in teams, making oral and written presentations and completing a final design report. Oversight, interaction and evaluation are provided by practicing engineers from industry and governmental organizations.

In addition to the major core requirements, students must complete all University graduation requirements including University General Education Requirements, as well as all degree and college or school requirements.

#### Major core requirements

<b>Math.....</b>	<b>16</b>
MATH 1500: Analytic Geometry and Calculus I.....	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III .....	3
MATH 4100: Differential Equations .....	3
<b>Basic Sciences.....</b>	<b>17-18</b>
CHEM 1320: General Chemistry II with Lab .....	3
GEOL 1150: Physical Geology for Scientists and Engineers.....	4
PHYSICS 2750: University Physics I.....	5
PHYSICS 2760: University Physics II .....	5
OR CHEM 1330: General Chemistry III with Lab ..	3
AND CHEM 2100: Organic Chemistry I .....	3
<b>Engineering Topics-General.....</b>	<b>17</b>
CMP SC 1040: Introduction to Problem Solving and Programming .....	3
ENGINR 1100: Engineering Graphics Fundamentals .	2
ENGINR 1200: Statics and Elementary Strength of Materials .....	3

ENGINR 2200: Intermediate Strength of Materials ....	3
Engineering topics elective .....	6
Select two from:	
(a) ENGINR 2100: Circuit Theory for Engineers.....	3
OR BIOL EN 4380: Applied Electronic Instrumentation .....	4
OR CV ENG 4610: Sensors and Experimental Stress Analysis .....	3
(b) ENGINR 2300: Engineering Thermodynamics.....	3
OR CH ENG 3261: Chemical Engineering Thermodynamics I.....	3
(c) CV ENG 2080: Introduction to Dynamics .....	3
OR MAE 2600: Dynamics .....	3
<b>Civil Engineering Topics.....</b>	<b>5</b>
CV ENG 3010: Decision Methods for Civil Engineering Design .....	3
CV ENG 3100: Fundamentals of Transportation Engineering .....	4
CV ENG 3200: Fundamentals of Environmental Engineering .....	4
CV ENG 3300: Structural Analysis I.....	4
CV ENG 3312: Reinforced Concrete Design.....	3
OR CV ENG 3313: Structural Steel Design .....	3
CV ENG 3400: Fundamentals of Geotechnical Engineering.....	4
CV ENG 3600: Civil Engineering Materials .....	4
CV ENG 3700: Fluid Mechanics.....	3
CV ENG 3702: Hydrology .....	4
CV ENG 4980: Civil Engineering Systems Design.....	3
CV ENG Electives.....	15
<b>Advisor-approved electives.....</b>	<b>3</b>

### Departmental Honors

Students who will graduate with a 3.0 GPA or higher are eligible for the College of Engineering honors program. Interested students should ask their advisor for details about this highly rewarding program that can include earning a salary for research performed under the guidance of a faculty member.

# Department of Computer Science

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The Department of Computer Science offers a broad curriculum that spans the theory, design and applications of computing and information technology. The Bachelor of Science degree in Computer Science includes a strong component of mathematics and sciences along with more theoretical courses in computer science. The Bachelor of Science in Information Technology allows students to develop skills in database administration, cyber security, game development and film production. The Bachelor of Arts degree, offered by the College of Arts and Science, includes applications-oriented computer science courses and encourages students to develop skills in related fields in areas such as computer animation, business, art, music and geography. Computer Science and Information Technology minors are available.

## Major Program Requirements - Bachelor of Science in Computer Science (BS)

The Bachelor of Science with a major in Computer Science emphasizes the study of software systems and graphics, computational theories and algorithms, computer organization, networking and multimedia, and programming methodology. Students who complete the BS in Computer Science can work for government agencies, academic institutions, or private industry creating and applying new technologies to solve complex problems.

The BS degree requires the completion of the three-semester calculus sequence plus discrete math and statistics. A student who selects an appropriate additional math course as a technical elective and has at least 9 credits in math with appropriate

grades at MU can earn a math minor.

The BS degree requires the completion of 126 credits. To graduate, a student must earn a 2.0 GPA or better in all CMP SC/IT courses. A grade of C- or better is required in each CMP SC course that is a prerequisite for a CMP SC course that the student takes.

The Engineering Career Services Office, W1052C Lafferre Hall, can assist students in searching for employment opportunities upon graduation and for internship/co-op positions.

Course requirements listed here apply to students beginning as regular college freshmen in fall 2011 or after. A student who started college before fall 2011 and who has been continuously enrolled as a full-time student may be pursuing the previous program and should contact the department for information on these degree requirements.

In addition to the major core requirements, students must complete all University graduation requirements including University general education, as well as all degree and college or school requirements.

## Major core requirements

<b>Computer science courses</b> .....	<b>60</b>
CMP SC 1000: Introduction to Computer Science .....	1
CMP SC 1040: Introduction to Problem Solving and Programming .....	3
CMP SC 1050: Algorithm Design and Programming I .....	3
CMP SC 2050: Algorithm Design and Programming II .....	3
CMP SC 3050: Advanced Algorithm Design .....	3
CMP SC 3270: Introduction to Digital Logic .....	3
CMP SC 3280: Assembly Language and Computer Organization .....	3
CMP SC 3330: Object Oriented Programming .....	3
CMP SC 3380: Database Applications and Information Systems .....	3
CMP SC 4050: Design and Analysis of Algorithms I .....	3
CMP SC 4320: Software Engineering I .....	3
CMP SC 4520: Operating Systems I .....	3
CMP SC 4850: Computer Networks I .....	3
CMP SC 4970: Senior Capstone Design I .....	3
CMP SC 4980: Senior Capstone Design II .....	2

CMP SC courses chosen from the following list..... 18  
At least 15 credit hours of computer science electives must be numbered above 4000; two of the 4000-level courses must be CMP SC 4410, 4430, or 4450.

One 3000/4000 level INFOTC course can be taken as a CMP SC elective but it is counted as a lower level (below 4000) CMP SC course.

CMP SC 2830: Introduction to the Internet, WWW and Multimedia Systems .....	3
CMP SC 3530: UNIX Operating System .....	3
CMP SC 3940: Internship in Computer Science .....	3
CMP SC 4001: Topics in Computer Science .....	1-3
CMP SC 4060: String Algorithms .....	3
CMP SC 4070: Numerical Methods for Science and Engineering .....	3
CMP SC 4085: Problems in Computer Science .....	1-6

CMP SC 4270: Computer Architecture I.....	3
CMP SC 4330: Object Oriented Design I.....	3
CMP SC 4380: Database Management Systems I.....	3
CMP SC 4410: Theory of Computation I.....	3
CMP SC 4430: Compilers I.....	3
CMP SC 4450: Principles of Programming Languages	3
CMP SC 4610: Computer Graphics I .....	3
CMP SC 4620: Physically Based Modeling and Animation.....	3
CMP SC 4650: Digital Image Processing.....	3
CMP SC 4670: Digital Image Compression .....	3
CMP SC 4720: Introduction to Machine Learning and Pattern Recognition.....	3
CMP SC 4730: Building Intelligent Robots.....	4
CMP SC 4750: Artificial Intelligence I.....	3
CMP SC 4770: Introduction to Computational Intelligence.....	3
CMP SC 4830: Science and Engineering of the World Wide Web.....	3
CMP SC 4995: Undergraduate Research in Computer Science-Honors .....	1-6
<b>Related courses.....</b>	<b>22</b>
MATH 1500: Analytic Geometry and Calculus I .....	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III .....	3
MATH 2320: Discrete Mathematical Structures .....	3
STAT 4710: Introduction to Mathematical Statistics....	3
Technical elective .....	3
2000-level or above CMP SC course or 4000-level MATH course, 2000-level or above engineering courses, MANGMT 3000, FINANC 3000 or other courses that meet prior approval of CMP SC advisor. An INFOTC course at the 2000 level or above can be taken. Students cannot take INFOTC 2810 or 2910 as a technical elective if they have already taken CMP SC 4850.	

**Science courses.....minimum 12**  
Including one of the two-semester sequences below. At least one of the courses must include a lab. Labs listed separately are not considered a second science course (for example, BIO SC 1010 and 1020 equal one science course).

**Science sequences (choose one of the following four sequences)**

<b>Physics sequence (credit not given for both PHYSCS 1210 and 2750 or PHYSCS 1220 and 2760)</b>	
PHYSCS 2750: University Physics I.....	5
PHYSCS 2760: University Physics II .....	5
OR	
PHYSCS 1210: College Physics I.....	4
PHYSCS 1220: College Physics II.....	4

**Chemistry sequence**

CHEM 1310: General Chemistry I .....	2
CHEM 1320: General Chemistry II with Lab .....	3

**Biology sequence**

BIO SC 1010: General Principles and Concepts Biology .....	3
AND BIO SC 1020: General Biology Laboratory .....	2
AND one of the following courses	
BIO SC 1200: General Botany with Laboratory .....	5
BIOCHM 2110: The Living World: Molecular Scale ..	3

BIOCHM 2112: Biotechnology in Society.....	3
ANTHRO 2050: Introduction to Biological Anthropology with Laboratory .....	5
OR ANTHRO 2051: Introduction to Biological Anthropology .....	3
AND ANTHRO 2052: Biological Anthropology Laboratory .....	2
BIO SC 2100: Infectious Diseases.....	3
BIO SC 2600: Ornithology .....	4
BIO SC 3050: Genetics and Society .....	3
BIOCHM 3630: General Biochemistry .....	3
BIO SC 3210: Plant Systematics .....	4

**Geology sequence**

GEOL 1100: Principles of Geology with Laboratory... OR GEOL 1200: Environmental Geology with Laboratory.....	4
AND one of the following courses	
GEOL 2150: The Age of the Dinosaurs.....	3
GEOL 2200: Oceanography.....	3
GEOL 2300: Earth Systems and Global Change.....	3
GEOL 2350: Historical Geology.....	3
GEOL 2400: Surficial Earth Processes and Products with Laboratory .....	4
GEOL 3110: Geology of Missouri.....	3
AND GEOL 3115: Geology of Missouri Laboratory 1 Upper-class geology course	

**Courses to complete 12 credits in science**

ASTRON 1010: Introduction to Astronomy.....	4
ASTRON 1020: Introduction to Laboratory Astronomy.....	2
CHEM 1100: Atoms and Molecules with Lab .....	3
CHEM 1330: General Chemistry III with Lab.....	3
Any science sequence courses outside the student's selected sequence. Any biology, biochemistry, chemistry, geology, or physics courses beyond the levels listed above. Other science courses pre-approved by the advisor Non-science electives.....	9
Students must complete 9 hours of non-science electives to satisfy the 30 hour non-science requirement.	

**Major Program Requirements - Bachelor of Arts in Computer Science (BA)**

See the College of Arts and Science.

**Major Program Requirements - Bachelor of Science in Information Technology (BS)**

This degree program is offered by the Computer Science Department within the College of Engineering. Career opportunities include database administration, web design, cyber security, game development, film production, and more.

To receive the Bachelor of Science Degree in Information Technology, the candidate must successfully complete 126 semester hours of credit including the following distribution: Computer Science (CMP SC) course requirements - 19 hours of CMP SC core courses, 35 hours of INFOTC courses, 12 hours of related math and business courses, 9-12 hours of science, 15-22 hours of courses in a minor and any remaining hours for elective courses. The BS IT degree requires the completion of at least 9 hours of mathematics and statistics including 3 hours of business calculus. An INFOTC student can

earn a minor in a related area outside of INFOTC/CMP SC.

Information Technology students must earn a C-range grade or better in all INFOTC/CMP SC courses that are prerequisites for other INFOTC/CMP SC courses that the student takes. To graduate, a student must earn a cumulative UM grade point average of 2.0 or better and a 2.0 grade point average or better in all CMP SC/INFOTC courses.

The Engineering Career Services Office, W1052C Lafferre Hall, can assist students in searching for employment opportunities and for internship/co-op positions.

These course requirements apply to students beginning full-time Fall 2011 or after.

In addition to the major core requirements, students must complete all University graduation requirements including University general education, as well as all degree and college or school requirements. See course descriptions for prerequisites.

### Major core requirements

#### Computer science courses .....19

- CMP SC 1000: Introduction to Computer Science ..... 1
- CMP SC 1040: Introduction to Problem Solving and Programming ..... 3
- CMP SC 1050: Algorithm Design and Programming I 3
- CMP SC 2050: Algorithm Design and Programming II ..... 3
- CMP SC 2830: Introduction to the Internet, WWW, Multimedia Systems ..... 3
- CMP SC 3380: Database Applications and Information Systems ..... 3
- CMP SC 4320: Software Engineering I ..... 3

#### Information Technology Core Courses .....14

- INFOTC 2610: Audio/Video I ..... 3
- INFOTC 2810: Fundamentals of Network Technology ..... 3
- INFOTC 2910: Cyber Security ..... 3
- CMP SC 4970: Senior Capstone Design I ..... 3
- CMP SC 4980: Senior Capstone Design II ..... 2

#### Information Technology Technical Electives .....21

Choose from below or with advisor approval (minimum of 12 hours at 3000 level or above):

- CMP SC 3530: UNIX Operating System ..... 3
- CMP SC 4380: Database Management Systems I ..... 3
- CMP SC 4830: Science and Engineering of the World Wide Web ..... 3
- INFOTC 1610: Introduction to Entertainment Media 3
- INFOTC 2620: Computer Modeling and Animation I ..... 3
- INFOTC 3620: Computer Modeling and Animation II ..... 3
- INFOTC 3610: Audio/Video II ..... 3
- INFOTC 3630: Introduction to Game Design ..... 3
- INFOTC 3640: Digital Effects ..... 3
- INFOTC 4390: Database Administration ..... 3

#### Mathematics and Business Courses .....12

- MATH 1300: Finite Mathematics ..... 3
- MATH 1400: Calculus for Social and Life Sciences I... 3
- STAT 2500: Introduction to Probability and Statistics I ..... 3
- MANGMT 3000: Principles of Management ..... 3

OR IMSE 4750: Entrepreneurial Innovation

Management: Enterprise Conception ..... 3

OR MRKTNG 4650: e-Marketing ..... 3

### Science Concentration

Twelve hours in science are required including one 2-semester sequence in which **both** courses include laboratories. If student completes a minor by pursuing the formal course requirements for minors in a department outside Computer Science, only 9 credit hours of science with one lab are required.

### Minor in Computer Science

A minor in computer science is offered through the College of Engineering. To obtain a minor, a student must complete courses approved by the Department of Computer Science. The student must earn a grade of C- or better in each course counting toward the minor and have a 2.0 GPA in all courses counting toward the minor. The following courses are required.

- CMP SC 1050: Algorithm Design and Programming I ..... 3
- CMP SC 2050: Algorithm Design and Programming II ..... 3
- CMP SC 3270: Introduction to Digital Logic ..... 3
- Three additional department-approved CMP SC courses with at least one numbered above 3000 ..... 9

### Minor in Information Technology

A minor in Information Technology is offered through the College of Engineering. To obtain a minor, a student must complete courses in a sequence approved by the Department of Computer Science. The student must earn a grade of C- or better in each course counting toward the minor and have a 2.0 GPA in all courses counting toward the minor. At least 9 hours must be taken in residence at MU. A total of 15 credit hours are required.

The following courses are required for sequence one. At least 9 hours must be at the 2000 level or above. For other possible sequences, contact the department.

- INFOTC 2610: Audio/Video I ..... 3
- INFOTC 3640: Digital Effects (Prerequisite: INFOTC 1610 or 2610) ..... 3
- INFOTC 4640: Digital Effects II (Prerequisite: INFOTC 3640) ..... 3
- INFOTC or CMP SC Electives ..... 6

# Department of Electrical Engineering and Computer Engineering

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The Department of Electrical and Computer Engineering offers both the Bachelor of Science with a major in Electrical Engineering and the Bachelor of Science with a major in Computer Engineering. The undergraduate program in both degrees at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

The ECE department emphasizes close interaction with industry. Industry engineers visit regularly and industry-sponsored student projects are provided to give extra dimension to the program.

Many students in the ECE department combine the electrical engineering major with the computer engineering major in a special 138-credit program. These students receive both the BS EE and BS COE degrees.

Students interested in interdisciplinary studies may use some electives to study business, premedicine, prelaw, and other areas. Students are able to choose from a wide variety of courses offered by other departments in the College of Engineering, as well as from other MU colleges, taking advantage of the multidisciplinary nature of the campus.

Commencing in the Fall Semester 2011, the Program Educational Objectives (PEOs) of the undergraduate program in Electrical Engineering at MU are to nurture graduates who:

- Communicate effectively, both in written reports and oral presentations.
- Analyze and design electrical systems effectively.
- Possess comprehensive problem-solving skills, including the ability to define problems and to evaluate alternative solutions.
- Work effectively in teams consisting of diverse cultures and disciplines.
- Are passionate about engineering, as demonstrated by their leadership, innovation, motivation, and interest in continuing education.

Commencing in the Fall 2011, the Program Educational Objectives (PEOs) of the undergraduate program in computer Engineering at MU are to nurture graduates who:

- Communicate effectively, both in written reports and oral presentations.
- Analyze and design electrical systems effectively.
- Possess comprehensive problem-solving skills, including the ability to define problems and to evaluate alternative solutions.
- Work effectively in teams consisting of diverse cultures and disciplines.
- Are passionate about engineering, as demonstrated by their leadership, innovation, motivation, and interest in continuing education.

## ECE Honors Program

The ECE Honors Program follows the general rules and philosophy of the College of Engineering Honors Program. Students may enter the program from the beginning of the junior year and must have a GPA of 3.0/4.0 at the start. Eligible students participate in the program by enrolling in ECE 4995: "Undergraduate Honors Research in Electrical and Computer Engineering" for one to three credit hours, which replaces an equivalent number of hours of ECE technical electives.

The heart of the program is a research or advanced design project culminating in an undergraduate honors thesis. The project is conducted under the supervision of the honors advisor, who is an ECE faculty member selected by mutual agreement between the student and the professor. Satisfactory completion of the project requires approval (signatures) of the honors thesis by both the honors advisor and an additional faculty member, who serves as second reader of the thesis. Students who complete the program and graduate with a GPA of at least 3.0 receive the designation "Honors Scholar in Engineering" at graduation and on their diploma.

Another valuable feature of the Honors Program is that participants may reduce the number of credit hours required for degree completion to the University minimum of 120 by substituting up to six hours of credit from graduate courses through dual (undergraduate/graduate) enrollment during the last four semesters of the undergraduate program and after completion of the honors project.

## Department Requirements

Both the Bachelor of Science in Electrical Engineering (BS EE) and the Bachelor of Science in Computer Engineering (BS COE) require that students earn a 2.0 GPA or better in all courses that have an MU engineering prefix. All ECE courses require a grade of C- or better in ECE prerequisites.

Engineering design in both the electrical engineering and computer engineering programs is provided through an integrated laboratory structure. Beginning with the first laboratory course in the fourth semester of each program, students have a significant design and laboratory experience in each semester of their respective programs.

In addition to the major core requirements, students must complete all University graduation requirements including University general education, as well as all degree and college or school requirements.

## Major Program Requirements - Electrical Engineering (BS EE)

The electrical engineering degree offers course work in all traditional areas of the electrical engineering field. Focused areas of work are offered in the areas of communications, digital systems, discrete and integrated electronics, electromagnetics, energy systems and power electronics, robotics and system control. (Focus areas are not listed on transcripts or diplomas).

### Major core requirements

MATH 1500: Analytic Geometry and Calculus I.....	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III.....	3
MATH 4100: Differential Equations.....	3
STAT 4710: Introduction to Mathematical Statistics...	3
PHYSICS 2750: University Physics I.....	5
PHYSICS 2760: University Physics II.....	5
CHEM 1320: General Chemistry II with Lab.....	3
ENGLSH 1000: Exposition and Argumentation.....	3

Select two of the three:

ENGINR 1200: Statics and Elementary Strength of Materials.....	3
OR ENGINR 2300: Engineering Thermodynamics.....	3
OR IMSE 2710: Engineering Economic Analysis.....	3

Economics Elective to be fulfilled by one of the following:

ECONOM 1014: Principles of Microeconomics.....	3
OR ECONOM 1015: Principles of Macroeconomics.....	3
OR ECONOM 1024: Fundamentals of Microeconomics.....	3

Constitutional elective to be fulfilled by one of the following:

HIST 1100, 1200, 1400, 2210, 2440, 4000, 4220, 4230	
OR POL SC 1100, 2100	

Humanities/Fine Arts courses..... 9

Social Science/Behavioral Science courses..... 3

Other major core requirement courses:

CMP SC 1050: Algorithm Design and Programming I	3
ECE 1000: Introduction to Electrical and Computer Engineering.....	2
ECE 1210: Introduction to Logic Systems.....	3
ECE 2100: Circuit Theory I.....	4
ECE 3210: Microprocessor Engineering.....	4
ECE 3810: Circuit Theory II.....	4

ECE 3830: Signals and Linear Systems.....	3
ECE 3510: Electromagnetic Fields.....	3
ECE 3410: Electronic Circuits and Signals I.....	4
ECE 3610: Semiconductors and Devices.....	3
ECE 3110: Electrical and Computer Engineering Projects.....	3
ECE 4970: Senior Capstone Design.....	3

### Electives

ECE or CMP SC 3000+ Elective.....	12
ECE 4000+ Technical Elective.....	9
ECE 4000+ Senior Lecture/Lab.....	4
Any Elective.....	4

## Major Program Requirements - Computer Engineering (BS CoE)

The computer engineering degree offers a balanced approach to both hardware and software, as well as other areas of engineering. Focused areas of work in additional hardware or software, communications, discrete and integrated electronics, and robotics are offered by the department. (Focus areas are not listed on transcripts or diplomas.)

### Major core requirements

Constitutional elective to be fulfilled by one of the following:

HIST 1100, 1200, 1400, 2210, 2440, 4000, 4220, 4230	
OR POL SC 1100, 2100	

Humanities/Fine Arts courses..... 9

Social Science/Behavioral Science courses..... 6

Other major core requirement courses:

MATH 1500: Analytic Geometry and Calculus I.....	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III.....	3
MATH 2320: Discrete Mathematical Structures.....	3
MATH 4100: Differential Equations.....	3
STAT 4710: Introduction to Mathematical Statistics...	3
PHYSICS 2750: University Physics I.....	5
PHYSICS 2760: University Physics II.....	5
CHEM 1320: General Chemistry II with Lab.....	3
ENGLSH 1000: Exposition and Argumentation.....	3
ENGINR 1200: Statics and Elementary Strength of Materials.....	3
OR ENGINR 2300: Engineering Thermodynamics.....	3
OR IMSE 2710: Engineering Economic Analysis.....	3
CMP SC 1050: Algorithm Design and Programming I	3
CMP SC 2050: Algorithm Design and Programming II.....	3
ECE 4220: Real Time Embedded Computing.....	3
ECE 1000: Introduction to Electrical and Computer Engineering.....	2
ECE 1210: Introduction to Logic Systems.....	3
ECE 2100: Circuit Theory I.....	4
ECE 3210: Microprocessor Engineering.....	4
ECE 3810: Circuit Theory II.....	4
ECE 3830: Signals and Linear Systems.....	3
ECE 3410: Electronic Circuits and Signals I.....	4
ECE 3110: Electrical and Computer Engineering Projects.....	3
ECE 3220: Computing for Embedded Systems.....	3
ECE 4250: VHDL and Programmable Logic Devices.....	4
ECE 4270: Computer Organization.....	4
ECE 4970: Senior Capstone Design.....	3

<b>Electives</b>	
3000+ ECE or CMP SC Elective.....	9
ECE 4000+ Technical Elective .....	6
Any Elective.....	3

ECE 4000-level Senior Lecture/Lab .....	4
Any Elective.....	1

## Double Majors- Electrical Engineering and Computer Engineering

Many students in the ECE department combine the BS in Electrical Engineering with the BS in Computer Engineering in a special 138-credit program. These students receive both the BS EE and BS CoE degrees.

### Major core requirements

Constitutional elective to be fulfilled by one of the following:

HIST 1100, 1200, 1400, 2210, 2440, 4000, 4220, 4230  
OR POL SC 1100, 2100

Humanities/Fine Arts courses..... 9

Social Science/Behavioral Science courses..... 3

Select two of three:

ENGINR 1200: Statics and Elementary Strength of  
Materials..... 3

OR ENGINR 2300: Engineering Thermodynamics. 3

OR IMSE 2710: Engineering Economic Analysis..... 3

Other major core requirement courses:

MATH 1500: Analytic Geometry and Calculus I..... 5

MATH 1700: Calculus II..... 5

MATH 2300: Calculus III ..... 3

MATH 2320: Discrete Mathematical Structures..... 3

MATH 4100: Differential Equations ..... 3

STAT 4710: Introduction to Mathematical Statistics... 3

PHYSCS 2750: University Physics I..... 5

PHYSCS 2760: University Physics II ..... 5

CHEM 1320: General Chemistry II with Lab ..... 3

ENGLSH 1000: Exposition and Argumentation ..... 3

ECONOM 1014: Principles of Microeconomics ..... 3

OR ECONOM 1015: Principles of  
Macroeconomics..... 3

OR ECONOM 1024: Fundamentals of  
Microeconomics ..... 3

CMP SC 1050: Algorithm Design and Programming I 3

CMP SC 2050: Algorithm Design and  
Programming II ..... 3

ECE 1000: Introduction to Electrical and Computer  
Engineering..... 2

ECE 1210: Introduction to Logic Systems..... 3

ECE 2100: Circuit Theory I ..... 4

ECE 3210: Microprocessor Engineering..... 4

ECE 3810: Circuit Theory II..... 4

ECE 3220: Computing for Embedded Systems ..... 3

ECE 3830: Signal and Linear Systems..... 3

ECE 3510: Electromagnetic Fields ..... 3

ECE 3410: Electronic Circuits and Signals I..... 4

ECE 3610: Semiconductors and Devices..... 3

ECE 3110: Electrical and Computer Engineering  
Projects..... 3

ECE 4220: Real Time Embedded Computing ..... 3

ECE 4250: VHDL and Programmable Logic Devices . 4

ECE 4270: Computer Organization ..... 4

ECE 4970: Senior Capstone Design..... 3

### Electives

3000+ ECE or CMP SC Elective..... 12

ECE 4000+ Technical Elective ..... 6

# Department of Industrial and Manufacturing Systems Engineering

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**ASSOCIATE PROFESSOR** C. H. A. Chang, L. G. Occeña  
**ASSISTANT PROFESSOR** M. Y. Sir, E. Sisikoglu, L. Steege

Industrial and manufacturing systems engineering is a blending of natural sciences, engineering science, mathematics, computers, social science and management. This fusion of diverse skills allows industrial engineers to design and implement socio-technical systems - complex combinations of people and technology brought together to solve problems. With its diversity, industrial engineering is used in a wide variety of areas in both manufacturing and service industries.

Industrial engineers in a manufacturing organization address many issues including designing workplaces, considering not only the capabilities of machines, but also the physiological and psychological capabilities of humans. They may design computer-integrated manufacturing systems with robots and computer systems to control production or manage inventory and quality of complex products, determining plant and warehouse locations. They may also develop sales forecasts, evaluate proposals to produce new products and build new or improved production facilities.

The same skills used as an industrial engineer to design manufacturing systems are also useful in designing better systems to care for patients in hospitals, to facilitate the judicial process, to provide faster and more accurate mail distribution and to improve airline routing and reservation methods. In effect, the industrial engineer may be involved in the design of a range of systems that provide beneficial services at a cost that society can afford.

The department offers the Bachelor of Science with a major in Industrial Engineering (BSIE), 5 year Industrial Engineering BSIE/MS and BSIE/MBA 5 year program.

## Major Program Requirements – Industrial Engineering (BSIE)

Industrial engineering undergraduates complete a curriculum similar to all engineering students during the first two years. The objective of this curriculum is to give the student a rigorous foundation in mathematics, natural sciences, basic

engineering sciences, applied probability and computer science, as well as a complementary and meaningful exposure to the humanities and social sciences.

In addition to the foundational courses, students gain knowledge of optimization methodologies, static and dynamic modeling. They also learn evaluation techniques for the modeling and evaluation of integrated systems of people, technology and information in the areas of strategic planning, production systems, control systems, quality systems, information systems, product and process design.

These fundamental skills provide the foundation from which students learn to develop systematic and integrated solution approaches to large-scale enterprise problems. In order to be successful as they begin their careers (or graduate study) students learn to communicate effectively in both oral and written forms, and become proficient in working in diverse teams of individuals.

Lastly, the curriculum prepares the student to practice in an ethical and professional manner, to serve as well as benefit from the engineering profession, and to continue the learning of and the contribution to the advancement of industrial and manufacturing systems engineering concepts.

Industrial engineering design experiences are integrated throughout the curriculum, many times in a team-based environment. Industrial engineering design is the process of developing and improving integrated systems that include people, materials, information, equipment and energy.

## Educational Objectives

Graduates of the Department of Industrial and Manufacturing Systems Engineering (IMSE) at the University of Missouri are able to:

- Assess and create enterprise value through innovative structured problem solving, in order to make processes faster, more innovative, reliable or cost-efficient
- Analyze and design optimized solutions to systems of people, technology and information
- Provide leadership for and communicate effectively in a team-based environment in order to be agents of change in dynamically changing organizations

## Educational Outcomes

All IMSE BSIE graduates should have:

- **Foundational knowledge** in mathematics, natural sciences, engineering sciences, applied probability, computer science, humanities and social science.
  - ABET a) knowledge of math, science, engineering
  - ABET h) understanding of global/societal context of engineering
  - ABET j) knowledge of contemporary issues
- **Optimization skill sets** for modeling, optimization and evaluation of integrated systems of people, technology and information.
  - ABET b) ability to design/conduct experiment; data analysis
  - ABET k) ability to use techniques, skill and tools
- **Problem-solving ability** based upon knowledge and skills to develop integrated solutions to large-scale, socio-technical problems

- ABET c) ability to design integrated systems
- ABET e) ability to identify, formulate and solve IE problems
- ABET k) ability to use techniques, skill and tools
- **Communication and group dynamics skills** to communicate in both oral and written forms and to become proficient in working in diverse teams of individuals.
  - ABET d) ability to function in teams
  - ABET g) ability to communicate effectively
- Understanding of **professional and ethical behavior** to be prepared for ethical decision making, service to the engineering profession, and to have the means to continue in the acquisition of knowledge.
  - ABET f) understanding of professional/ethical responsibility
  - ABET i) recognition of need for life-long learning.

In summary, graduates of the Department of Industrial and Manufacturing Systems Engineering (IMSE) will possess a strong foundation upon which they can grow professionally, and continue to build a focused set of fundamental and engineering knowledge and skills that are integrated and applicable to real-world problems in any enterprise setting.

Because industrial engineering graduates are capable of solving complex problems requiring an understanding of an entire organization, they become prime candidates for top management or administrative positions.

In addition to the major core requirements, students must complete all University graduation requirements including University general education, as well as all degree and college or school requirements.

#### Major core requirements

MATH 1500: Analytic Geometry and Calculus I.....	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III.....	3
MATH 4100: Differential Equations.....	3
CHEM 1310: General Chemistry I.....	2
OR CHEM 1320: General Chemistry II with Lab....	3
PHYSICS 2750: University Physics I.....	5
PHYSICS 2760: University Physics II.....	5
CMP SC 1040: Introduction to Problem Solving and Programming.....	3
OR CMP SC 1050: Algorithm Design and Programming I.....	3
ENGINR 1100: Engineering Graphics Fundamentals.	2
ENGINR 1200: Statics and Elementary Strength of Materials.....	3
ENGINR 2300: Engineering Thermodynamics.....	3
ENGINR 2100: Circuit Theory for Engineers.....	3
IMSE 1000: Introduction to Industrial Engineering....	1
IMSE 2030: Fundamentals of Systems Design and Analysis.....	3
IMSE 2110: Probability and Statistics for Engineers....	3
IMSE 2210: Linear Algebra for Engineers.....	3
IMSE 2710: Engineering Economic Analysis.....	3
IMSE 3810: Ergonomics and Workstation Design.....	3
IMSE 4110: Engineering Statistics.....	3
IMSE 4210: Linear Optimization.....	3
IMSE 4230: Operations Research Models.....	3
IMSE 4280: Systems Simulation.....	3

IMSE 4310: Integrated Production Systems Design.....	3
IMSE 4350: Production and Operations Analysis.....	3
IMSE 4410: Management Information Systems Design.....	3
IMSE 4550: Computer Aided Design and Manufacturing.....	4
IMSE 4610: Engineering Quality Control.....	3
IMSE 4970: Capstone Design I.....	1
IMSE 4980: Capstone Design II.....	3

#### IMSE electives .....6

Choose from the following:

IMSE 3030: Manufacturing and Supply Systems.....	3
IMSE 3510: Manufacturing Systems Design.....	3
IMSE 4001: Topics in Industrial and Manufacturing Systems Engineering.....	3
IMSE 4085: Problems in Industrial Engineering.....	1-3
IMSE 4330: Material Flow and Logistics System Design.....	3
IMSE 4420: Web-Based Information Systems.....	3
IMSE 4570: Computer Integrated Manufacturing Control.....	3
IMSE 4750: Entrepreneurial Innovation Management: Enterprise Conception.....	3
IMSE 4760: Entrepreneurial Innovation Management: Enterprise Design.....	3
IMSE 4770: Entrepreneurial Innovation Management: Enterprise Operations.....	3
IMSE 4990 Undergraduate Research in Industrial Engineering.....	1-3
IMSE 4995 Undergraduate Research Industrial Engineering-Honors.....	1-3

#### Engineering elective.....3

Choose from the following:

BIOL EN 2180: Engineering Analysis of Bioprocesses.....	3
CV ENG 2080: Introduction to Dynamics.....	3
CV ENG 3700: Fluid Mechanics.....	3
ECE 1210: Introduction to Logic Systems.....	3
ENGINR 2200: Intermediate Strength of Materials....	3
MAE 2600: Dynamics.....	3

#### Technical electives.....6

A technical elective is defined as any course relevant to the degree program but not required, such as computer science, engineering, mathematics, science and select business courses.

# Department of Mechanical and Aerospace Engineering

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The Department of Mechanical and Aerospace Engineering prepares students for productive careers in mechanical engineering related disciplines. The program focuses on instruction in the thermal and mechanical systems areas as defined by the Accreditation Board for Engineering and Technology (ABET). To support that mission, the Department has been divided into the focus areas of Design and Manufacturing, Dynamics and Controls, Materials, and Thermal and Fluid Sciences. (NOTE: Focus areas are not listed on transcripts or diplomas.)

The department endeavors to present a strong experimental program through laboratory experiences to expose undergraduate students to modern instrumentation and measurement methodologies. Students work in well-equipped laboratories in design optimization, engineering computation, fluid power dynamics and control, materials, structural dynamics, measurement and instrumentation, laser processing, heat transfer and fluid dynamics, stress measurement and nondestructive evaluation.

The MU Mechanical Engineering program offers a Bachelor of Science in Mechanical Engineering (BSME) and prepares students for practice of the profession in industry or government or for further study toward other degrees such as the JD, MD, MS and PhD.

## Mission Statement

The mission of the Mechanical and Aerospace Engineering Department is to:

1. prepare our students for successful careers in the mechanical engineering profession,
2. conduct high quality and innovative research, and

3. serve the community and industry providing educational and research resources

## Program Educational Objectives

The educational objectives of the undergraduate program in Mechanical Engineering are to produce graduates who (during the first several years following graduation)

1. are able to apply the analytical, experimental, and computational techniques to solve engineering problems associated with the design and manufacture of devices, machines and systems (a,b,e,k);
2. are able to synthesize and analyze integrated thermal/fluid and mechanical systems (a,c,e,k);
3. are able to communicate effectively and work collaboratively on multidisciplinary teams (d,g);
4. contribute to society and the profession through professional activities, and understand the impact of engineering solutions on a diverse and global society and their professional and ethical responsibility (f,h,i);
5. engage in life-long learning necessary to advance professionally through continued education and training (a,h,i,j);
6. succeed in graduate studies in mechanical engineering or a related field if pursued (a-k).

Note: letter(s) in parentheses indicates ME Program Outcome(s).

## Program Outcomes

Students from the Mechanical Engineering program will attain (by the time of graduation):

- a. an ability to apply knowledge of mathematics, science, and engineering
  - a1. a knowledge of chemistry and calculus-based physics with depth in at least one;
  - a2. an ability to apply advanced mathematics through multivariate calculus and differential equations;
  - a3. familiarity with statistics, linear algebra, and numerical methods;
- b. an ability to design and conduct experiments, as well as to analyze and interpret data;
- c. an ability to design thermal, fluid, and mechanical systems, components, or processes to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- d. an ability to function on multi-disciplinary teams;
- e. an ability to identify, formulate, and solve mechanical engineering problems;
- f. an understanding of professional and ethical responsibility;
- g. an ability to communicate effectively in oral, written and graphical forms;
- h. the broad education necessary to understand the impact of engineering solutions global, economic, environmental, and societal context;
- i. a recognition of the need for, and an ability to engage in, life-long learning;
- j. a knowledge of contemporary issues in mechanical engineering;
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice in the areas of design and manufacturing, dynamics and controls,

thermal and fluid systems, and mechanics and materials.

## Major Program Requirements - Mechanical and Aerospace Engineering (BSME)

The MAE curriculum allows students to transfer among departments during the first two years. Students concentrate on departmental requirements during the junior year. The senior year includes three MAE electives that allow students to develop individual study programs. This enables students to complete a traditional program or create their own with special emphasis on system design, materials, manufacturing, energy systems, controls, or aerospace.

Experience in design is integrated throughout the required courses in the curriculum and culminates in the capstone design sequence. The capstone design experience integrates earlier technical work with economic, safety and environmental considerations. The projects are primarily obtained from industrial or private business clients. The presentations of project results are made to a review panel consisting of members of the faculty, the MAE Industrial Advisory Council and representatives of the client firms.

### Major core requirements

In addition to the University general education and graduation requirements, the Department of Mechanical and Aerospace Engineering requires the following courses:

CHEM 1320: General Chemistry II with Lab .....	3
ENGINR 1100: Engineering Graphics Fundamentals . 2	
ENGINR 1110: Solid Modeling for Engineering Design .....	1
IMSE 2710: Engineering Economic Analysis.....	3
MATH 1500: Analytic Geometry and Calculus I.....	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III .....	3
MATH 4100: Differential Equations .....	3
STAT 4710: Introduction to Mathematical Statistics....	3
OR IMSE 2110: Probability and Statistics for Engineers.....	3
PHYSCS 2750: University Physics I.....	5
PHYSCS 2760: University Physics II .....	5
ENGINR 1200: Statics and Elementary Strength of Materials .....	3
ENGINR 2100: Circuit Theory for Engineers.....	3
ENGINR 2200: Intermediate Strength of Materials ....	3
ENGINR 2300: Engineering Thermodynamics .....	3
MAE 1000: Introduction to Mechanical Engineering... 1	
MAE 2100: Programming and Software Tools.....	2
MAE 3100 Computational Methods for Engineering Design .....	4
MAE 2600: Dynamics .....	3
MAE 3200: Engineering Materials .....	4
MAE 3400: Fluid Mechanics .....	3
MAE 3600: Dynamic Systems and Control.....	3
MAE 3800: Instrumentation and Measurements Laboratory.....	3
MAE 3900: Mechanical Design I.....	3
MAE 4300: Heat Transfer .....	3
MAE 4500: Manufacturing Methods .....	3
MAE 4800: Thermal and Fluid Science Laboratory ....	3
MAE 4900: Mechanical Design II.....	3
MAE 4980: Senior Capstone Design .....	3

Elective in approved area of Engineering, Science or MATH, 3000 or above..... 3  
Refer to MAE Undergraduate Handbook for more information or see the web site at:  
<http://web.missouri.edu/~mae/degrees/ungrhdbk/ungrhdbk.html>

### Electives

MAE 4000 +: MAE elective.....	9
Free elective.....	2

### Options

The senior year includes three MAE electives that allow students to develop individual study programs. This enables students to complete a traditional program or create their own program with special emphasis on system design, materials, manufacturing, energy systems or controls.

An Aerospace Emphasis area is available to students wanting to pursue careers in the aerospace industry. Completing the aerospace emphasis requires taking at least three senior MAE 4000+ electives from a selection of available courses. These can be chosen from the broad areas of structures/materials, thermal/propulsion, aerodynamics/fluids, flight mechanics/dynamics/controls, and design. Upon completion of the appropriate coursework, an Aerospace Emphasis is shown on the students transcript.

An entrepreneurship option may be added by taking IMSE 4750 and IMSE 4760 in the sixth and seventh semesters before the Senior Capstone Design (MAE 4980). These three courses combine to give the student a fundamental understanding of entrepreneurial methods. This option will add credits to the degree program.

### Double Majors and Dual Degrees

Dual majors and dual degrees are possible at the undergraduate level. These could lead to degrees in the College of Engineering and the College of Arts and Sciences or the College of Agriculture. Dual enrollments could also lead to two engineering majors within the College of Engineering. Any of these dual enrollments would add to the traditional 126-credit undergraduate degree program. Consult with the directors of undergraduate studies of the departments involved for further information.

### MAE Honors Program

The MAE Honors Program follows the general rules, regulations and philosophy of the College of Engineering Honors Program, and as such is intended to encourage, facilitate and reward independent study by high-ability undergraduate students.

The heart of the program is an undergraduate honors project, undertaken and completed by the time of graduation while enrolling in 1 to 6 credits of MAE 4995: Undergraduate Honors Research Mechanical & Aerospace Engineering. The academic credit for the honors project (1-6 credits in MAE 4995) replaces an equivalent number of credits of technical or MAE elective. The project is conducted under the direction of an MAE professor (honors advisor) who is selected by the student, with agreement by the professor. The project culminates in an honors thesis, which is read and approved by the honors advisor

and then approved by the chair of the MAE honors committee. A finished copy of the honors thesis, signed by the honors advisor and second reader, is required for satisfactory completion of the project.

#### **Academic Qualifications for the Honors Program**

In the case of a transfer student, transferred credit plus MU credit must average 3.0/4.0. A student is typically eligible for the honors program at the junior year of their undergraduate program.

The successful honors scholar is given a degree of flexibility in the program of study. Additionally, honors scholars may reduce the credits required for degree completion to the University minimum (i.e., 120 credits) by substituting graduate course credits through dual enrollment (undergraduate/graduate at MU) during the last two semesters of the undergraduate program.

Honors students must maintain and graduate with a 3.0 overall GPA.

In the case of a transfer student, transferred credit plus MU credit must average 3.0/4.0. A student is typically eligible for the honors program at the junior year of their undergraduate program.

The successful honors scholar is given a degree of flexibility in the program of study. Additionally, honors scholars may reduce the credits required for degree completion to the University minimum (i.e., 120 credits) by substituting graduate course credits through dual enrollment (undergraduate/graduate at MU) during the last two semesters of the undergraduate program.

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**VISITING INSTRUCTORS** B. H. Scheller, Capt, USMC,  
M. T. Knuth, LT, USN, V. P. Sudame, LT, USN

The Naval Reserve Officers Training Corps (NROTC) was established in 1926 to offer college students the necessary naval science courses to qualify for commissions in the Navy or Marine Corps Reserve. Today, NROTC is one of the primary accession sources of officers for the Navy and Marine Corps.

Scholarship NROTC midshipmen incur no military obligation during their freshman year. This allows students to get a better understanding and appreciation of the life of a Navy or Marine Corps officer. Navy NROTC graduates incur a minimum five year military obligation. Marine NROTC graduates incur a minimum four year military obligation.

Navy scholarship students should major in a technical course of study while marine ROTC students may major in any course of study leading to a baccalaureate degree. Academic credit for naval science courses is accepted toward a baccalaureate degree by most MU schools and colleges. All courses are included in a student's grade point average.

Midshipmen take one naval science course for credit each semester, which provides education and training in various aspects of the Navy or Marine Corps. Associated with each course is a leadership laboratory. NROTC activities include water survival, self-defense, physical fitness, orienteering, aviation, nuclear power indoctrination, pistol/rifle marksmanship and a variety of field trips. Upon graduation, midshipmen are commissioned as Ensigns in the Navy or Second Lieutenants in the Marine Corps.

The two-year NROTC program is designed for transfer students and for MU students who did not participate in NROTC during the first two years. The program is similar to the programs described above. However, the equivalent of the

first two years of naval science training is accomplished during a six-week summer session at the Naval Science Institute in Newport, RI. Students receive active-duty pay while at the Naval Science Institute.

**Program core requirements**

**Naval science freshmen and sophomore courses.....12**

- NAVY 1100: Introduction to Naval Science ..... 3
- NAVY 1200: Seapower and Maritime Affairs ..... 3
- NAVY 3120: Marine Navigation ..... 3
- NAVY 3140: Leadership and Management ..... 3

**Junior year .....6**

- NAVY 2110: Naval Ship Systems I ..... 3
- NAVY 2210: Naval Ship Systems II..... 3

**Senior year .....6**

- NAVY 3220: Naval Operations ..... 3
- NAVY 4940: Leadership and Ethics ..... 3

**Marine Corps**

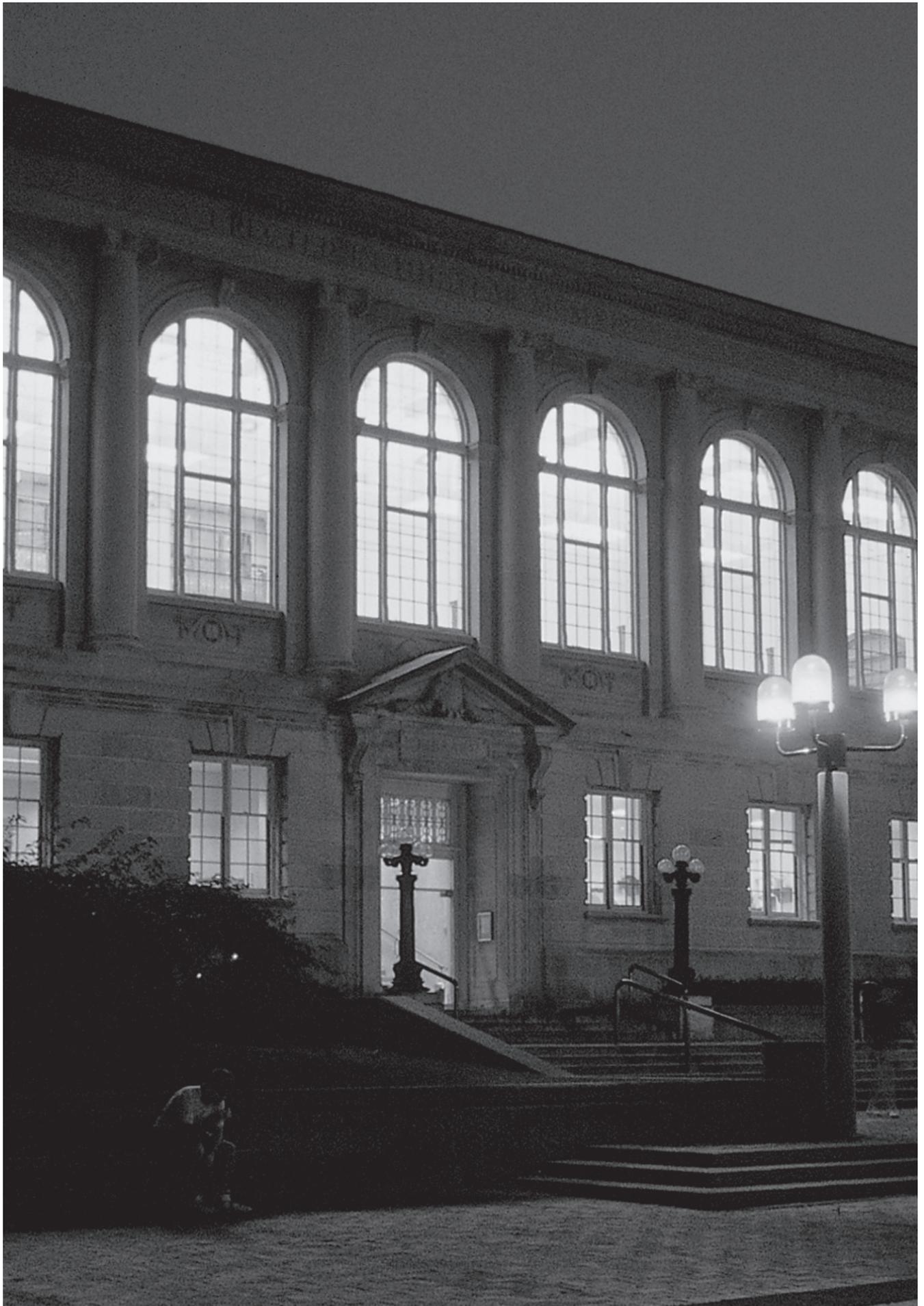
Marine Corps students are not required to take NAVY 2110, 2210, 3120 or 3220.

**Freshmen and sophomore courses (Marine Corps) ...12**

- NAVY 1100: Introduction to Naval Science..... 3
- NAVY 1200: Seapower and Maritime Affairs ..... 3
- NAVY 2130: Evolution of Warfare ..... 3
- NAVY 3130: Amphibious Warfare ..... 3

**Minor in Naval Science**

A minor in Naval Science is available upon the completion of 20 semester hours to include 11 hours of the lower level and 9 hours of the upper level Naval Science curriculum.





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# **School of Health Professions**

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# School of Health Professions

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## Degrees Offered

Bachelor of Health Science (BHS) with the following majors:

- Clinical Laboratory Sciences with an emphasis area in *Medical Technology*
- Communication Science and Disorders
- Diagnostic Medical Ultrasound Health Sciences
- Preprofessional Physical Therapy\*
- Radiologic Sciences, with emphasis areas in *Radiography or Nuclear Medicine Technology*
- Respiratory Therapy

The school also offers a Bachelor of Health Science in Occupational Therapy (BHS)

\*Students can only earn the BHS concurrently with the Doctor of Physical Therapy

## Administration

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Kristofer J. Hagglund, Associate Dean

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The School of Health Professions is Missouri's only state-supported health professions school on a campus with an academic health center. It is uniquely positioned to educate highly qualified health care professionals committed to fulfilling the mission of improving society through education, service and discovery in diagnostic, medical imaging, and rehabilitation sciences. The school is credited with establishing the nation's first baccalaureate degree program in respiratory therapy and the first master's degree program in diagnostic medical ultrasound. Its six departments and eight accredited academic programs have long and distinguished histories. Graduates of the School of Health Professions are nationally recognized leaders in their fields.

The school offers undergraduate degrees with majors in communication science and disorders, diagnostic medical ultrasound, health sciences, occupational therapy, respiratory therapy, radiologic sciences with emphasis in radiography or nuclear medicine technology, and clinical laboratory sciences with an emphasis in medical technology. The school offers graduate degrees in communication science and disorders with an emphasis of Speech-Language Pathology, diagnostic medical ultrasound, occupational therapy and physical therapy. Students gain valuable experience by participating in nationally

recognized service centers including The Adult Day Connection, The Health Connection, the Speech and Hearing Clinic, Robert G. Comb's Language Preschool and more than eight hundred fieldwork sites.

## Admissions

Undergraduate students are enrolled in the School of Health Professions for academic advisement in order to complete University general education and prerequisite courses. Students will be advised by faculty of the department in which they have declared a major, or by an advisor in the Student Affairs Office. Students should contact the SHP Advising Office to ensure satisfactory progress toward completion of the prerequisites.

Admission to the University and to the School of Health Professions as a pre-professional student does not constitute admission as a candidate for most Bachelor of Health Science degree programs. Pre-professional students are admitted to candidacy for the BHS only when they have been selected to participate in the professional component of a program. Application deadlines and requirements vary for each program (an application is not required for the health sciences programs). Students are strongly encouraged to seek advising to ensure they are making satisfactory progress towards pre-requisites, MU General Education, and program requirements.

## Exploratory Courses

The School of Health Professions offers introductory courses and experiences to provide information about career opportunities in these areas. These courses are listed below:

- HTH PR 1000: Introduction to the Health Professions
- NUCMED 1000: Orientation to Nuclear Medicine
- OC THR 1000: Introduction to Occupational Therapy
- PH THR 1000: Introduction to Physical Therapy
- RS THR 1000: Introduction to Respiratory Therapy
- DMU 1000: Introduction to Diagnostic Medical Ultrasound
- C S D 1000: Introduction to Communication Science and Disorders
- CL L S 1000: Orientation to Clinical Laboratory Science

## Required Entry-level Courses

To be admitted into or continue in the School of Health Professions, all students with 55 or more credits must have completed MATH 1100 and ENGLSH 1000, or their equivalents, with grades in the C range or higher.

While completing prerequisite requirements, students must make formal application for admission to the professional component of the program of their choice. Enrollment is limited and is governed by program admission committees. Application to the professional component is also required for transfer students.

In addition to academic record, attributes such as interpersonal skills, motivation, attitude, interest, commitment and knowledge of the field are considered in selecting students to participate in the professional phase of any program. Applicants may also be evaluated on school and college aptitude tests, pattern of academic achievement, verbal expression, extracurricular activities and motivation demonstrated by employment and volunteer activities.

To achieve the goals of diversity and equal opportunity, the School of Health Professions encourages the participation of minority students in its programs.

The application deadlines for the professional component of each program are shown below.

Professional program	Application deadline	Classes begin
Communication Science and Disorders	Feb. 1, sophomore	Fall
Occupational Therapy	Dec. 31, sophomore	Summer
Radiography	Feb. 1, sophomore	Summer
Physical Therapy	Jan. 24, senior	Summer
Nuclear Medicine	Dec. 1, junior	Fall
Respiratory Therapy	Feb. 1, sophomore	Summer
Diagnostic Medical Ultrasound	Feb. 1, sophomore	Summer
Clinical Laboratory Science	Nov. 1, junior	Summer
Health Sciences	N/A, freshman	Fall/Spring

### School of Health Professions Scholars Guaranteed Admission Program (SHarP Scholars)

High school seniors and first-time college students may apply to the School of Health Professions (SHP) Scholars Guaranteed Admissions Program. Requirements include an ACT minimum composite of 30 or 1330 SAT and rank in the top 10 percent of the high school class. Application materials are available in the School of Health Professions Student Affairs Office and on the school's website.

Students accepted as SHarP Scholars who maintain participant status at MU are guaranteed admission into one of the following degree programs:

- Clinical Laboratory Sciences with an emphasis in Medical Technology
- Communication Science and Disorders (BHS program only)
- Occupational Therapy
- Diagnostic Medical Ultrasound
- Radiologic Sciences, with emphasis in *Radiography or Nuclear Medicine Technology*
- Respiratory Therapy
- Physical Therapy

### International Admissions

Students whose native language is not English should contact the School of Health Professions for requirements.

### Prerequisite Curriculum Requirements

See the degree requirements in the following pages for specific course requirements in the various programs. The student is responsible for meeting graduation requirements for the program

and the University.

### Graduation Requirements

In addition to degree and major requirements, students must complete university graduation requirements, which include university general education requirements.

### Degree Core Requirements

The Bachelor of Health Science degree is granted to candidates who have successfully fulfilled all didactic and clinical requirements of the program as described for each area, in addition to all University requirements, including University general education requirements.

In addition to the academic and clinical education requirements of a program, students must possess and exhibit those personal qualities and characteristics that are associated with patient welfare and professional trust. These elements are a part of the overall evaluation process for the professional phase of each program. Should it be determined that these qualities are not present in sufficient degree or that a student does not demonstrate satisfactory growth and progress in these areas, the student is subject to dismissal from the program.

### Degree with Honors Requirements

To earn Latin Honors in the School of Health Professions, a student must meet the following requirements:

- 50 graded MU undergraduate credits
- At least a 3.0 MU cumulative GPA
- MU cumulative GPA equal to or greater than 3.5 OR
- last 50 graded credits at MU equal to or greater than 3.5
- GPA for each level
 

Cum laude	3.5
Magna cum laude	3.7
Summa cum laude	3.9

## Academic Regulations

### Time Limits on Credits Earned

Contact each department for information on time limits.

### Credits by Examination

Students with previous training or experience may be allowed to earn advanced-standing credit through challenge or equivalency evaluation in certain programs. Contact the Health Professions Student Affairs Office for information pertaining to the awarding of credit for these exams.

### Maximum Credits Enrolled

A student may not enroll for more than 17 credits in a term without permission from the associate dean.

### Independent Study

Students must receive prior approval before enrolling in independent study courses.

### Satisfactory/Unsatisfactory Grades

A student wishing to enroll in a course on an S/U basis must receive permission from the faculty advisor in his or her

department and from the SHP Advising Center.

### **Enrolling in Other Institutions Simultaneously**

Students must receive approval from the SHP Advising Center before enrolling simultaneously at another institution.

### **Student Services**

#### **Advising**

Students may be assigned a faculty advisor in their program of study or a professional academic advisor in the Office of Student Affairs.

Students should select an area of interest prior to completing the first two years of college. To assist with career decisions, the School of Health Professions offers introductory courses and experiences to provide information and career opportunities in these areas.

#### **Career Placement**

Graduates of programs in the School of Health Professions are highly recruited and frequently hired prior to receiving degrees.

## **Department of Health Science**

R. Hogan, Chair  
School of Health Professions  
501 Clark Hall  
(573) 882-8422  
hoganr@health.missouri.edu

### **Faculty**

**CLINICAL ASSOCIATE PROFESSOR** R. Hogan,  
M. Kunnert

**ASSISTANT PROFESSOR** N. Cheak-Zamora, A. Kabel,  
V. Shaffer, L. Taliaferro, M. Teti

**CLINICAL ASSISTANT PROFESSOR** K. Flynn-Peters

The Department of Health Sciences' BHS in Health Science degree program is for students who wish to enter non-clinical health careers such as medical case management, corporate wellness, human services, medical sales, pharmaceutical manufacturing and distribution, and more. Graduates of the BHS degree program may also be qualified to enter either graduate or professional health science programs such as Physical Therapy, Health Administration and Public Health. The Health Sciences program requires physical, biological, behavioral and social sciences to provide students with an education in foundational sciences, human function, health research, service and policy.

The department offers the Bachelor of Health Science in Health Science (BHS).

General education requirements comprise a minimum of 42 credit hours; Health Science core course requirement comprise 20 credit hours; Electives fulfilling the student's concentration area comprise the remaining 40 credit hours. A minimum of 120 credit hours is required for the BHS degree.

Students are required to file a graduation plan for the BHS degree by the time they have completed 90 university-level credit hours, including all MU and transfer credits. Students should meet with their academic advisor to discuss the graduation plan, and then file their plan prior to early registration for the fall, summer and spring semesters. Students who transfer from another institution or another school/college at MU with more than 60 hours must file their graduation plan within their first semester of coursework in SHP and at MU.

### **Residency Requirement**

There is a residency requirement for Health Sciences majors. Students must complete, at minimum, the 45 hours of coursework for the degree as declared Health Sciences majors in the School of Health Professions. Students must be in the Health Sciences major at the beginning of a semester to include the hours in the residency requirement. Residency requirement hours for students transferring into the major during the semester will begin the following semester.

### **Admission to the BHS in Health Sciences**

The BHS in Health Sciences program does not require an application. Students may declare their major in the BHS program by indicating the program on the MU application (for new students), filling out a transfer of division form (for current MU students), or indication of their intention to declare a

health science major to their academic advisor (for current SHP students). There is a 2.0 cumulative GPA requirement to declare a major in health sciences. The cumulative GPA is calculated on all MU and transfer coursework.

## Major Program Requirements

- Students must maintain the 2.0 GPA, term and cumulative, to remain in the health science program. Students who fail to achieve a 2.0 GPA may stay in the program for one probationary semester, and if they fail to earn a 2.0 term or cumulative GPA after the probation semester, students must transfer out of the program.
- All required core and elective coursework for the BHS program, including requirements outside the department, must be completed with a grade of C- or higher.

### Capstone Requirement

(to be completed during the final 12 months of coursework)

The BHS capstone courses, HTH PR 4975 and HTH PR 4985, allow students several ways to complete the capstone experience through internships. The internship will be approved by the internship coordinator, and students may find their own internship experience or work with the course instructor/academic advisor to identify an appropriate placement given interests and goals.

Students may choose from:

- an internship at an agency, company, or corporation of their choice. For an internship to be approved as a capstone experience, it must help students solidify and explore areas of concentration. Internships must have prior approval from their advisor;
- service learning project which allows a student to serve approximately 50 clock hours in an organization. This can be arranged with their advisor or through the Office of Service Learning on campus, and
- an approved study abroad program

### Required Core Courses

HTH PR 1000: Introduction to the Health Professions.....	2
HTH PR 2100: Health Sciences Seminar .....	1
HTH PR 3300: Public Health Principles and Practice.....	3
HTH PR 3900: Introduction to the Research Process and Evidence Base.....	3
HTH PR 4300: Health Care in the United States.....	3
HTH PR 4975: Internship in Health Sciences (capstone).....	1-6
HTH PR 4985: Healthcare Organization and Leadership (capstone) .....	3
HTH PR 4480: Clinical Ethics .....	3

### General Education Requirements

MATH 1100: College Algebra .....	3
OR MATH 1160: Precalculus Mathematics.....	5
ENGLSH 1000, 1000H or equivalent: Exposition and Argumentation .....	3

### Biological, Physical, and Mathematical Sciences requirement (9 or more credits):

Biological Science  
 BIO SC 1010/1020 or 1500  
 Physical Science  
 Mathematical Science

STAT 1200 or 1300  
 Math Reasoning Proficiency Course  
 Typically fulfilled by STAT 1200, STAT 1300, CHEM 1320, PHYSICS 1210, PHYSICS 1220, etc.

### Behavioral and Social Sciences (9 or more credits):

Behavioral Science  
 Social Science  
 HIST 1100, 1200, of POL SC 1100 or other approved course  
 Behavioral or Social Science

### Humanities and Fine Arts (9 or more credits required from 2 different areas)

(12 or more credits of a single foreign language may be used to fulfill this requirement)

**Distribution of Content:** Students must have at least one 2000 level or above course in two of three areas:

1. Biological/Physical/Mathematical Science
2. Behavioral/Social Science
3. Humanities/Fine Arts

### BHS Electives

Students must complete 18 hours of approved elective courses. At least 9 credit hours must be from 3000/4000 level courses. Students must complete course work in at least two out of these three thematic areas: Social/Behavioral; Medical/Biological; Administrative/Leadership.

# Department of Cardiopulmonary and Diagnostic Sciences

## Clinical Laboratory Science

School of Health Professions  
605 Lewis Hall  
(573) 882-8011  
Director: Steven Starr

## Diagnostic Medical Ultrasound

School of Health Professions  
409 Lewis Hall  
(573) 884-2994  
Director: Moses Hdeib

## Nuclear Medicine

School of Health Professions  
605 Lewis Hall  
(573) 884-7843  
Director: Glen Heggie, Department Chair

## Radiography

School of Health Professions  
620 Lewis Hall  
(573) 884-2623  
Director: Patricia Tew

## Respiratory Therapy

School of Health Professions  
614 Lewis Hall  
(573) 882-9722  
Director: Shawna Strickland

## Faculty

**ASSOCIATE PROFESSOR** R. E. Oliver  
**CLINICAL PROFESSOR** M. M. Hdeib, G. D. Heggie  
**CLINICAL ASSOCIATE PROFESSOR** C. M. Allen,  
K.S. Moss, S. L. Strickland,  
**CLINICAL ASSISTANT PROFESSOR** D. W. Clem,  
M. Feldman, E. M. Hdeib, L. M. Lair, M. C. Sebacher,  
P. A. Tew  
**CLINICAL INSTRUCTOR** S. D. Anderson, J. L. Keely,  
S. W. Parker, S. Starr

The Department of Cardiopulmonary and Diagnostic Sciences offers the Bachelor of Health Science (BHS) with majors in Clinical Laboratory Science (with an emphasis area of Medical Technology), Diagnostic Medical Ultrasound, Respiratory Therapy, and Radiological Sciences. Students majoring in Radiological Sciences must complete emphasis areas in Radiography or Nuclear Medicine Technology

## Major Program Requirements - Clinical Laboratory Science with an emphasis in Medical Technology (BHS)

Clinical Laboratory Scientists make a valuable contribution to patient care by developing, performing and evaluating clinical laboratory procedures. Certified Clinical Laboratory Scientists are skilled scientists who work with the kinds of tests that would

confirm a case of diabetes, verify a potentially dangerous drug level, monitor the level of anti-rejection drugs in transplant patients, determine compatibility for organ donation, detect cases of cancer or leukemia, identify the causative microorganism in a blood or wound infection, or detect a cancerous tumor with DNA techniques. Clinical Laboratory Scientists have various levels of responsibility - as staff technologists, research technologists, supervisors, managers, or educators can work in a variety of settings, including hospitals, clinics, laboratories, and research centers.

The Clinical Laboratory Science (CLS) program at MU is a unique collaboration with the University of Nebraska Medical Center in Omaha. The CLS program includes three years of prerequisite coursework, requiring 16 hours of both Biology and Chemistry, and 11 months in the professional phase of the CLS program. The professional year begins in May, with 11 weeks of coursework and clinical lab rotations (in the University of Nebraska's Medical Center in Omaha. After the initial 11 weeks in the program, students return to Columbia and complete the CLS coursework online and clinical laboratory rotations at Boyce and Bynum Pathology Laboratories, P.C. and the University of Missouri Hospital and Clinics. Students graduate with a Bachelor of Health Science degree in Clinical Laboratory Science from the University of Missouri with a Certificate in Medical Technology from the University of Nebraska Medical Center.

## Professional Certification

Upon completion of the program, students are eligible to take the Medical Technology Licensure examination given by the American Society for Clinical Pathology (ASCP).

## Major core requirements

<b>Prerequisites.....</b>	<b>85</b>
ENGLISH 1000: Exposition and Argumentation .....	3
COMMUN 1200: Public Speaking.....	3
MATH 1100: College Algebra .....	3
STAT 1200: Introductory Statistical Reasoning .....	3
OR STAT 1300: Elementary Statistics .....	3
Social science requirement.....	3
HIST 1100: Survey of American History to 1865 .....	3
OR HIST 1200: Survey of American History Since 1865 .....	3
OR POL SC 1100: American Government .....	3
Social science/behavioral science requirement.....	6
Humanities electives.....	6
Electives .....	6-8
Writing intensive elective* .....	3
MPP 3202: Elements of Physiology.....	5
Biological sciences elective (at least 16 hours of Biology)	
BIO SC 1500: Introduction to Biological Systems with Laboratory .....	5
BIO SC 2200: General Genetics .....	4
BIO SC 2300: Introduction to Cell Biology.....	4
MICROB 3200: Medical Microbiology and Immunology .....	4
OR BIO SC 3750: General Microbiology.....	4
MICROB 4304: Immunology.....	3
Physical sciences requirement (at least 16 hours of Chemistry)	
CHEM 1310: General Chemistry I .....	2
CHEM 1320: General Chemistry II with Lab .....	3
CHEM 1330: General Chemistry III with Lab.....	3

CHEM 2100: Organic Chemistry I .....	3
CHEM 3200: Quantitative Methods of Analysis with Lab .....	4
BIOCHM 3630: General Biochemistry (preferred) .....	3
OR CHEM 2110: Organic Chemistry II.....	3
<b>Core Requirements.....</b>	<b>39</b>
CL L S 4412: Clinical Laboratory Science Theory: Application, and Correlation .....	5
CL L S 4414: Chemistry I.....	4
CL L S 4415: Chemistry II .....	3
CL L S 4416: Clinical Hematology I.....	4
CL L S 4417: Clinical Hematology II .....	3
CL L S 4418: Clinical Microbiology I.....	4
CL L S 4419: Clinical Microbiology II .....	3
CL L S 4420: Clinical Immunology.....	1
CL L S 4422: Immunohematology I.....	3
CL L S 4423: Immunohematology II .....	2
CL L S 4424: Phlebotomy.....	1
CL L S 4426: Body Fluid Analysis .....	1
CL L S 4970: Clinical Laboratory Management I.....	2
CL L S 4980: Clinical Lab Management II.....	3

\*Depending on course, may count toward another requirement in addition to the Writing Intensive Requirement.

## Major Program Requirements - Diagnostic Medical Ultrasound (BHS)

The Diagnostic Medical Sonographer uses high-frequency sound waves to perform a variety of diagnostic examinations. The sonographer performs an essential role in the process of data gathering and synthesis required to reach a diagnosis. Ultrasound is a profession requiring a high degree of independence, skill, judgment and knowledge. Sonographers work in hospitals, clinics, private physician offices and other medical facilities performing examinations in their areas of specialization. The Diagnostic Medical Ultrasound (DMU) Program offers multiple educational options.

Any student interested in applying to the DMU Program should seek advisement as soon as possible to assure that all general education and prerequisite courses including the criteria for application have been completed.

Students must complete the courses listed below in addition to degree and university requirements, which include university general education requirements.

### Major core requirements

<b>Prerequisites.....</b>	<b>47</b>
PSYCH 1000: General Psychology.....	3
CHEM 1100: Atoms and Molecules with Lab .....	3
COMMUN 1200: Public Speaking.....	3
BIO SC 1010: General Principles and Concepts of Biology .....	3
AND BIO SC 1020: General Biology Laboratory .....	2
ENGLISH 1000: Exposition and Argumentation .....	3
HIST 1100: Survey of American History to 1865.....	3
OR HIST 1200: Survey of American History Since 1865 .....	3
OR POL SC 1100: American Government.....	3
SOCIOL 1000: Introduction to Sociology .....	3

OR RU SOC 1000: Rural Sociology .....	3
PHYSCS 1210: College Physics I.....	4
PTH AS 2201: Human Anatomy Lecture .....	3
AND PTH AS 2203: Human Anatomy Laboratory ..	2
ESC PS 4170: Introduction to Applied Statistics .....	3
HTH PR 2190: Medical Terminology.....	3
MATH 1100: College Algebra .....	3
MPP 3202: Elements of Physiology.....	5
DMU 1000: Introduction to Diagnostic Medical Ultrasound.....	1
<b>Core requirements.....</b>	<b>84</b>
DMU 4001: Topics in Diagnostic Medical Ultrasound.....	3
DMU 4200: Principles of Diagnostic Medical Ultrasound.....	3
DMU 4234: Clinical Pathophysiology.....	3
DMU 4309: Normal Ultrasound Clinical.....	5
DMU 4311: Pathological Images of Ultrasound.....	3
DMU 4312: Sectional Anatomy .....	3
DMU 4313: Ultrasound Physics .....	3
DMU 4314: Abdominal Ultrasound .....	5
DMU 4315: Ultrasound Instrumentation.....	3
DMU 4318: Gynecology Ultrasound.....	3
DMU 4320: Obstetrics Ultrasound.....	3
DMU 4322: Superficial Organs Ultrasound.....	3
DMU 4325: Ultrasound Clinical Pharmacology and Contrast Agents.....	3
DMU 4326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics.....	3
DMU 4330: Vascular Ultrasound Lab .....	3
DMU 4332: Vascular Ultrasound.....	4
DMU 4338: Cardiac Ultrasound, Principles and Hemodynamics .....	3
PHIL 4510: Medical Ethics.....	3
OR CPD 4480: Clinical Ethics .....	3
DMU 4941: Ultrasound Clinical I.....	7
DMU 4943: Ultrasound Clinical III.....	6
DMU 4944: Vascular Ultrasound Clinical IV .....	7
DMU 4993: Ultrasound Clinical II.....	8

### Professional Certification

Upon successfully completing the requirements of the program, BHS graduates are eligible to apply to the American Registry of Diagnostic Medical Sonographers (ARDMS) for certification in Abdomen, Obstetrics and Gynecology and Vascular Technology.

## Major Program Requirements - Radiologic Sciences (BHS)

There are two active emphasis areas in the radiologic sciences: Radiography and Nuclear Medicine. Students planning to complete one of these emphasis areas should contact the program director to determine eligibility for admission.

### Emphasis in Radiography

Radiographers are highly skilled health professionals who work closely with physicians specializing in the use of x-rays. They provide patient services using a variety of imaging modalities such as general x-ray, computed tomography, magnetic resonance imaging, mammography, interventional radiography, and bone densitometry. The radiographer must apply the principles of radiation protection, must be competent in the use and

maintenance of delicate equipment and must have the ability to deal with patients and medical professionals.

Accreditation of the program is granted by the Joint Review Committee on Education in Radiologic Technology.

Students transferring from other institutions should contact the program director to select appropriate prerequisite courses for admission. Students must complete these courses in addition to major, degree and University requirements, including University general education requirements.

**Emphasis core requirements**

**Prerequisites for radiography emphasis .....55**

HTH PR 1000: Introduction to the Health Professions ..... 2

MATH 1100: College Algebra ..... 3

RU SOC 1000: Rural Sociology..... 3

OR SOCIOL 1000: Introduction to Sociology..... 3

BIO SC 1010: General Principles and Concepts of Biology..... 3

AND BIO SC 1020: General Biology Laboratory ..... 2

OR BIO SC 1500: Introduction to Biological Systems with Laboratory ..... 5

PSYCH 1000: General Psychology..... 3

CHEM 1310: General Chemistry I ..... 2

AND CHEM 1320: General Chemistry II with Lab. 3

ENGLISH 1000: Exposition and Argumentation ..... 3

HIST 1100: Survey of American History to 1865 ..... 3

OR HIST 1200: Survey of American History Since 1865 ..... 3

OR POL SC 1100: American Government..... 3

PHYSICS 1210: College Physics I..... 4

COMMUN 1200: Public Speaking..... 3

PTH AS 2201: Human Anatomy Lecture ..... 3

AND PTH AS 2203: Human Anatomy Laboratory .. 2

MPP 3202: Elements of Physiology..... 5

HTH PR 2190: Medical Terminology ..... 3

Humanities ..... 6

**Core requirements for radiography emphasis**

RA SCI 3120: Fundamentals of Radiography..... 3

RA SCI 3110: Radiographic Positioning I ..... 2

RA SCI 3130: Basic Radiographic Skills..... 2

RA SCI 3140: Principles of Radiographic Exposure I.. 3

RA SCI 3150: Radiologic Pharmacology ..... 3

RA SCI 3160: Radiologic Physics ..... 3

RA SCI 3170: Imaging Modalities ..... 2

RA SCI 3180: Radiographic Positioning II ..... 2

RA SCI 3190: Radiographic Positioning III..... 3

RA SCI 3941: Clinical Education I..... 3

RA SCI 3942: Clinical Education II..... 3

CPD 3460: Cardiovascular and Pulmonary Diagnostic Applications I ..... 3

RA SCI 4110: Sectional Anatomy ..... 3

RA SCI 4943: Clinical Education III ..... 3

CPD 4460: Cardiovascular and Pulmonary Diagnostic Applications II ..... 3

RA SCI 4944: Clinical Education IV ..... 3

RA SCI 4303: Radiation Safety ..... 3

RADIOL 4328: Introductory Radiation Biology..... 3

CPD 4955: Introduction to Research ..... 3

CPD 4440: Organization and Administration ..... 3

RA SCI 4947: Radiography Overview..... 3

RA SCI 4945: Clinical Education V..... 3

RA SCI 4980: Imaging Pathology..... 3

RA SCI 4140: Magnetic Resonance Imaging: Physics and Procedures..... 5

OR RA SCI 4150: Computed Tomography: Physics and Procedures ..... 5

**Professional Certification**

Upon completion of the program, students are eligible to sit for the national certifying exam given by the American Registry of Radiologic Technologists.

**Emphasis in Nuclear Medicine Technology**

The nuclear medicine technologist is concerned with the use of radioactivity for patient diagnosis, monitoring of treatment and in some cases the treatment itself. The nuclear medicine technologist uses radioactive compounds to perform body function studies, produce images of internal organs and analyze biological specimens.

The curriculum incorporates the fundamentals needed for specialization as a nuclear medicine professional. Accreditation of the program is granted by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology.

The following are MU courses. Students transferring from other institutions should contact the program director to select appropriate prerequisite courses for admission. Students must complete these courses in addition to major, degree and University requirements, including University general education requirements.

**Emphasis core requirements**

**Prerequisites to the nuclear medicine emphasis .....50**

BIO SC 1100: Introductory Zoology with Laboratory..... 5

OR BIO SC 1200: General Botany with Laboratory. 5

OR BIO SC 1500: Introduction to Biological Systems with Laboratory ..... 5

CHEM 1310: General Chemistry I ..... 2

CHEM 1320: General Chemistry II with Lab ..... 3

CHEM 2100: Organic Chemistry I ..... 3

CHEM 4600: Introduction to Radiochemistry with Lab ..... 3

ENGLISH 1000: Exposition and Argumentation ..... 3

MATH 1100: College Algebra ..... 3

MATH 1400: Calculus for Social and Life Sciences I.. 3

PSYCH 1000: General Psychology..... 3

PHYSICS 1210: College Physics I..... 4

PTH AS 2201: Human Anatomy Lecture ..... 3

PTH AS 2203: Human Anatomy Laboratory..... 2

NUCMED 1000: Orientation to Nuclear Medicine..... 1

RADIOL 4328: Introductory Radiation Biology..... 3

RA SCI 4303: Radiation Safety ..... 3

SOCIOL 1000: Introduction to Sociology ..... 3

OR ANTHRO 1000: General Anthropology..... 3

CPD 4480: Clinical Ethics ..... 3

**Core requirements for the nuclear**

**medicine emphasis .....60**

HTH PR 2190: Medical Terminology ..... 3

CPD 4955: Introduction to Research ..... 3

MPP 3202: Elements of Physiology..... 5

STAT 1200: Introductory Statistical Reasoning..... 3

OR STAT 1300: Elementary Statistics .....	3
OR ESC PS 4170: Introduction to Applied Statistics	3
NUCMED 4329: Radiopharmaceuticals in Nuclear Medicine.....	3
PHYSICS 1220: College Physics II.....	4
NUCMED 3263: Morphological Correlations in Nuclear Medicine I.....	3
NUCMED 3256: Clinical Nuclear Medicine I.....	2
NUCMED 3255: Orientation to Clinical Practice .....	2
RA SCI 4110: Sectional Anatomy .....	3
CPD 4460: Cardiovascular and Pulmonary Diagnostic Applications II.....	3
NUCMED 4940: Clinical In Vivo I.....	6
NUCMED 4268: Clinical Nuclear Medicine II.....	2
NUCMED 4327: Nuclear Medicine Instrumentation..	3
NUCMED 4941: Clinical In Vivo II.....	7
NUCMED 4232: Clinical In Vitro.....	3
NUCMED 4299: Morphological Correlations in Nuclear Medicine II .....	3
NUCMED 4269: Clinical Nuclear Medicine III .....	2
NUCMED 4330: PET in Nuclear Medicine.....	3
Students are strongly encouraged to take the following course:	
CPD 4440: Organization and Administration .....	3

### Professional Certification

Upon completion of the program, students are eligible to take the national certifying examinations given by the Nuclear Medicine Technology Certification Board. Students may also pursue credentials offered through the American Registry of Radiologic Technologists.

### Major Program Requirements - Respiratory Therapy (BHS)

Respiratory care is a diverse, growing, health profession with extensive patient contact, often with the critically ill. Respiratory therapists administer prescribed respiratory care and life support to patients with deficiencies and abnormalities of the cardiopulmonary system. They work in many settings requiring a considerable degree of independent clinical judgment under the direct or indirect supervision of a physician.

The two-year, professional phase of the program begins the summer semester of the junior year. Students complete lecture and laboratory courses designed to develop knowledge and skills necessary for application to the clinical settings. Required courses in management, research, respiratory physiology and pharmacology, pathology and cardiology are integrated with the respiratory therapy curriculum. The final semester of the program consists entirely of clinical externships and online coursework. Students may select affiliated hospitals outside the Columbia area for this clinical experience or remain on campus at MU Health Care. The MU RT program has a satellite campus at Mercy Hospital-St. Louis for those students living in the St. Louis area.

Accreditation of the program is granted by the Committee on Accreditation for Respiratory Care (CoARC).

The following are MU courses. Students transferring from other institutions should contact the program director to select appropriate courses for admission. Students must complete

the courses listed below in addition to degree and University requirements, which include University general education requirements.

### Major core requirements

#### Prerequisites.....50

BIO SC 1010: General Principles and Concepts of Biology .....	3
OR BIO SC 1020: General Biology Laboratory.....	2
OR BIO SC 1500: Introduction to Biological Systems with Laboratory.....	5
CHEM 1310: General Chemistry I .....	2
AND CHEM 1320: General Chemistry II with Lab.	3
ENGLISH 1000: Exposition and Argumentation .....	3
ESC PS 4170: Introduction to Applied Statistics .....	3
HIST 1100: Survey of American History to 1865.....	3
OR HIST 1200: Survey of American History Since 1865 .....	3
OR POL SC 1100: American Government.....	3
HTH PR 2190: Medical Terminology.....	3
MATH 1100: College Algebra .....	3
MICROB 3200: Medical Microbiology and Immunology.....	4
OR MICROB 2800: Microbiology for Nursing and Health Professions .....	4
MPP 3202: Elements of Physiology.....	5
PHYSICS 1210: College Physics I.....	4
PSYCH 1000: General Psychology.....	3
PTH AS 2201: Human Anatomy Lecture .....	3
AND PTH AS 2203: Human Anatomy Laboratory ..	2
RS THR 1000: Introduction to Respiratory Therapy...	1
SOCIOL 1000: Introduction to Sociology.....	3
OR ANTHRO 1000: General Anthropology.....	3

#### Core requirements..... 74-76

CPD 3460: Cardiovascular and Pulmonary Diagnostic Applications I.....	3
CPD 4440: Organization and Administration .....	3
(same as RS THR and RA SCI 4440)	
CPD 4460: Cardiovascular and Pulmonary Diagnostic Applications II.....	3
CPD 4955: Introduction to Research .....	3
HTH PR 3200: Essentials of Pathology .....	2
RS THR 3000: Fundamentals of Respiratory Care.....	1
RS THR 3220: Equipment and Techniques .....	5
RS THR 3290: Cardiopulmonary Pharmacology .....	2
RS THR 3420: Principles of Mechanical Ventilation....	3
RS THR 3440: Mechanical Ventilation Lab.....	3
RS THR 3941: Clinical Practice I .....	2
RS THR 3942: Clinical Practice II .....	4
RS THR 3943: Clinical Practice III.....	2
RS THR 4020: Perinatal/Neonatal Respiratory Care...	3
RS THR 4040: Respiratory Pathophysiology.....	5
RS THR 4220: Community and Patient Education I... 1	
RS THR 4240: Pulmonary Rehabilitation .....	3
RS THR 4420: Pediatric Respiratory Care .....	3
RS THR 4460: Evidence-Based Medicine in Respiratory Care.....	3
RS THR 4620: Pulmonary Function Technologies.....	1
RS THR 4940: Clinical Practice IV.....	5
RS THR 4973: Clinical Practice V .....	4
RS THR 4983: Clinical Practice VI.....	5
RS THR 4993: Clinical Practice VII .....	5
CPD 4500: Bioterrorism in Healthcare .....	1

### Professional Certification

After graduation, students are eligible to take the Entry Level and Advanced Level Examinations given by the National Board for Respiratory Care.

## Department of Communication Science and Disorders

Judith Goodman, Chair  
School of Health Professions  
303 Lewis Hall  
(573) 882-3873  
mucsd@health.missouri.edu

### Advising Contact

Jill S. Diener  
(573) 882-8012

### Faculty

**ASSOCIATE PROFESSOR** J. C. Goodman, S. A. Wagovich

**ASSISTANT PROFESSOR** N. Radhakrishnan, M. Fagan,  
T. Lever

**CLINICAL ASSOCIATE PROFESSOR** B. L. Brinkman,  
B. McLay

**CLINICAL ASSISTANT PROFESSOR** D. R. Fritz,  
L. B. Lawrence, M. A. Scheneman

Communication Science and Disorders includes the study of normal language, speech and hearing across the life span, as well as communication disorders that result from biological, environmental and behavioral factors. Communication Science and Disorders includes the professions of speech-language pathology and audiology.

Speech-language pathologists evaluate the speech and language of children and adults to determine whether problems exist in such areas as voice, articulation, fluency and receptive or expressive language. They also plan and carry out programs for the treatment of these problems. Audiologists evaluate hearing, identify hearing loss and participate in the rehabilitation of persons with hearing impairments.

The professions of speech-language pathology and audiology require master's or doctoral degrees. Acceptance to an undergraduate program does not guarantee acceptance to a graduate program. Refer to the *Graduate Catalog* for information about the MHS and PhD degrees.

### Major Program Requirements – Communication Science and Disorders (BHS)

Students are required to apply to the Communication Science and Disorders major. Applications into the BHS program are considered once a year, and they must be submitted by February 1 of the student's sophomore year. Applicants must have completed at least 42 hours of college credit before applying, and students who are admitted must have completed 60 hours of college credit before beginning coursework as Communication Science and Disorders majors. A minimum GPA of 2.75 on a four-point scale and a composite score of 22 or above on the ACT are required for acceptance into the BHS program. Meeting the minimum criteria and declaring a major of pre-Communication Science and Disorders do not guarantee acceptance into the program.

In addition to university, college and degree requirements, including university general education, students must complete the following:

<b>Major core requirements .....</b>	<b>35-37</b>
ENGLISH 1000: Exposition and Argumentation .....	3
COMMUN 1200: Public Speaking.....	3
PSYCH 1000: General Psychology.....	3
PSYCH 2410: Developmental Psychology.....	3
MATH 1100: College Algebra .....	3
OR MATH 1180: Elementary Functions .....	3
OR MATH 1160: Precalculus Mathematics.....	5
STAT 1200: Introductory Statistical Reasoning .....	3
OR STAT 1300: Elementary Statistics .....	3
OR ESC PS 4170: Introduction to Applied Statistics	3
Social Sciences Requirement	
HIST 1100: Survey of American History to 1865 .....	3
OR HIST 1200: Survey of American History Since 1865.....	3
OR POL SC 1100: American Government .....	3
Biological Science Requirement	
BIO SC 1010: General Principles and Concepts of Biology .....	3
AND BIO SC 1020: General Biology Laboratory.....	2
OR	
BIO SC 1500: Introduction to Biological Systems with Laboratory.....	5
Physical Science Requirement .....	3-5
PHYSICS 1150: Concepts in Physics.....	3
OR PHYSICS 1210: College Physics I.....	4
OR CHEM 1100: Atoms and Molecules with Lab....	3
OR CHEM 1310: General Chemistry I.....	2
One Biology, Chemistry or Physics lab required.	
Humanities Elective .....	6
<b>Communication science and disorders courses .....</b>	<b>40</b>
C S D 1060: Human Language.....	3
C S D 2120: Survey of Communication Disorders .....	3
C S D 3010: American Phonetics .....	3
C S D 3020: Normal Language Development .....	3
C S D 3210: Anatomy and Physiology of the Speech Mechanism .....	2
C S D 3220: Speech Acoustics.....	2
C S D 3230: Hearing Science .....	3
C S D 4020: Language Disorders in Children .....	3
C S D 4030: Language Disorders of Adults.....	2
C S D 4320: Disorders of Phonology and Articulation	3
C S D 4210: Fluency Disorders .....	2
C S D 4220: Voice Disorders.....	1
C S D 4330: Introduction to Audiology .....	3
C S D 4430: Neurophysiology for Speech, Language and Hearing .....	3
C S D 4900: Clinical Observation in Communication Disorders (1 + 1) .....	2
(one credit is taken fall and spring of senior year)	

## Department of Occupational Therapy

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E. Shatz  
**CLINICAL ASSOCIATE PROFESSOR** G. Krug, L. Lowery  
**CLINICAL ASSISTANT PROFESSOR** C. Gateley  
**CLINICAL INSTRUCTOR** K. Herbert, D. E. Weston  
**ADJUNCT INSTRUCTOR** H. Koch, B. Stevenson

Occupational therapists are skilled health professionals who provide services to infants, children, adults and older persons experiencing physical, emotional or mental limitations in performing everyday activities. The department's philosophy supports a holistic model that emphasizes empowerment and the mind, body, spirit. The curriculum focuses on the value of occupation in relationship to health and wellness. The department's mission is to produce competent practitioners who can meet the challenges and changes occurring in institutions, community-based programs and educational settings in both urban and rural areas of Missouri.

Occupational therapists are employed in public and private schools, hospitals, rehabilitation centers, mental health facilities, nursing homes, home health agencies, community health programs and industry. As independent health practitioners, they are also involved in business, working with disability claims, in work-hardening programs and wellness/health promotion, or as proprietors of their own therapy services. Occupational therapists also work as educators, administrators, consultants and researchers.

The department offers the Bachelor of Health Science in Occupational Therapy (BHS) followed by the entry level master degree (MOT). To become a registered therapist the master degree is required.

Department accreditation is granted by the Accreditation Council for Occupational Therapy Education of the American Occupational Therapy Association, 4720 Montgomery Lane, Bethesda, MD 20814-3425, (301) 652-2682.

## Major Program Requirements – Occupational Therapy

The professional degree program requires three years of course work after completion of all prerequisites and university general education requirements. Six months of field experiences in affiliated clinical and community-based sites, must be completed within 24 months after required didactic courses.

Students with a bachelor's degree must complete the prerequisite courses and meet the university and OT admission requirements.

The following are MU courses. Students transferring from other institutions should seek advisement from the school and OT advisors and select appropriate prerequisite courses for admission. Medical terminology proficiency and 30 hours of observation is required. In addition to university, college and degree requirements, students must complete the following:

### Major core requirements

#### Prerequisites to the major

COMMUN 1200: Public Speaking.....	3
BIO SC 1010: General Principles and Concepts of Biology .....	3
AND BIO SC 1020: General Biology Laboratory.....	2
OR BIO SC 1500: Introduction to Biological Systems with Laboratory.....	5
PSYCH 2510: Survey of Abnormal Psychology .....	3
PHYSICS 1210: College Physics I.....	4
H D FS 2400: Principles of Human Development .....	4
MPP 3202: Elements of Physiology.....	5
SOCIOL 1000: Introduction to Sociology.....	3
OR ANTHRO 1000: General Anthropology.....	3
PSYCH 1000: General Psychology.....	3
ESC PS 4170: Introduction to Applied Statistics .....	3
OR STAT 1300: Elementary Statistics .....	3
OC THR 1000: Introduction to Occupational Therapy .....	1
OR HTH PR 1000: Introduction to the Health Professions.....	2
HTH PR 2190: Medical Terminology .....	3

#### Departmental course requirements

PTH AS 4222: Gross Human Anatomy (The Health Professions).....	7
OC THR 4060: Professional Issues .....	1
OC THR 4240: Applied Neurophysiology for Allied Health Students.....	3
OC THR 4110: Occupational Therapy in Health and Wellness Promotion.....	3
OC THR 4220: Clinical Kinesiology.....	3
OC THR 4380: Adult Assessment.....	3
OC THR 4310: Foundations of Occupational Therapy	4
HTH PR 3200: Essentials of Pathology .....	2
OC THR 4270: Clinical Pathophysiology .....	3
OC THR 4410: Developmental Framework .....	4
OC THR 4770: Community-Based Practice.....	3
OC THR 4970: Research Methods.....	3
OT THR 4942: Fieldwork: Adults .....	2
HTH PR 4300: Health Care in the United States.....	3
OC THR 4450: Pediatric Practice .....	3
OC THR 4350: Rehabilitation Practice .....	4

## Professional Certification

Upon successful completion of all courses, including field work experiences, students are eligible to sit for the examination of the National Board for Certification in Occupational Therapy, 800 South Fredrick, Suite 200, Gaithersburg, MD 20977-4150, (301) 990-7979. Successful completion of the exam is required by state regulatory agencies before entering into the profession.

## Requirements for Masters degree in Occupational Therapy

The Department of Occupational Therapy offers the Master of Occupational Therapy degree as the terminal degree of the program. All students must complete the prerequisite courses and meet the admission requirements to apply. The occupational therapy graduate courses include a minimum of 34 credits beyond the bachelor's degree in OT. The masters degree is required to become certified and licensed to practice as an Occupational Therapist.

# Department of Physical Therapy

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T. Briedwell, J. Krug, D. E. Martin, E. Prost  
**INSTRUCTOR** C. A. Blow, A. C. Connell, N. J. Dietz,  
S. E. Lindaman, J. J. McElroy

Physical Therapy involves the evaluation and treatment of physical disability and pain that may result from injury, disease or developmental disability. Prevention of disability and public education are also roles of the physical therapist. Physical therapists use tests and measurements to assess body system dysfunction and determine diagnosis and treatment. Daily living skills, including work, are also addressed.

The University of Missouri offers a Doctor of Physical Therapy degree. No master's degree or terminal undergraduate degree in Physical Therapy are available.

## Admissions

### Doctor of Physical Therapy Program, Regular Admissions

Most students admitted to the Doctor of Physical Therapy program will have a baccalaureate degree. Students who are interested in pursuing application to the Doctor of Physical Therapy program are encouraged to work on an undergraduate degree that will allow them to fulfill application requirements.

### Doctor of Physical Therapy Program, Early Admissions

Admission to the Doctor of Physical Therapy program may be available to a small group of students who have completed at least 90 credit hours, completed at least six full-time semesters of residential course work, all MU general education requirements and have shown excellent academic progress. Students who gain early admission to the Doctor of Physical Therapy program will be awarded the Bachelor of Health Science in pre-professional physical therapy upon completing one year of coursework in the physical therapy program.

Information regarding the admissions procedures and curriculum for the Doctor of Physical Therapy program can be found in the University of Missouri Graduate School catalog.



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**College of  
Human  
Environmental  
Sciences**

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# College of Human Environmental Sciences

*\*Includes the School of Social Work*

## Degrees Offered

### **Bachelor of Science in Human Environmental Sciences (BS HES), with majors in:**

- Architectural Studies with emphasis areas in
  - Architectural Studies*
  - Interior Design*
- Human Development and Family Studies with emphasis areas in
  - Child Development and Education*
  - Child Life Specialist*
  - Family and Consumer Sciences Education*
  - Family and Lifespan Development*
- Nutritional Sciences, with emphasis areas in
  - Medical Dietetics*
  - Nutrition and Fitness*
  - Nutritional Science*
- Personal Financial Planning, with emphasis areas in
  - Personal Financial Planning*
  - Personal Financial Management Services*
  - Financial Counseling*
- Textile and Apparel Management

### **Bachelor of Social Work (BSW)**

#### **Dual Degrees**

Human Development and Family Studies and Social Work

#### **Minors**

- Architectural Studies
- Financial Literacy for Helping Professionals
- Human Development and Family Studies
- Nutritional Sciences
- Personal Financial Management Services
- Textile and Apparel Management
- Social Justice

## Administration

Stephen R. Jorgensen, Dean  
Bea Smith, Dean Emeritus  
Jo Britt-Rankin, Associate Dean for Human Environmental Sciences Outreach and Extension  
James (Sandy) Rikoon, Associate Dean for Research and Graduate Studies  
Victoria Shahan, Student Services Director

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#### **Scholarship Information Contact**

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The College of Human Environmental Sciences addresses human needs and enhances individual and family life in a diverse and global society by conducting advanced research, preparing professionals and providing outreach.

The college is unique among its peers in its comprehensive use of professional advisory boards, whose members are leaders in business, government, education and the social services. These experts provide guidance and support from their specialized fields to students and faculty and contribute powerful perspectives to curriculum development.

## Admissions

Undergraduate students may enter the College of Human Environmental Sciences as freshmen. Some programs have requirements beyond those of the University. An entering freshman has the first year to explore the departments and the college as well as the combinations of subject areas for positions in fields such as education, health and welfare, business, industry and government.

All freshmen entering the College of Human Environmental Sciences enroll in GN HES 1100: Introduction to Human Environmental Sciences or SOC WK 1110: Introduction to the Social Work Major. These courses emphasize career decision-making, provide an orientation to the campus and the college, and bring into focus the role of a professional in the improvement of the quality of life in the near environment.

## Transfer Student Application

### **Human Environmental Sciences**

Students in another MU school or college, or from another UM System campus, must have a cumulative GPA and term GPA of 2.0 or better to be eligible for admission to the College of Human Environmental Sciences. For students who transfer to the UM System from another institution and then apply for transfer into the college, transcripts are re-evaluated by the college to determine what courses will apply to the degree.

A student ineligible to enroll in another school or college may not enroll in the College of Human Environmental Sciences during the period of ineligibility. An appeal for admission may be made after the period of ineligibility is over.

### **School of Social Work**

Undergraduate students who have been admitted to the University after attending another college may request a social work major. Those who have completed more than 55 credits need a GPA of 2.5 or higher on all college work attempted.

## Graduation Requirements – Human Environmental Sciences (BS HES)

The completion of all requirements for graduation is the responsibility of the student. To receive the Bachelor of Science in Human Environmental Sciences, the student must complete

the requirements for a professional area of competence in one of the departments, in addition to University requirements.

Students earning a BS HES degree must complete the following courses. Courses of similar content transferred from accredited schools may be substituted for courses listed.

### Degree core requirements

#### GN HES 1100: Introduction to Human

**Environmental Sciences** ..... 1

Freshmen students must take; strongly recommended if a student enters as a sophomore.

#### Human Environmental Sciences

**Foundation courses**..... 6-7

A minimum of two courses outside the student's major selected from two different departments and chosen from the list below.

#### Architectural Studies

ARCHST 1600: Fundamentals of

Environmental Design..... 3

ARCHST 2100: Understanding Architecture and

the American City..... 3

ARCHST 3100: Color and Light..... 3

ARCHST 4620: Environment and Behavior..... 3

ARCHST 4630: Shaping Human Settlements ..... 3

#### Human Development and Family Studies

H D FS 1600: Foundations of Family Studies..... 3

H D FS 1610: Intimate Relationships and Marriage..... 3

H D FS 2400: Principles of Human Development ..... 4

#### Nutritional Sciences

NUTR S 1034: Nutrition, Current Concepts

and Controversies ..... 3

NUTR S 1340: Introduction to Exercise and Fitness... 3

NUTR S 2380: Diet Therapy for Health

Professionals..... 3

#### Personal Financial Planning

FINPLN 2183: Personal and Family Finance..... 3

#### Social Work

SOC WK 1115: Social Welfare and Social Work..... 3

SOC WK 2000: Exploration in Social and

Economic Justice..... 3

SOC WK 4710: Social Justice and Social Policy..... 3

#### Textile and Apparel Management

T A M 1100: Introduction to the Textile and

Apparel Industry..... 3

T A M 1300: Softgoods Retailing ..... 3

T A M 2200: Science of Textiles..... 3

T A M 2400: Global Consumers..... 3

T A M 2500: Social Appearance in Time and Space ..... 3

T A M 3100: Fundamentals of E-Commerce..... 3

T A M 3510: History of Western Dress..... 3

### Electives

Electives vary with the student's professional objectives and are chosen by the student in consultation with the advisor.

### Human Environmental Sciences Extension

#### Specialist

A student who plans to be an extension specialist may choose a subject-matter area of interest. In addition, a master's degree in a subject-matter area generally is required in Missouri.

The student must fulfill the requirements for the chosen major while pursuing the extension objective. Additional electives can be chosen from such areas as adult education, communications and the social sciences.

### Maximum Credits Enrolled

A student with a cumulative GPA below 3.0 must obtain permission from the advisor and the student services director to enroll in more than 18 credits.

### Dual Degree - BS HES and BSW

A dual degree is offered in Human Development and Family Studies and Social Work. Students must be admitted to both programs and complete 133 credits minimum. Contact the directors of both programs for more information.

## Student Services

### Advising

Professional advising staff in the Student Services Office assists the students in planning their college programs. In addition, each student is assigned a faculty advisor to mentor them as emerging young professionals.

Students earning credit from another institution will have a transfer equivalencies form completed by faculty for course work in their professional program. Transfer work is evaluated by the Office of Admissions. The HES Office of Student Services determines how transferred courses fit into a particular degree program.

It is the student's responsibility to initiate a graduation check to be certain that all requirements are met. An appointment for the graduation check should be made in the HES Student Services Office the semester preceding graduation.

### Career Services

Career services cover a spectrum of career options. These include business, education and agriculture career services offices on the campus. The Student Services Office and individual advisors provide information regarding procedures. Career exploration information may be obtained in the Career Center.

# Department of Architectural Studies

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**TEACHING ASSISTANT PROFESSOR** M. Goldschmidt  
**PROFESSOR EMERITUS** R. Helmick  
**ASSOCIATE PROFESSOR EMERITUS** G. Hennigh  
**ASSISTANT PROFESSOR EMERITUS** P. Hildebrand

The Department of Architectural Studies offers a Bachelor of Science in Human Environmental Sciences. The Department's mission is to educate future design practitioners, advance research of the built environment, and disseminate knowledge of architectural studies to improve quality of life for people.

The philosophy of the Department of Architectural Studies embraces the synergy created between architecture and interior design. Having a symbiotic relationship, both fields explore the design process and its final products. Promoting the meaning and value of physical settings and responding to the human condition, the program investigates the interaction between people and their surroundings to create a more beautiful and sustainable world. The program encourages an interdisciplinary, scholarly climate celebrating aesthetic values and the human sciences.

The department offers a minor in architectural studies. See <http://arch.missouri.edu/programs/ARCHSTminor.pdf>

## Emphasis Areas

Interior Design, Architectural Studies

## Portfolio Review and Admission to Studio Sequence in Architectural Studies

Students must apply for admission to the studio sequence required for undergraduate majors. Applications must be made at the end of the spring semester of the freshman level for enrollment in ARCHST 2811: Studio I.

Application forms with deadlines are available from the

department and department website. Admittance decisions are based on:

1. Review of design work submitted in a portfolio, which should include:
  - Satisfactory completion of ARCHST 1200: Architectural Drafting and Working Drawings
  - Satisfactory completion of 2-dimensional design course-work from:
    - ARCHST 1100: Visual Design
    - OR ART GNRL 1030: Basic 2-D Design
  - Satisfactory completion of ART DRAW 1050: Drawing I
2. Overall grade point average (including transfer courses), grades received in courses completed, and ACT scores (or equivalent for transfer students)
3. Enrollment capacity (approximately 40 students)

## Laptop Computer Requirements

A laptop computer is required for the studio sequence at the beginning of the sophomore year. See department website for recommended specifications.

## Major Program Requirements – Human Environmental Sciences (BS HES) in Architectural Studies

### Emphasis in Interior Design

The Interior Design emphasis is a four-year, first-professional baccalaureate interior design program accredited by the Council for Interior Design Accreditation (CIDA; formerly FIDER).

### Degree Requirements of Interior Design

<b>Basic Creative Development.....</b>	<b>9</b>
ARCHST 1100: Visual Design.....	3
ARCHST 2315: Introduction to Building Systems Laboratory.....	1
ARCHST 2316: Advanced Building Systems Lab.....	2
ARCHST 3100: Color and Light.....	3
<b>Design Planning and Analysis.....</b>	<b>27</b>
ARCHST 2811: Studio I.....	4
ARCHST 3182: Studio II.....	4
ARCHST 3860: Human Factors Programming.....	2
ARCHST 4813: Interiors Studio III.....	4
ARCHST 4814: Interiors Studio IV.....	4
ARCHST 4815: Construction Documents and Building Information Modeling Studio.....	4
ARCHST 4860: Programming for Thesis Design Studio.....	1
ARCHST 4990: Thesis Design Studio.....	4
<b>Design Communication.....</b>	<b>9</b>
ART DRAW 1050: Drawing I.....	3
ARCHST 1200: Architectural Drafting and Working Drawings.....	3
ARCHST 2230: Design Communication I.....	3
<b>Technical Knowledge.....</b>	<b>15</b>
ARCHST 2220: Computer-Aided Drafting with AutoCad.....	3
ARCHST 2310: Building Systems.....	3
ARCHST 4320: Materials, Methods and Products.....	3
ARCHST 4323: Sustainable Technologies and Systems.....	3
ARCHST 4333: Compliance and Specifications.....	3
<b>History of Art, Architecture and Interiors.....</b>	<b>9</b>

AR H A 1120: Renaissance through Modern Art .....	3
OR AR H A 1110: Ancient and Medieval Art.....	3
ARCHST 4430: Guiding Design with Historic Preservation .....	3
ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution .....	3
<b>Business .....</b>	<b>3</b>
ARCHST 4710: Design Business Practices .....	3
<b>Design Theory.....</b>	<b>12</b>
ARCHST 1600: Fundamentals of Environmental Design.....	3
ARCHST 2100: Understanding Architecture and the American City .....	3
ARCHST 3600: Environmental Analysis.....	3
ARCHST 4620: Environment and Behavior .....	3
<b>Electives to equal 125 credit minimum</b>	

### Emphasis in Architectural Studies

The Architectural Studies emphasis prepares students at the undergraduate level for application to professional architectural programs as well as for other roles in society in related fields - in research, government, development, management, planning, etc. While many of these occupations do not require a professional license, they do require an understanding of, and exposure to, a professional education.

Students may choose to continue their program of study for a master's degree in architecture (M. Arch) at another university. A program reciprocity agreement was developed with the University of Kansas (KU). All students interested in continuing their education are encouraged to maintain regular communication with the cooperating institution, because application and transfer procedures are subject to change. Students also continue at many other M. Arch programs in the U.S. where scholarships and other financial support may be available as determined by the institution.

### Degree Requirements of Architectural Studies

<b>Basic Creative Development.....</b>	<b>9</b>
ARCHST 1100: Visual Design.....	3
ARCHST 2315: Introduction to Building Systems Laboratory .....	1
ARCHST 2316: Advanced Building Systems Lab.....	2
ARCHST 3100: Color and Light.....	3
<b>Design Planning and Analysis.....</b>	<b>27</b>
ARCHST 2811: Studio I .....	4
ARCHST 3182: Studio II.....	4
ARCHST 3860: Human Factors Programming.....	2
ARCHST 4823: Architectural Studio III.....	4
ARCHST 4824: Architectural Studio IV.....	4
ARCHST 4815: Construction Documents and Building Information Modeling Studio .....	4
ARCHST 4860: Programming for Thesis Design Studio.....	1
ARCHST 4990: Thesis Design Studio .....	4
<b>Design Communication .....</b>	<b>9</b>
ART DRAW 1050: Drawing I.....	3
ARCHST 1200: Architectural Drafting and Working Drawings.....	3
ARCHST 2230: Design Communication I .....	3
<b>Technical Knowledge .....</b>	<b>15</b>
ARCHST 2220: Computer-Aided Drafting with AutoCad .....	3

ARCHST 2310: Building Systems .....	3
ARCHST 4320: Materials, Methods and Products.....	3
ARCHST 4323: Sustainable Technologies and Systems.....	3
ARCHST 4333: Compliance and Specifications .....	3
MATH 1320: Elements of Calculus .....	3
PHYSCS 1210: College Physics I.....	4
<b>History of Art, Architecture and Interiors .....</b>	<b>9</b>
AR H A 1120: Renaissance through Modern Art .....	3
OR AR H A 1110: Ancient and Medieval Art.....	3
ARCHST 4430: Guiding Design with Historic Preservation .....	3
ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution .....	3
<b>Business .....</b>	<b>3</b>
ARCHST 4710: Design Business Practices .....	3
<b>Design Theory.....</b>	<b>12</b>
ARCHST 1600: Fundamentals of Environmental Design.....	3
ARCHST 2100: Understanding Architecture and the American City .....	3
ARCHST 3600: Environmental Analysis.....	3
ARCHST 4620: Environment and Behavior .....	3
<b>Electives to equal 125 credit minimum</b>	

### Minor in Architectural Studies

A minor in the Department of Architectural Studies is comprised of a minimum of 15 credits.

<b>Minor core requirements .....</b>	<b>3</b>
ARCHST 1600: Fundamentals of Environmental Design .....	3
<b>Electives (choose from).....</b>	<b>12</b>
ARCHST 1100: Visual Design.....	3
ARCHST 1200: Architectural Drafting and Working Drawings.....	3
ARCHST 2100: Understanding Architecture and the American City .....	3
ARCHST 2220: Computer Aided Drafting with AutoCAD .....	3
ARCHST 2310: Building Systems .....	3
ARCHST 2315: Introduction to Building Systems Laboratory .....	1
ARCHST 2316: Advanced Building Systems Lab.....	2
ARCHST 3100: Color and Light.....	3
ARCHST 4320: Materials, Methods and Products.....	3
ARCHST 4230: Computer Graphic Application for Design I.....	3
ARCHST 4323: Sustainable Technologies and Systems.....	3
ARCHST 4430: Guiding Design with Historic Preservation .....	3
ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution .....	3
ARCHST 4555: Recent Trends.....	variable
ARCHST 4620: Environment and Behavior .....	3
ARCHST 4630: Shaping Human Settlements .....	3
ARCHST 4700: Place-Making in Community Design.	3

For exceptional students, with consent of instructor and department approval, additional course work in the department may be selected.

# Department of Human Development and Family Studies

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Lawrence Ganong, Co-Chair

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**LABORATORY DIRECTOR** J. Bradley

**LABORATORY INSTRUCTOR** E. Angst, J. Bacino,

P. Storey, S. Weiner

**PROFESSOR EMERITUS** K. Thornburg

**CHILD LIFE PROGRAM COORDINATOR** N. Hager

The Department of Human Development and Family Studies (HDFS) combines basic understanding of human development with preparation for professional service to individuals and families. Career opportunities are primarily found in human service agencies serving children, adolescents, older adults, parents and families. The human development and family studies major also prepares the student for graduate study in HDFS and related fields.

The department offers the BS HES with a major in Human Development and Family Studies. A dual degree with the School of Social Work also is available. The student's program is developed from a base of human development and family studies courses. The student working with children must be able to maximize the resources offered by the family. The

student concerned with the quality of family life must also recognize the intricate spiral of changing needs in the growing individual. Students in the HDFS major must select one of the emphasis areas listed below. (Note: Emphasis areas appear on transcripts but not on diplomas.)

## Emphasis Areas

- Child Development and Education
- Child Life Specialist
- Family and Consumer Sciences Education
- Families and Lifespan Development
- Human Development and Family Studies and Social Work

## Major Program Requirements - Human Development and Family Studies (BS HES)

Majors in all of the emphasis areas in HDFS must complete the core courses below:

**Grade of 2.0 or better required in these core classes\*:**

H D FS 1600: Foundations of Family Studies..... 3

H D FS 2200: Research Methods in Human  
Development and Family Studies ..... 3

H D FS 2300: Multicultural Study of  
Children and Families ..... 3

H D FS 2400: Principles of Human Development ..... 4

H D FS 3420: Early and Middle Childhood ..... 3

**Major core requirements.....16**

\*One grade of C- will be accepted in a core course.

Child Development Laboratory Courses H D FS 3500, 3700, and 4971 have prerequisites and require the consent of the instructor. Students must have full HDFS status. Because enrollment is limited, students must see the HDFS advisor to be placed on the waiting list a minimum of two semesters before anticipated enrollment. Students in Families and Lifespan Development may substitute another practicum experience with consent of department advisor.

In addition to the required courses, the degree program is completed with courses selected from within the department, from other areas in the College of Human Environmental Sciences, and from the social sciences and allied professional fields such as education, recreation, business and health. For some students, courses in the arts, humanities, or biological sciences may be appropriate. For the degree requirements for the dual degree - BS HES and Social Work refer to the section for the School of Social Work.

## Emphasis in Child Development and Education

This emphasis is designed to prepare graduates for positions of responsibility and leadership in public and private preschool programs, child-care centers, infant-care programs, after-school programs and other educational and social service settings that serve families and children. Additional job opportunities include group homes, shelters, child care and provider training agencies, Parents as Teachers, and YMCA/YWCA.

The general goal of the emphasis area is to provide instruction and experience to help students gain competence in working with young children and their families. The emphasis is on understanding human development, with primary focus on child development, early childhood education, and children's relationships with family members. Attention is also devoted

to the development of working relationships with professional colleagues and community workers.

### A. Requirements in H D FS

<b>Subject area requirements in HDFS</b> .....	<b>43</b>
*H D FS 1600: Foundations of Family Studies .....	3
*H D FS 2200: Research Methods in Human Development and Family Studies.....	3
*H D FS 2300: Multicultural Study of Children and Families .....	3
*H D FS 2400: Principles of Human Development.....	4
*H D FS 3420: Early and Middle Childhood.....	3
H D FS 3430: Adolescence and Young Adulthood .....	3
*H D FS 3500: Infant-Toddler Development and Programs .....	4
*H D FS 3510: Curriculum and Activities for the Early Childhood Setting .....	3
*H D FS 3530: Foundations of Community-Based Programs for Children and Youth.....	3
H D FS 3600: Working With Parents .....	3
*H D FS 3700: Child Development Laboratory .....	6
*H D FS 4570: Development and Administration of Child Services Programs .....	3
H D FS 4720: Child and Family Advocacy .....	3
*H D FS 4971: Advanced Child Development Lab ....	12

\* Student must earn 2.00 or better in course.

### B. Requirements in related areas .....

STAT 1200: Introductory Statistical Reasoning .....	3
OR STAT 1300: Elementary Statistics .....	3
OR STAT 1400: Elementary Statistics for Life Sciences.....	3
OR ESC PS 4170: Introduction to Applied Statistics .....	3
LTC 4500: Emergent Language in Early Childhood ...	3
LTC 4510: Assessment in Early Childhood Education .	3
SPC ED 4300: Introduction to Special Education.....	3

### C. Supporting courses (from HDFS and related areas)3

### Emphasis in Child Life

This emphasis prepares graduates to provide for the social-emotional needs, and support the optimum growth and development of children and their families in a variety of health care settings. Child life specialists use therapeutic play, psychological preparation, and coping skills interventions to help reduce the anxiety and stress related to illness, disability, hospitalization and medical procedures. Through a family-centered care approach, they provide parents and other family members reassurance and emotional support, help them understand children's psychosocial needs, and provide tools to help them minimize psychological trauma.

Courses focus on understanding normal and exceptional child and family development, effective methods of working with children and families, as well as integration of theory and research into hands-on clinical practice experiences (evidence-based practice). Students who successfully complete the degree program should be well prepared to take the Child Life Professional Certification Exam presented by the Child Life Council Certification Committee. The student's last semester is spent outside Columbia in a 480-clock-hour (minimum) clinical internship in a pediatric hospital setting.

This academic emphasis requires that students successfully complete child life volunteer, practicum, and clinical internship experiences. Clinical education sites require that students provide proof of health insurance, up-to-date immunizations, and student professional liability insurance. Students must also pass mandatory drug screens, criminal background checks, and any other additional qualification checks prior to beginning any clinical education experience in child life.

Students must complete supervised clinical experiences to attain this degree and thus be eligible to take the national Child Life Certification Exam (CCLS exam). Failure to provide appropriate documentation, or pass drug screens and criminal background checks prior to the beginning of these experiences may result in dismissal from the child life degree program in HDFS. The student is responsible for all costs incurred with these qualification checks.

All courses in sections A-B below are required.

### A. Requirements in HDFS .....

*H D FS 1600: Foundations of Family Studies .....	3
*H D FS 2200: Research Methods in Human Development and Family Studies .....	3
*H D FS 2300: Multicultural Study of Children and Families .....	3
H D FS 2400: Principles of Human Development .....	4
*H D FS 3420: Early and Middle Childhood.....	3
H D FS 3430: Adolescence and Young Adulthood .....	3
H D FS 3600: Working with Parents .....	3
*H D FS 3500: Infant-Toddler Development and Programs .....	4
*H D FS 3700: Child Development Laboratory .....	6
****H D FS 4085: Problems in Human Development and Family Studies (Child Life Volunteering) ....	1
H D FS 4100: Children in Health Care Settings .....	3
H D FS 4110: Child Life Theory Practice .....	3
** H D FS 4130: Child Life Practicum .....	3
H D FS 4570: Development and Administration of Child Services Programs .....	3
H D FS 4400: Childhood Death and Bereavement.....	3
H D FS 4720: Child and Family Advocacy.....	3
OR H D FS 4700:Children and Families in Poverty. 3	
***H D FS 4993: Internship in Human Development and Family Studies .....	15

\*Student must earn 2.00 or better in course.

\*\*Students are admitted to H D FS 4130 on a competitive, space-available basis. Interview applications are considered the semester before the student wishes to take H D FS 4130. Student must have attained a 3.0 CUM GPA to be eligible to interview.

\*\*\*Students are admitted to H D FS 4993 after satisfactory completion of H D FS 4130 (grade of 3.0 or higher). Students must be selected by hospitals through a student-initiated competitive application process.

\*\*\*\*Should be completed prior to end of sophomore year.

### B. Required in Related Areas .....

Biological Sciences:

Choose from PTH AS 2201 and 2203 (Recommended) OR BIO SC 1010 and 1020, or 1030.....	5
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Physical Sciences:

Choose from CHEM 1100: Atoms and Molecules with Lab.....	3
OR CHEM 1310 General Chemistry I.....	2

FINPLN 2183: Personal and Family Finance.....	3
HTH PR 2190: Medical Terminology (Required) .....	3
NUTR S 1034: Nutrition, Current Concepts and Controversies .....	3
PHIL 2440: Medical Ethics.....	3
STAT 1200: Introductory Statistical Reasoning.....	3
OR STAT 1300: Elementary Statistics .....	3
OR STAT 1400: Elementary Statistics for Life Sciences.....	3
OR ESC PS 4170: Introduction to Applied Statistics .....	3

**C. Supporting course work (see current degree program list)**

**Emphasis in Family and Consumer Sciences Education**

This emphasis prepares graduates for certification to teach family and consumer sciences from birth to grade 12 in public schools. The program combines courses in the human sciences with courses in teacher preparation from the College of Education. In order to progress to Phase II, students must earn a minimum GPA of 2.5, C-Base minimum score of 235 and PRAXIS minimum score of 162.

This academic emphasis requires that students successfully complete field experiences and a student teaching internship. Public schools require that students provide proof of up-to-date immunizations and professional liability insurance. Criminal background checks and other qualifications may be required depending on the school.

Students must complete the field experience and internship to earn the degree and be eligible for recommendation for state certification to teach. Failure to provide appropriate documentation, or pass criminal background checks may result in dismissal from the program. The student is responsible for all costs incurred with these requirements.

<b>Emphasis requirements.....</b>	<b>15</b>
CHEM 1100: Atoms and Molecules with Lab .....	3
ECONOM or AG EC .....	3
PHIL 1100: Introduction to Ethics.....	3
OR PHIL 2400: Ethics and the Professions.....	3
PSYCH 1000: General Psychology.....	3
STAT 1200: Introductory Statistical Reasoning.....	3
OR STAT 1300: Elementary Statistics .....	3
OR STAT 1400: Elementary Statistics for Life Sciences.....	3
OR ESC PS 4170: Introduction to Applied Statistics .....	3

**FCS Content Area Requirements\***

ARCHST 2100: Understanding Architecture and the American City.....	3
OR ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution.....	3
FINPLN 2183: Personal and Family Finance.....	3
H D FS 1600: Foundations of Family Studies.....	3
H D FS 2200: Research Methods in Human Development and Family Studies .....	3
H D FS 2300: Multicultural Study of Children and Families .....	3

H D FS 2400: Principles of Human Development .....	4
H D FS 3420: Early and Middle Childhood (or equivalent) .....	3
H D FS 3600: Working with Parents.....	3
H D FS 4640: Interpersonal Relationships.....	3
H D FS 4720: Child and Family Advocacy.....	3
HSP MGMT 1991: Food Service Sanitation Management.....	1
HSP MGMT 1995: Culinary Fundamentals.....	3
NUTR S 1034: Nutrition, Current Concepts and Controversies.....	3
NUTR S 1340: Introduction to Exercise and Fitness...	3
T A M 1200: Basic Concepts of Apparel Design and Production.....	3
OR T A M 2500: Social Appearance in Time and Space .....	3
T A M 2200: Science of Textiles.....	3
T A M 2400: Global Consumers.....	3

**FCS Teacher Development Requirements\***

COMMUN 1200: Public Speaking.....	3
GN HES 1100: Introduction to Human Environmental Sciences.....	1
LTC 1200: Elements of Health Education .....	2
ESC PS 2010: Inquiry into Learning I .....	3
ESC PS 2014: Inquiry into Learning I: Field Experience .....	1
***LTC 2040: Inquiring into Schools, Community, and Society I.....	3
***LTC 2044: Inquiry into Schools, Community and Society: Field.....	1
***SPC ED 4020: Inquiry into Learning II .....	3
***ED LPA 4060: Inquiring into Schools, Community, and Society II .....	3
***LTC 4560: Teaching Reading in the Content Areas .....	2
***H D FS 4800: Program and Curriculum Design for FACS Education in Middle and Secondary Schools ..	3
***H D FS 4820: Assessment in Family and Consumer Sciences Education .....	2
***H D FS 4830: Methods of Teaching FACS in Middle and Secondary Schools .....	3
***H D FS 4940: Field Experience in Family and Consumer Sciences .....	1
***H D FS 4941: Field Experience in Family and Consumer Sciences .....	1
***H D FS 4942: Student Teaching FACS in Middle and Secondary Schools .....	15

\*Must earn 2.00 or better in course.

\*\*\*Must have completed General Certification Requirements, Professional Education Requirements for ESC PS 2010 and ESC PS 2014 prior to enrolling.

**Emphasis in Families and Lifespan Development**

Courses required for Certified Family Life Educator can be found at <http://hdfs.missouri.edu/current.html> under the CFLE Certification information.

**A. Requirements in H D FS..... 44-48**

STAT 1200: Introductory Statistical Reasoning.....	3
OR STAT 1300: Elementary Statistics .....	3
OR STAT 1400: Elementary Statistics for Life Science .....	3
OR ESC PS 4170: Introduction to Applied Statistics	3
*H D FS 1600: Foundations of Family Studies .....	3

*H D FS 2200: Research Methods in Human Development and Family Studies .....	3
*H D FS 2300: Multicultural Study of Children and Families .....	3
*H D FS 2400: Principles of Human Development.....	4
H D FS 2450: Human Sexuality Across the Life Span..	3
*H D FS 3420: Early and Middle Childhood.....	3
H D FS 3430: Adolescence and Young Adulthood.....	3
H D FS 3440: Adulthood and Aging.....	3
H D FS 3500: Infant-Toddler Development and Programs .....	4
OR H D FS 3700: Child Development Laboratory ..	6
OR H D FS 3730: Field Training Practicum .....	3
H D FS 4620: Family Interaction .....	3
H D FS 4640: Interpersonal Relationships.....	3
**H D FS 4970: Families and Lifespan Development Capstone.....	4
H D FS 4993: Internship in Human Development and Family Studies.....	3-6

\*Students must earn a 2.0 or better in these courses. H D FS 1600 must be taken before H D FS 2300 or any 3000/4000-level H D FS course.

\*\*Cannot be completed until successful completion of H D FS core courses and H D FS 3430, 3440 and 12 credit from H D FS 4610, 4620, 4630, 4640 and 4700 or consent of instructor. 3 credit hours of these 3000/4000-level courses can be concurrent with H D FS 4970.

<b>B. Related Electives.....</b>	<b>24</b>
H D FS 1610: Intimate Relationships and Marriage.....	3
H D FS 3085 OR 4085: Problems in Human Development and Family Studies .....	1-3
H D FS 3090: Research Experience in Human Development and Family Studies .....	1-6
H D FS 3500: Infant-Toddler Development and Programs (if not taken as required course).....	4
H D FS 3530: Foundations of Community-Based Programs for Children and Youth.....	3
H D FS 3600: Working with Parents.....	3
H D FS 3700: Child Development Laboratory (if not taken as required course).....	3
H D FS 3730: Field Training Practicum (if not taken as required course).....	3
H D FS 3800: Children's Play .....	3
H D FS 4090: Advanced Research in Human Development and Family Studies .....	1-6
H D FS 4300: Black Families .....	3
H D FS 4400: Childhood Death and Bereavement.....	3
H D FS 4420: Environmental Influences on Lifespan Cognition .....	3
H D FS 4570: Development and Administration of Child Services and Programs.....	3
H D FS 4610: Stress in Families .....	3
H D FS 4630: The Process of Divorce.....	3
H D FS 4700: Children and Families in Poverty .....	3
H D FS 4720: Child and Family Advocacy.....	3

### Emphasis in Human Development and Family Studies and Social Work-Dual Degree

This option is designed to provide instruction and experiences that will help students develop competence in understanding, guiding, and working with individuals and families. Emphasis

is placed on understanding human and family development, administrative aspects of community programs, communication skills, and program development and evaluation.

The program leads to dual degrees: a Bachelor of Social Work and a Bachelor of Science in Human and Environmental Sciences with a major in Human Development and Family Studies. Careers include positions in family and children's services, youth organizations, religious organizations, court and justice systems, mental health centers, and programs for older adults.

Students apply for admission to the Social Work program after completing H D FS 1600, 2400, and an additional 54 credits. A minimum GPA of 2.5 must have been attained for the first 60 credit hours.

#### A. Requirements in H D FS.....36

*H D FS 1600: Foundations of Family Studies .....	3
*H D FS 2300: Multicultural Study of Children and Families .....	3
H D FS 2400: Principles of Human Development .....	4
*H D FS 3420: Early and Middle Childhood.....	3
H D FS 3600: Working with Parents.....	3
*H D FS 4300: Black Families.....	3
H D FS 4400: Childhood Death and Bereavement.....	3
OR H D FS 4610: Stress in Families.....	3
OR H D FS 4700: Children and Families in Poverty	3
H D FS 4720: Child and Family Advocacy.....	3

**Choose either a Family Studies or Human Development area of specialization, which is 6 hours.**

#### Family Studies (2 courses from the following:)

H D FS 4620: Family Interaction .....	3
H D FS 4630: The Process of Divorce .....	3
H D FS 4640: Interpersonal Relationships.....	3

OR

#### Human Development

H D FS 3430: Adolescence and Young Adulthood .....	3
H D FS 3440: Adulthood and Aging.....	3

#### B. Requirements in Related Areas.....6

NUTR S 1034: Nutrition, Current Concepts and Controversies .....	3
OR NUTR S 2222: Landscape of Obesity.....	3
FINPLN 2183: Personal and Family Finance.....	3
OR FINPLN 4380: Assessing the American Dream..	3

#### C. Requirements in Social Work.....48

Students must be admitted to the School of Social Work before taking any of these courses. For admission, the student must have attained 60 credit hours and a 2.5 cumulative GPA.

SOC WK 1110: Introduction to the Social Work Major.....	1
**SOC WK 1115: Social Welfare and Social Work.....	3
SOC WK 2220: Human Behavior and the Environment.....	3
SOC WK 3320: Understanding Personality in a Social Context.....	3
OR PSYCH 4310: Theories of Personality.....	3
SOC WK 4710: Social Justice and Social Policy.....	3
SOC WK 4711: Social Justice and Social Policy II.....	3
SOC WK 4720: Variations in Human Behavior.....	3
***SOC WK 4730: Introduction to Social	

Work Practice.....	3
SOC WK 4740: Introduction to Community and Organizational Processes.....	4
SOC WK 4750: Interaction Skills Workshop.....	3
SOC WK 4760: Theory and Practice of Social Group Work.....	3
****SOC WK 4770: Strategies of Direct Practice .....	3
SOC WK 4951: Research for Social Work Practice.....	3
SOC WK 4952: Research Methods for Social Work .....	3
SOC WK 4970: Senior Professional Seminar .....	3
Social Work elective course chosen from Field of Practice .....	3
<b>Capstone/internship experience is 9 credit hours</b>	
****SOC WK 4971: Undergraduate Field Practicum .....	6

This course and SOC WK 4970, constitute the capstone experience.

- \*Must attain a grade of 2.0 or better
- \*\*Optional
- \*\*\*To be taken fall semester, junior year
- \*\*\*\*To be taken fall semester, senior year
- \*\*\*\*\*To be taken spring semester, senior year

### Summary

General Education Courses .....	45
College Requirements.....	6-7
Professional Courses and Electives.....	82
<b>Total.....</b>	<b>133-134</b>

### Minor in Human Development and Family Studies

A minor in HDFS may be obtained by taking 15 credits in the following courses:

H D FS 1600: Foundations of Family Studies.....	3
H D FS 1610: Intimate Relationships and Marriage.....	3
H D FS 2300: Multicultural Study of Children and Families .....	3
H D FS 2400: Principles of Human Development .....	4
*H D FS 3420: Early and Middle Childhood (or equivalent) .....	3
OR H D FS 3430: Adolescence and Young Adulthood.....	3
OR H D FS 3440: Adulthood and Aging .....	3

\* Students who have completed PSYCH 2410, ESC PS 2500 cannot receive credit for H D FS 3420.

## Department of Nutrition and Exercise Physiology

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### Faculty

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**ASSISTANT PROFESSOR** P. M. Landhuis, H. Leidy, R. S. Recter  
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**ADJUNCT INSTRUCTOR** L. Hudson, D. Showers, D. Smith  
**PROFESSOR EMERITUS** T. R. Thomas  
**ASSOCIATE PROFESSOR EMERITUS** R. P. Dowdy

The program leading to the BS in Human Environmental Sciences with a major in Nutritional Sciences offers designated emphasis areas in medical dietetics, nutrition and fitness, and nutritional sciences. A minor is also available in nutritional sciences. The department administers graduate programs in nutritional sciences and exercise physiology.

Students who want to explore the major can take NUTR S 1034: Nutrition, Current Concepts and Controversies or NUTR S 1340: Introduction to Exercise and Fitness.

### Major Program Requirements – Nutritional Sciences (BS HES)

Required entry-level courses for the program include CHEM 1310 and 1320 and BIO SC 1500.

### Emphasis in Medical Dietetics

The Coordinated Program in Dietetics combines academic course work with supervised practice in healthcare settings. Enrollment is limited. To apply, students must have completed (or be enrolled in) prerequisite courses and have a GPA of at least

3.2. Students must achieve a course grade of “B-” or better in NUTR S 2340 and BIOCHM 3630, or equivalent transfer courses approved by faculty.

Graduates are eligible to take the Registration Examination for Dietitians, which is required to obtain the RD (Registered Dietitian) credential. The program is accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association.

**Emphasis core requirements**

**Nutritional sciences .....54**

NUTR S 2340: Human Nutrition I..... 3

NUTR S 2450: Nutrition Throughout the Life Span.. 3

NUTR S 3280: Food Service I: Introduction to Food Service ..... 3

NUTR S 3290: Food Service I: Supervised Practice Experience..... 1

NUTR S 3360: Nutritional Assessment Supervised Practice Experience..... 2

NUTR S 3370: Nutrition Therapy I: Supervised Practice Experience..... 3

NUTR S 3390: Teaching and Counseling Techniques in Nutrition ..... 2

NUTR S 3400: Teaching & Counseling Techniques in Nutr. Supervised Practice Exp..... 1

NUTR S 3590: Community Nutrition Supervised Practice Experience..... 1

NUTR S 4280: Food Service II: Advanced Food Service Management..... 1

NUTR S 4290: Food Service II: Adv. Food Service Manage. Supervised Practice Exp ..... 2

NUTR S 4340: Human Nutrition II Lecture ..... 3

NUTR S 4360: Nutritional Assessment..... 3

NUTR S 4370: Nutrition Therapy I..... 3

NUTR S 4380: Nutrition Therapy II..... 2

NUTR S 4381: Nutrition Therapy II: Supervised Practice Experience..... 4

NUTR S 4390: Issues in Dietetic Practice ..... 1

NUTR S 4590 Community Nutrition..... 3

NUTR S 4950: Capstone: Research in Nutritional Sciences..... 2

NUTR S 4951: Nutrition Research Communication... 1

NUTR S 4975: Practice of Dietetics Supervised Practice Experience..... 10

**Other Core Courses.....15**

BIOCHM 3630: General Biochemistry ..... 3

HSP MGMT 1991: Food Service Sanitation Management..... 1

HSP MGMT 1995: Culinary Fundamentals ..... 3

MANGMT 3000: Principles of Management ..... 3

MPP 3202: Elements of Physiology..... 5

**Emphasis in Nutrition and Fitness**

Graduates of this program are prepared for employment in the fitness and health promotion area or for graduate studies in exercise science. This is a rapidly expanding area with opportunities in corporate and commercial industries, government and non-profit sectors. Typical employment responsibilities include fitness assessment, nutrition education, health promotion, exercise supervision and program administration.

Students desiring to declare Nutrition and Fitness as a major are required to have earned a minimum overall GPA of 2.65

after 30 credit hours, including completion of the following courses or their equivalents with a minimum grade of “C”:

- CHEM 1320
- BIO SC 1010 & 1020 or BIO SC 1500
- MATH 1100
- NUTR S 1340
- MPP 3202 or PTH AS 2101

Prior to achieving these requirements, students will be considered “Pre-Nutrition and Fitness” and are not eligible to take upper-level Nutrition and Fitness courses.

**Emphasis core requirements**

**Nutritional sciences .....11**

NUTR S 2340: Human Nutrition I..... 3

NUTR S 2450: Nutrition Throughout the Life Span.. 3

NUTR S 4360: Nutritional Assessment..... 3

NUTR S 4970: Nutrition Capstone: Sports Nutrition. 2

**Exercise physiology ..... 14**

NUTR S 1340: Introduction to Exercise and Fitness... 3

NUTR S 3800: Prevention and Care of Athletic Injury ..... 2

HTH PR 4250: Human Kinesiology ..... 3

NUTR S 4850: Physiology of Exercise ..... 3

NUTR S 4860: Exercise Prescription..... 3

**Supporting area .....9**

Choose from selected courses in learning, teaching and curriculum, educational and counseling psychology, nutritional sciences, human development and family studies, psychology or sociology.

**Electives chosen to meet college requirements**

**and career objectives .....16**

Anatomy lab and internships are available and highly recommended.

**Emphasis in Nutritional Sciences**

This program of study provides a strong foundation in science with a focus on human nutrition. Graduates are prepared for advanced study in human nutrition, medicine, dentistry or other health-related careers. This program is an excellent choice for premedicine students with an interest in family practice or rural medicine.

To enter the nutritional sciences program, students are required to have a minimum overall GPA of 2.65 and be enrolled in at least one required biology, chemistry, physics, or biochemistry course or one required NUTR S course per semester.

**Emphasis core requirements .....32**

NUTR S 2340: Human Nutrition I..... 3

NUTR S 2450: Nutrition Throughout the Life Span.. 3

NUTR S 4330: Human Nutrition II Laboratory..... 2

NUTR S 4340: Human Nutrition II Lecture ..... 3

NUTR S 4950: Capstone: Research in Nutritional Sciences ..... 2

NUTR 4951: Nutrition Research Communication ..... 1

BIOCHM 4270: Biochemistry ..... 3

BIOCHM 4272: Biochemistry ..... 3

BIO SC 2200: General Genetics ..... 4

BIO SC 2300: Introduction to Cell Biology..... 4

MPP 3202: Elements of Physiology  
OR BIO SC 3700: Animal Physiology..... 5

**Supporting area .....5**

Choose from selected courses in biochemistry, chemistry,

nutritional sciences or molecular microbiology and immunology

**Electives to total 120 hours** .....7

Additional courses may be required to meet college requirements or career objectives. On-campus research internships are available and highly recommended.

### Minor in Nutritional Sciences

The minor in nutritional sciences is intended for students majoring in biological sciences, biochemistry, health and exercise sciences or related fields.

**Minor core requirements**.....15

NUTR S 2340: Human Nutrition I..... 3

Courses selected from the following list of approved nutrition courses:

NUTR S 2380: Diet Therapy for Health

Professionals..... 3

NUTR S 2450: Nutrition Throughout the Life Span.. 3

NUTR S 2460: Eating Disorders..... 2

NUTR S 3390: Teaching and Counseling

Techniques in Nutrition ..... 2

NUTR S 4330: Human Nutrition II Laboratory..... 2

NUTR S 4340: Human Nutrition II Lecture ..... 3

NUTR S 4360: Nutritional Assessment..... 3

NUTR S 4370: Nutrition Therapy I..... 3

NUTR S 4380: Nutrition Therapy II..... 2

## Department of Personal Financial Planning

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### Faculty

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**TEACHING ASSISTANT PROFESSOR** S. Ivey  
**INSTRUCTOR** R. Law  
**EXTENSION INSTRUCTOR** B. J. Procter, A. Zumwalt

### Admissions

Students must have a University of Missouri cumulative GPA of at least a 2.5, based on at least 50 credits attempted, and a C (2.0) or better in FINPLN 2183 and FINPLN 3283 to be admitted to either the Personal Financial Planning or Financial Counseling professional programs of the department. Personal Financial Management Services cumulative GPA of at least a 2.0, based on at least 50 credits attempted, and a C (2.0) or better in FINPLN 2183 and FINPLN 3283. A grade in the D range is allowed in only one course in the professional program, regardless of emphasis area.

### Major Program Requirements – Personal Financial Planning (BS HES)

The Department of Personal Financial Planning offers a major in Personal Financial Planning with three emphasis areas: Personal Financial Planning, Financial Counseling, and Personal Financial Management Services. In each option, the student must complete requirements for each phase of the degree program listed below:

- University general education requirements
- College of Human Environmental Sciences graduation requirements
- Major core courses
- Professional specialization

**Major core requirements** .....13

FINPLN 2083: Financial Planning Careers ..... 1

FINPLN 2183: Personal and Family Finance ..... 3

FINPLN 4188: Community Agencies and  
Volunteerism ..... 3

FINPLN 3287: Consumer and Household  
Economics I ..... 3

FINPLN 4380: Assessing the American Dream ..... 3  
 Note: The Personal Financial Planning major requires students to complete PSYCH 1000, SOCIOL 1000, ECONOM 1014 and ECONOM 1015, (or AG EC 1041 and AG EC 1042) with- in the social and behavioral sciences requirement. ECONOM 1014 and 1015 require a minimum grade of C (2.0).

### Emphasis in Personal Financial Planning

The Personal Financial Planning emphasis is registered with the Certified Financial Planner Board of Standards. This emphasis satisfies the academic requirements for the CERTIFIED FINANCIAL PLANNER™ certification and allows the graduate to sit for the comprehensive CFP® certification examination. Graduates must complete education requirements, pass a national professional exam, obtain professional experience, and agree to adhere to the professional code of ethics before being able to use the CFP® marks.

#### Emphasis core requirements .....48

ACCTCY 2036: Accounting I .....	3
ACCTCY 2037: Accounting II.....	3
ECONOM 3229: Money, Banking, and Financial Markets.....	3
FINPLN 3282: Financial Counseling.....	3
FINPLN 3283: Financial Planning: Computer Applications.....	3
FINPLN 4187: Tax Planning.....	3
FINPLN 4382: Financial Planning: Risk Management.....	3
FINPLN 4383: Financial Planning: Investment Management.....	3
FINPLN 4386: Financial Planning: Employee Benefits and Retirement Planning .....	3
FINPLN 4389: Financial Planning: Case Analysis.....	3
FINPLN 4393: Financial Planning: Estate and Gift Planning .....	3
FINPLN 4993: Internship in Personal Financial Planning .....	3
MANGMT 3540: Introduction to Business Law .....	3
MATH 1320: Elements of Calculus.....	3
STAT 2500: Introduction to Probability and Statistics I.....	3
STAT 3500: Introduction to Probability and Statistics II.....	3

### Emphasis in Financial Counseling

This emphasis prepares students to be financial counselors. Financial counselors require expertise in a variety of financial counseling and planning strategies, therefore students take a mix of classes in financial counseling, financial planning, human development and family studies (HDFS) and social work. This emphasis satisfies the academic requirements for the Accredited Financial Counselor (AFC) designation and allows the graduate to sit for the AFC exam, which is offered by the Association for Financial Counseling and Planning Education (AFCPE). Graduates must complete education requirements, pass the AFC exam, obtain professional experience and agree to adhere to the AFCPE code of ethics before being able to use the AFC mark.

#### Professional specialization requirements.....

FINPLN 3282: Financial Counseling.....	3
FINPLN 3283: Financial Planning: Computer Applications.....	3

FINPLN 4187 Tax Planning .....	3
FINPLN 4382 Financial Planning: Risk Management.	3
FINPLN 4383 Financial Planning: Investment Management .....	3
FINPLN 4993 Internship in Personal Financial Planning .....	3
HDFS 4610 Stress in Families .....	3
HDFS 4620 Family Interaction.....	3
HDFS 4630 Process of Divorce .....	3
SOC_WK 2000 Exploration in Social and Economic Justice.....	3
SOC_WK 4710 Social Justice and Social Policy.....	3
ACCTCY 2036 Accounting I.....	3
OR ACCTCY 2010 Intro to Accounting .....	3
ECONOM 3229 Money and Banking.....	3
MANGMT 3540 Intro to Business Law.....	3
MATH 1320 Elements of Calculus.....	3
STAT 1300 Elementary Statistics OR STAT 2500 Introduction to Probability and Statistics.....	3

### Emphasis in Personal Financial Management Services

This emphasis prepares students for entry into a variety of positions that require expertise in the management of individual and family financial resources, combined with a specialized focus in a supportive area of study. Positions are available in a wide array of occupations.

#### Emphasis core requirements .....30

MATH 1320: Elements of Calculus .....	3
FINPLN 3282: Financial Counseling.....	3
FINPLN 3283: Financial Planning: Computer Applications .....	3
FINPLN 4187: Tax Planning .....	3
FINPLN 4382: Financial Planning: Risk Management .....	3
FINPLN 4383: Financial Planning: Investment Management .....	3
ACCTCY 2036: Accounting I .....	3
OR ACCTCY 2010: Introduction to Accounting.....	3
ECONOM 3229: Money, Banking, and Financial Markets .....	3
MANGMT 3540: Introduction to Business Law .....	3
STAT 1300: Elementary Statistics OR STAT 2500: Introduction to Probability and Statistics I .....	3

#### Professional specialization electives.....18

These courses are selected by students from a list of approved courses to complement their degree. Suggested tracks are provided below. Each track represents nine of the eighteen required professional electives. Contact the Student Services Office of the College of Human Environmental Sciences or your departmental advisor to focus your additional credits in a specific area. (NOTE: Tracks will not appear on diploma or transcript.)

**Tracks:** Students may choose one cluster as nine hours of the eighteen hours of Professional Electives. Each cluster, when combined with the Supporting Course Requirements, meets the requirements for a minor in the College of Business, or

Economics. Students are strongly encouraged to focus their remaining nine hours in course work that complements their sub-emphasis. At least one of these courses shall be at the 4000 level, or above.

**Real Estate Track**

- FINANC 3000: Corporate Finance ..... 3
- FINANC 4500: Principles of Real Estate..... 3
- FINANC 4510: Real Estate Appraisal ..... 3
- OR FINANC 4520: Real Estate Finance and Investment ..... 3
- Nine Additional Approved Hours ..... 9

**Personal Investments Track**

- FINANC 3000: Corporate Finance ..... 3
- FINANC 4020: Investments ..... 3
- FINANC 4220: Portfolio Management..... 3
- Nine Additional Approved Hours ..... 9

**Relationship Banking Track**

- FINANC 3000: Corporate Finance ..... 3
- FINANC 4030: Financial Intermediaries and Markets. 3
- FINANC 4130: Management of Financial Institutions 3
- Nine Additional Approved Hours ..... 9

**Sales Marketing Track**

- MRKTNG 3000: Principles of Marketing ..... 3
- MRKTNG 4220: Consumer Behavior ..... 3
- MRKTNG 4380: Buying and Supply Chain Management ..... 3
- Nine Additional Approved Hours ..... 9

**Benefits Administration Track**

- MANGMT 3000: Fundamentals of Management..... 3
- MANGMT 4020: Human Resource Management ..... 3
- MANGMT 4120: Human Resource Management Law 3
- Nine Additional Approved Hours ..... 9

**Consumer Behavior Research Track**

- MRKTNG 3000: Principles of Marketing ..... 3
- MRKTNG 4050: Marketing Research ..... 3
- MRKTNG 4220: Consumer Behavior ..... 3
- Nine Additional Approved Hours ..... 9

**General Economics Track**

- ECONOM 3251: Theory of the Firm..... 3
- ECONOM 4351: Intermediate Microeconomics..... 3
- ECONOM 4353: Intermediate Macroeconomics..... 3
- ECONOM 4325: The International Monetary System 3
- Nine Additional Approved Hours ..... 9

**Generalist Track**

Eighteen hours approved by the departmental advisor or other faculty member. At least nine of these hours must be at the 4000 level, or above.

**Minor in Personal Financial Planning**

Students can minor in Personal Financial Planning to complement their degrees in journalism, business, arts and science or other disciplines that provide expertise in matters related to personal financial management. A specific agreement exists with both the Department of Agricultural Economics and the Department of Finance that allows students from those departments to complete a particular set of courses and be awarded a minor in Personal Financial Planning that, upon completion, allows them to sit for the CFP® certification examination.

- Minor in Personal Financial Planning .....13**
- FINPLN 2083: Financial Planning Careers..... 1

- FINPLN 2183: Personal and Family Finance..... 3
- FINPLN 3283: Financial Planning: Computer Applications..... 3
- FINPLN 3287: Consumer and Household Economics I ..... 3
- Choose at least one from the following..... 3
- FINPLN 4382: Financial Planning: Risk Management..... 3
- FINPLN 4383: Financial Planning: Investment Management..... 3

**Majors Incorporating the Personal Financial Planning Minor.**

These minors, when combined with appropriate courses in the major, create a CFP® Board Registered degree option. Please see a faculty advisor for details.

**PFP Minor with Agricultural Economics.....22**

- FINPLN 2083: Financial Planning Careers..... 1
- FINPLN 2183: Personal and Family Finance..... 3
- FINPLN 3283: Financial Planning: Computer Applications..... 3
- FINPLN 4382: Financial Planning: Risk Management..... 3
- FINPLN 4383: Financial Planning: Investment Management ..... 3
- FINPLN 4386: Financial Planning: Employee Benefits and Retirement Planning ..... 3
- FINPLN 4389: Financial Planning: Case Analysis..... 3
- FINPLN 4393: Financial Planning: Estate and Gift Planning ..... 3

**PFP Minor with Finance..... 13-22**

- FINPLN 2083: Financial Planning Careers..... 1
- FINPLN 2183: Personal and Family Finance..... 3
- FINPLN 4386: Financial Planning: Employee Benefits and Retirement Planning ..... 3
- FINPLN 4389: Financial Planning: Case Analysis..... 3
- FINPLN 4393: Financial Planning: Estate and Gift Planning ..... 3
- FINPLN 4382: Financial Planning: Risk Management 3
- OR FINANC 3300: Personal Risk Management and Insurance..... 3
- FINPLN 4383: Financial Planning: Investment Management..... 3
- OR FINANC 4020 Investments ..... 3
- ACCTCY 4353: Introduction to Taxation..... 3
- OR FINPLN 4187: Tax Planning..... 3

# Department of Textile and Apparel Management

Jana Hawley, Chair  
 College of Human Environmental Sciences  
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## Faculty

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**PROFESSOR EMERITUS** K. G. Dickerson, D. Saxon,  
 L. E. Wilson  
**ASSOCIATE PROFESSOR EMERITUS** B. Dillard,  
 J. H. Pry

The Department of Textile and Apparel Management focuses on the global production, distribution, and consumption of softgoods. The department differs from many others in that it stresses preparation for product development management, combining knowledge related to a specific commodity with marketing and management skills. Within the context of the human environment, the program also focuses on consumer needs and wants, including service and satisfaction.

Students who major in Textile and Apparel Management may choose from several options and tracks:

- Apparel Marketing and Merchandising
- Apparel Product Development and Management
- International Apparel Marketing and Merchandising
- International Apparel Product Development and Management
- Home Furnishings and Merchandising

\*(Note: Tracks do not appear on transcripts or diplomas.)

Students who want to explore Textile and Apparel Management may take the following classes:

- T A M 1100: Introduction to the Textile and Apparel Industry
- T A M 1200: Basic Concepts of Apparel Design and Production
- T A M 1300: Softgoods Retailing
- T A M 2200: Science of Textiles
- T A M 2400: Global Consumers

## Major Program Requirements - Textile and Apparel Management

The following courses are required of all students majoring in TAM. Students majoring in Textile and Apparel Management may not take departmental courses using the Pass/Fail grading option. See the following sections for descriptions of additional requirements for the options in business studies and international studies. In addition to college and department requirements, students must meet all University graduation requirements including University general education.

There are three tracks available in Textile and Apparel Management that include coursework required to receive the Business Minor: Apparel Marketing and Merchandising, Apparel Product Development, and Home Furnishings and Merchandising. A student who completes one of these tracks is prepared for a variety of career possibilities in the textile and apparel industry at the national and international levels. (Note: Tracks do not appear on transcripts or diplomas.)

### Major core requirements .....28

T A M 1100: Introduction to the Textile and Apparel Industry .....	3
T A M 1200: Basic Concepts of Apparel Design and Production .....	3
T A M 1300: Softgoods Retailing .....	3
T A M 2120: Professional Seminar .....	1
T A M 2200: Science of Textiles .....	3
T A M 2400: Global Consumers .....	3
T A M 2500: Social Appearance in Time and Space ....	3
T A M 3410: The Clothing/Textile Consumer: Research and Analysis .....	3
T A M 3510: History of Western Dress .....	3
T A M 4110: Global Sourcing.....	3

### Apparel product development and management track

#### Requirements .....28

T A M 2280: Apparel Production.....	4
T A M 2380: Integrated Apparel Design and Production I.....	3
T A M 2381: Integrated Apparel Design and Production I Lab.....	1
T A M 2480: Apparel and Textile Presentation Techniques.....	3
T A M 2580: Digital Textile and Apparel Applications .	3
T A M 3280: Principles of Apparel Manufacturing.....	3
T A M 3281: Principles of Apparel Manufacturing Lab .....	1
T A M 3380: Integrated Apparel Design and Production II.....	3
T A M 3480: Technical Design.....	3
OR T A M 4480: Creativity and Problem Solving.....	3
T A M 4980: Apparel Production Management.....	4

**Students will choose from either option A or B. Option B will result in a Business minor.**

#### A. Supporting course requirements .....27

CHEM 1100: Atoms and Molecules with Lab .....	3
ECONOM 1014: Principles of Microeconomics .....	3
OR AG EC 1041: Applied Microeconomics.....	3
ECONOM 1015: Principles of Macroeconomics .....	3
OR AG EC 1042: Applied Macroeconomics .....	3
ACCTCY 2036: Accounting I .....	3

MRKTNG 3000: Principles of Marketing .....	3
MANGMT 3000: Principles of Management .....	3
ESC PS 4170: Introduction to Applied Statistics .....	3
OR STAT 1200 Introductory Statistical Reasoning...	3
OR STAT 1300: Elementary Statistics .....	3
OR STAT 1400: Elementary Statistics for Agriculture .....	3
OR STAT 2500: Introduction to Probability and Statistics I.....	3
Approved electives in business, engineering, art or theatre.....	6
<b>B. Business Area Supporting course requirements ..27*</b>	
ACCTCY 2036: Accounting I .....	3
CHEM 1100: Atoms and Molecules with Lab .....	3
ECONOM 1014: Principles of Microeconomics .....	3
OR AG EC 1041: Applied Microeconomics.....	3
ECONOM 1015: Principles of Macroeconomics .....	3
OR AG EC 1042: Applied Microeconomics.....	3
MANGMT 3000: Principles of Management .....	3
MRKTNG 3000: Principles of Marketing .....	3
ESC PS 4170: Introduction to Applied Statistics .....	3
OR STAT 1200 Introductory Statistical Reasoning...	3
OR STAT 1300: Elementary Statistics.....	3
OR STAT 1400: Elementary Statistics for Agriculture .....	3
OR STAT 2500: Introduction to Probability and Statistics I.....	3
FINANC 2000: Survey of Business Finance.....	3
Business Elective (3000 level or above).....	3

**Apparel marketing and merchandising track**

**Requirements .....**21

T A M 4200: Fundamentals of E-Commerce .....	3
T A M 2300: Retail Finance and Merchandise Control	3
T A M 4990: Retail Marketing and Merchandising .....	3
Elective hours in the department .....	12

**Business Area Supporting Courses .....** 30\*

ACCTCY 2036: Accounting I .....	3
ACCTCY 2037: Accounting II .....	3
CHEM 1100: Atoms and Molecules with Lab .....	3
FINANC 2000: Survey of Business Finance.....	3
MRKTNG 3000: Principles of Marketing .....	3
MANGMT 3000: Principles of Management .....	3
ESC PS 4170: Introduction to Applied Statistics .....	3
OR STAT 1200 Introductory Statistical Reasoning...	3
OR STAT 1300: Elementary Statistics.....	3
OR STAT 1400: Elementary Statistics for Agriculture .....	3
OR STAT 2500: Introduction to Probability and Statistics I.....	3
Business Elective (3000 level or above) .....	3
ECONOM 1014: Principles of Microeconomics .....	3
OR AG EC 1041: Applied Microeconomics.....	3
ECONOM 1015: Principles of Macroeconomics .....	3
OR AG EC 1042: Applied Microeconomics.....	3

**Track in Home Furnishings and Merchandising Professional Program**

**Requirements .....**28

T A M 1100: Introduction to the Textile and Apparel Industry.....	3
T A M 1200: Basic Concepts of Apparel Design and	

Production.....	3
T A M 1300: Softgoods Retailing .....	3
T A M 2120: Professional Seminar .....	1
T A M 2200: Science of Textiles.....	3
T A M 2400: Global Consumers .....	3
T A M 2500: Social Appearance in Time and Space .....	3
T A M 3410: The Clothing/Textile Consumer: Research and Analysis .....	3
T A M 3510: History of Western Dress.....	3
T A M 4110: Global Sourcing.....	3

**Area of Competence .....**9

T A M 2300: Retail Finance and Merchandise Control.....	3
T A M 4200: Fundamentals of E-Commerce.....	3
T A M 4990: Retail Marketing and Merchandising .....	3

**Minor in Architectural Studies .....**15

Approval of advisor is required for 6 hours of electives in Architectural Studies.

ARCHST 1100: Visual Design.....	3
ARCHST 1200: Architectural Drafting and Working Drawings.....	3
ARCHST 1600: Fundamentals of Environmental Design.....	3

**Supporting Business Course Requirements .....** 30\*

Some courses in the Professional Program are allowed to double count for General Education requirements. This program can be completed in 120 hours.

CHEM 1100: Atoms and Molecules with Lab .....	3
ECONOM 1014: Principles of Microeconomics .....	3
OR AG EC 1041: Applied Microeconomics.....	3
ECONOM 1015: Principles of Macroeconomics .....	3
OR AG EC 1042: Applied Microeconomics.....	3
ESC PS 4170: Introduction to Applied Statistics .....	3
OR STAT 1200 Introductory Statistical Reasoning...	3
OR STAT 1300: Elementary Statistics.....	3
OR STAT 1400: Elementary Statistics for Agriculture .....	3
OR STAT 2500: Introduction to Probability and Statistics I.....	3
ACCTCY 2036: Accounting I .....	3
ACCTCY 2037: Accounting II.....	3
FINANC 2000: Survey of Business Finance.....	3
MANGMT 3000: Principles of Management .....	3
MRKTNG 3000: Principles of Marketing .....	3
Business Elective (3000-level or higher) .....	3

**Track in International Studies**

The international studies tracks are designed to provide students with tools and sensitivities required to function in intellectual and applied environments outside their own. Tracks are available in Apparel Product Development and Management and in Apparel Marketing and Merchandising. Tracks and options do not appear on transcripts or diplomas.

**International apparel product development and management track requirements .....**28

T A M 2280: Apparel Production.....	4
T A M 2380: Integrated Apparel Design and Production I.....	3
T A M 2381: Integrated Apparel Design and Production I Lab.....	1

T A M 2480: Apparel and Textile Presentation	
Techniques.....	3
T A M 2580: Digital Textile and Apparel Applications .	3
T A M 3280: Principles of Apparel Manufacturing.....	3
T A M 3281: Principles of Apparel	
Manufacturing Lab .....	1
T A M 3380: Integrated Apparel Design and	
Production II.....	3
T A M 3480: Technical Design.....	3
OR T A M 4480: Creativity and Problem Solving.....	3
T A M 4980: Apparel Production Management.....	4
<b>Supporting course requirements .....</b>	<b>37</b>
ACCTCY 2036: Accounting I .....	3
CHEM 1100: Atoms and Molecules with Lab .....	3
MRKTNG 3000: Principles of Marketing .....	3
OR MANGMT 3000: Principles of Management.....	3
POL SC 1400: International Relations.....	3
PHIL 1100: Introduction to Ethics.....	3
GEOG 2550: Introduction to the Humanized Earth ..	3
OR GEOG 2780: World Political Geography:	
Patterns and Processes .....	3
Foreign language (must be the same language) .....	10
ECONOM 1014: Principles of Microeconomics.....	3
OR AG EC 1041: Applied Microeconomics.....	3
ECONOM 1015: Principles of Macroeconomics .....	3
OR AG EC 1042: Applied Microeconomics.....	3
STAT 1200: Introductory Statistical Reasoning .....	3
OR STAT 1300: Elementary Statistics .....	3
OR STAT 1400: Elementary Statistics	
for Agriculture .....	3
OR STAT 2500: Introduction to Probability	
and Statistics I .....	3
OR ESC PS 4170: Introduction to Applied	
Statistics.....	3
<b>International apparel marketing and merchandising</b>	
<b>track requirements .....</b>	<b>15</b>
T A M 2300: Retail Finance and Merchandise Control	
3	
T A M 4200: Fundamentals of E-Commerce.....	3
T A M 4990: Retail Marketing and Merchandising .....	3
Elective Hours in Department .....	6
<b>Supporting requirements .....</b>	<b>43</b>
ACCTCY 2036: Accounting I .....	3
ACCTCY 2037: Accounting II .....	3
CHEM 1100: Atoms and Molecules with Lab .....	3
MRKTNG 3000: Principles of Marketing .....	3
MANGMT 3000: Principles of Management .....	3
ECONOM 1014: Principles of Microeconomics.....	3
OR AG EC 1041: Applied Microeconomics.....	3
ECONOM 1015: Principles of Macroeconomics .....	3
OR AG EC 1042: Applied Microeconomics.....	3
ESC PS 4170: Introduction to Applied Statistics .....	3
OR STAT 1300: Elementary Statistics .....	3
OR STAT 1200: Introductory Statistical Reasoning..	3
OR STAT 1400: Elementary Statistics for	
Agriculture .....	3
OR STAT 2500: Introduction to	
Probability and Statistics I .....	3
POL SC 1400: International Relations .....	3
GEOG 2550: Introduction to the Humanized Earth	
OR GEOG 2780: World Political Geography.....	3
PHIL 1100: Introduction to Ethics.....	3
Foreign language (must be the same language).....	10

## Minor in Textile and Apparel Management

An undergraduate minor in Textile and Apparel Management is available for students pursuing a major in other departments. Students who wish to complete a minor should declare the minor by completing the form at [http://hes.missouri.edu/students\\_minorapp.html](http://hes.missouri.edu/students_minorapp.html). A minimum of 18 credit hours is required with at least six hours at the 2000 level or above. Prerequisites for all courses must be met, or the student must have the permission of the instructor. Below are the required hours by content area.

### Apparel Industry Studies .....6

#### General

T A M 1100: Introduction to the Textile	
Apparel and Industry.....	3
T A M 2400: Global Consumers.....	3
T A M 4200: Fundamentals of E-Commerce.....	3
T A M 3410: The Clothing/Textile Consumer:	
Research and Analysis.....	3
T A M 4110: Global Sourcing.....	3

#### Apparel Merchandising & Retailing

T A M 1300: Softgoods Retailing .....	3
T A M 2300: Retail Finance and Merchandise Control	
3	
T A M 4130: Supply Chain Management.....	3
T A M 4300: Softgoods Brand Management.....	3
T A M 4990: Retail Marketing and Merchandising .....	3

#### Apparel Manufacturing Management

T A M 1200: Basic Concepts of Apparel	
Design and Production.....	3
T A M 2280: Apparel Production.....	4
T A M 3280: Principles of Apparel Manufacturing.....	3
T A M 4980: Apparel Production Management.....	4

#### Textiles.....3

T A M 2200: Science of Textiles.....	3
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#### Historical/Behav. St. in Dress .....3

T A M 2500: Social Appearance in Time and Space .....	3
T A M 3510: History of Western Dress.....	3
T A M 4500: History of Textile	
Manufacturing and Trade .....	3
T A M 4510: 19th and 20th Century Dress.....	3

#### Specialty Area .....6

These courses are to be selected in consultation with a T A M advisor, and should come from the list above.

# School of Social Work

(Within the College of Human Environmental Sciences)

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## Advising Contact

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## Faculty

**PROFESSOR** C. M. Galambos, M. J. Kelly, M. R. Sable  
**ASSOCIATE PROFESSOR** K. M. Anderson,  
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A. Curl-Black, D. Fitch, V. Osborne, C. Peters,  
A. Thompson, M. Yu  
**TEACHING ASSISTANT PROFESSOR** K. E. Benner,  
S. Cary, C. A. Snively  
**PROFESSOR EMERITUS** J. Davenport  
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**CLINICAL INSTRUCTOR** T. Freelin, R. Freese,  
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Social work is a dynamic and growing human service profession that plays an increasingly important and visible role in our everyday lives. The major educational objective of the undergraduate program in the School of Social Work, which is a unit in the College of Human and Environmental Sciences, is to prepare students for competent and skillful first-level professional social work practice.

The Bachelor of Social Work (BSW) professional program is built upon a rigorous liberal arts foundation that prepares students for general practice in social work. Within this framework, students are prepared to apply a configuration of knowledge, values and skill to a variety of individual, family and community problems to effect positive change.

The School of Social Work is accredited by, and a charter member of, the Council on Social Work Education. BSW students and graduates are eligible for membership in the National Association of Social Workers.

## Career & Employment Outlook

Jobs in social work are expected to grow faster than average into the 21<sup>st</sup> century. Through social work's unique person-in-environment focus, BSW graduates are prepared to work effectively with individuals, families, small groups, communities and organizations.

Graduates are employed in many different settings, including nursing homes, hospices, hospitals, home care agencies, family

service agencies, children and youth services, aging services, residential treatment programs, domestic violence shelters, criminal justice agencies, schools, and legal services agencies.

## Graduation Requirements

A minimum of 120 credits with a GPA of 2.5 is required for graduation. The requirements include liberal arts foundation courses, professional BSW core courses and general electives. Students must have a grade of C+ or better in all required social work core classes.

The Professional BSW core consists of 46 credits. BSW core courses are offered only once each year in sequence and require three semesters to complete. In the third semester of the BSW core, each student will participate in a social service agency for a 400 hour supervised field instruction.

## Admission to the School of Social Work

Students in good academic standing may declare a social work major. Students are required to complete a range of courses in liberal arts as foundation to the BSW professional program and as electives.

Admission to the BSW professional program is competitive. In the spring, students may apply for fall admission to the BSW professional social work program if they meet the following criteria:

- At least 42 credits completed (second semester sophomore status) by the application deadline and
- 55 credits expected before the beginning of the first semester (fall) of the BSW foundation curriculum
- 2.5 cumulative GPA
- Completion of required liberal arts prerequisite courses (denoted with \*) with minimum grades
- Submission of BSW Professional Program application, including essay and 3 references by early deadline of February 15 or late deadline of May 15.

Students wanting to explore social work as a major may take the following exploratory courses:

SOC WK 1110: Introduction to the Social Work Major  
SOC WK 1115: Social Welfare and Social Work  
SOC WK 2000: Exploration in Social and Economic Justice

## Required Entry-Level Courses

Specific liberal arts requirements for graduation are listed below (\* denotes a prerequisite course to the BSW professional program that must be completed before beginning social work core courses).

### Degree core requirements

**English Composition (grade must be C range) .....3**

\*ENGLISH 1000: Exposition and Argumentation ..... 3

**Writing intensive classes .....6**

Students accepted into the professional BSW program must take SOC WK 2220 and 4951, which must both be designated "WI." No additional "WI" courses are required.

**Humanities (grades for communication and philosophy must be in the "C" range).....9**

\*COMMUN 1200: Public Speaking ..... 3

\*PHIL (1000, 1100 or 1200 recommended) ..... 3

Additional humanities ..... 3  
 (Humanities include art and music history and appreciation classes, classical studies courses, foreign civilization courses, literature courses in English or other languages and religious studies courses. Applied art and music performance courses do not count toward the humanities requirement. Students are urged to check with their advisor before selecting courses.)

**Science and Math Reasoning Proficiency .....9**

\*BIO SC 1010 or BIO SC 1500 with a minimum grade in the C range. .... 3  
 Lab Science AND Physical or Mathematical Science to reach 9 hours  
 SOC WK 4310, ECS PS 4710, STAT 1200 and 1300 are approved for social work students.

**College Algebra .....3**

\*MATH 1100: College Algebra ..... 3

**Note:** One course in humanities or biological, physical or mathematical sciences must be at the 2000 level or higher.

**Social science (minimum grade for economics and government must be in the C range) .....12**

\*Economics (micro or macroeconomics) ..... 3  
 \*Anthropology (student's choice)..... 3  
 \*History ..... 3  
 \*Political Science ..... 3

\*One course from either history or political science must meet the state government requirement; may be satisfied by POL SC 1100 or 2100; or HIST 1100, 1200, 1400, 2210, 2440, 4000, 4220, 4230

**Behavioral science (grades for sociology and psychology must be in the "C" range).....15**

\*SOCIOLOGY 1000: Introduction to Sociology..... 3  
 \*PSYCH 1000: General Psychology ..... 3  
 SOCIOLOGY 3310: Social Psychology ..... 3  
 OR PSYCH 2310: Social Psychology..... 3

Theories of personality course:

SOC WK 3320: Understanding Personality in a Social Context..... 3  
 OR PSYCH 4310: Theories of Personality..... 3  
 SOC WK 2220: Human Behavior and the Environment ..... 3

**Cultural, ethnic and racial diversity .....6**

Two courses that reflect the cultural diversity of our society; often selected from social work, sociology, anthropology, peace studies, English, foreign civilizations, religious studies and human development and family studies, black studies and women and gender studies. SOC WK 2000: Explorations in Social and Economic Justice, is strongly preferred as one of the courses. Students are urged to check with their advisor before selecting courses.

**Electives to reach 120 credits**

In addition to the above liberal arts requirements and the 46-credit Professional BSW Core (inclusive of SOC WK 2220), students select electives to reach the total credit requirement. SOC WK 1115: Social Welfare and Social Work is strongly recommended.

**Social work requirements .....46**

SOC WK 2220: Human Behavior and the Environment ..... 3  
 SOC WK 4710: Social Justice and Social Policy..... 3  
 SOC WK 4711: Social Justice and Social Policy II..... 3

SOC WK 4720: Variations in Human Behavior..... 3  
 SOC WK 4730: Introduction to Social Work Practice. 3  
 SOC WK 4740: Introduction to Community and Organizational Processes..... 4  
 SOC WK 4750: Interaction Skills Workshop..... 3  
 SOC WK 4760: Theory and Practice of Social Group Work..... 3  
 SOC WK 4770: Strategies of Direct Practice ..... 3  
 SOC WK 4951: Research for Social Work Practice..... 3  
 SOC WK 4952: Research Methods for Social Work .... 3  
 SOC WK 4970: Senior Professional Seminar ..... 3  
 SOC WK 4971: Undergraduate Field Practicum..... 6  
 Social work elective (4000-level) in a field of practice... 3

**Capstone Requirements**

All students accepted into the professional BSW program must take SOC WK 4971: Undergraduate Field Practicum and SOC WK 4970: Senior Professional Seminar as their capstone experience.

**Basic Skills Credit Limitations**

No more than 4 credits may be taken from "skills" courses to count toward the required 120 credits. More skill classes may be taken, but will be in excess of the 120 credits. Examples of skills courses are applied art and music performance classes, computer skills, self-defense and first aid.

**Departmental Honors**

Candidates for departmental Honors must be students in the BSW professional program with a 3.5 or higher GPA. Students must complete honors designated sections of SOC WK 4951: Research for Social Work Practice and SOC WK 4952: Research Methods for Social Work.

**Minor in Social Justice**

The social justice minor is designed to give non-social work majors the opportunity to develop knowledge and understanding about social justice in the person-environment context. Social justice involves the idea that in a perfect world all citizens would have identical social benefits, protections and opportunities regardless of their backgrounds and membership in diverse groups. Recognizing that the world is not perfect, the primary goals for the minor in social justice are to enhance sensitivity to vulnerable and at-risk populations, to provide opportunity for critical review of social policies and the allocation of societal resources and to stimulate interest in advocacy and the planned change process.

Students who complete the social justice minor may not refer to themselves as BSW-level social workers upon graduation.

A minimum of 15 credits, comprised of the courses below, is required to complete the social justice minor.

**Minor core requirements .....9**

SOC WK 1115: Social Welfare and Social Work..... 3  
 SOC WK 2220: Human Behavior and the Social Environment ..... 3  
 SOC WK 2000: Exploration in Social and Economic Justice..... 3  
 OR SOC WK 4710: Social Justice and Social Policy ..... 3

- Social work electives (choose from) .....6**
- SOC WK 4101: Topics in Social Work  
(see advisor for approval)
  - SOC WK 4330: Addiction Treatment and Prevention
  - SOC WK 4350: Deaf Culture: A Social Work Perspective
  - SOC WK 4360: Working with Minority Youth
  - SOC WK 4370: Delinquency, Corrections and Social Treatment
  - SOC WK 4380: Social Work Practice with Minorities: African American Emphasis
  - SOC WK 4390: Helping Strategies With Children and Adolescents
  - SOC WK 4400: Domestic Violence
  - SOC WK 4410: Law and Social Work Practice
  - SOC WK 4440: International Social Work Practices and Principles
  - SOC WK 4450: Professional Perspectives on Child Welfare Services in the 21st Century
  - SOC WK 4455: Latino/a Immigrants in Receiving Communities

\*Completion of these two courses, as well as the proposed curriculum for the minor, will allow the student to sit for the Accredited Financial Counselor Exam.

### **Minor in Financial Literacy for Helping Professionals**

The School of Social Work has collaborated with Personal Financial Planning department within the College of Human Environmental Sciences to develop a minor in Financial Literacy for Helping Professionals. As front line helping professionals encounter clients who face challenging economic situations, skills in addressing those challenges and knowledge of foundational personal finance information will aid in helping clients. Knowledge of predatory lending practices, social welfare policy designed to help the working and non-working poor and tax strategies to enhance financial situations will be addressed. This minor hopes to embrace the imperative need to educate our graduates on the role of financial literacy for those professionals who will serve others.

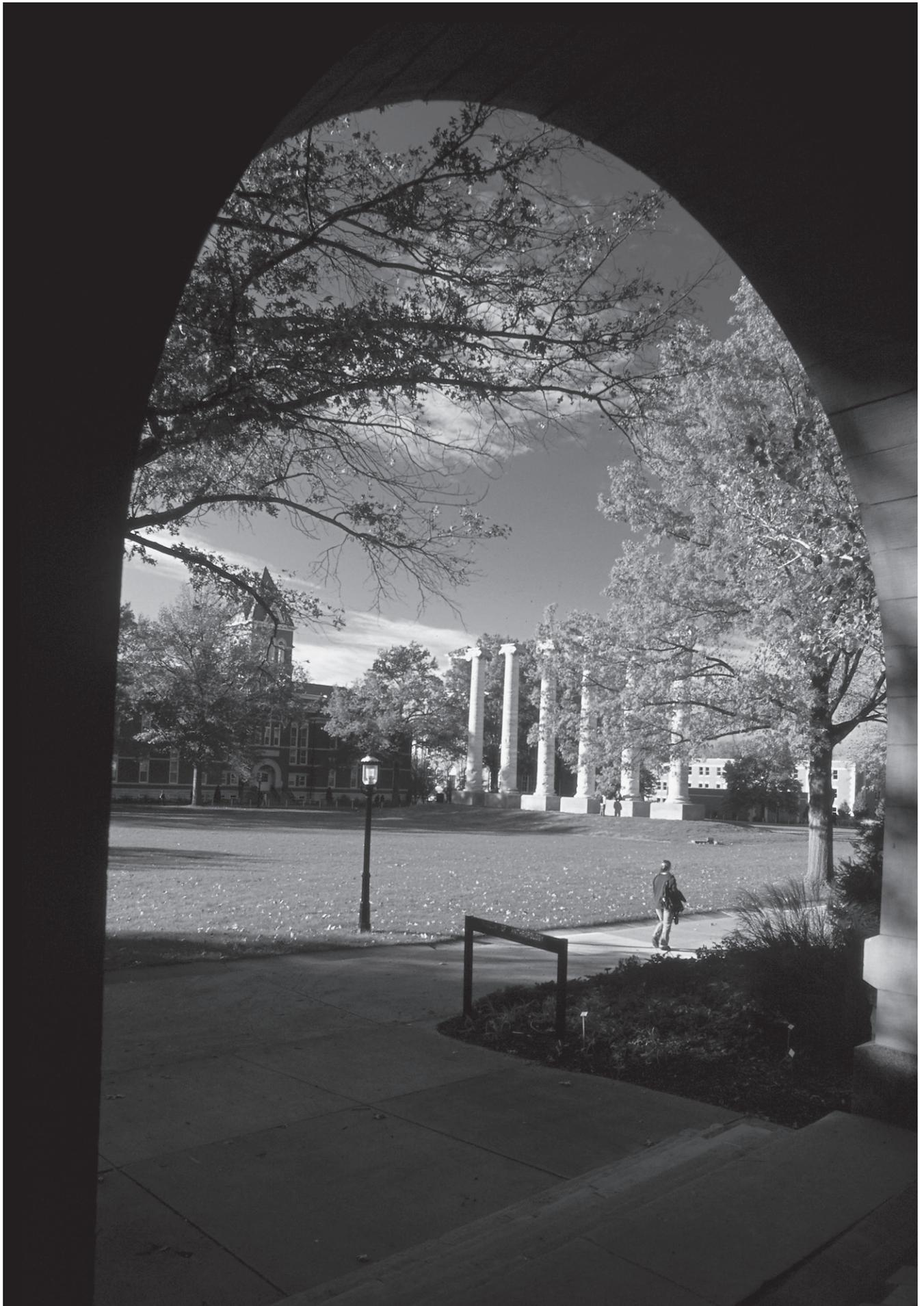
Students who complete the financial literacy minor may not refer to themselves as BSW-level social workers upon graduation. Fifteen credits are required to complete the financial literacy minor.

#### **Minor Requirements**

- \*FINPLN 2183: Personal and Family Finance ..... 3
- \*FINPLN 3282: Financial Counseling ..... 3
- FINPLN 4188: Community Agencies and Volunteerism ..... 3  
(taught in spring semester only; students will need to attend workshop in order to certify for IRS compliance)
- SOC WK 4750: Interaction Skills Workshop..... 3
- One of the following options
- SOC WK 2000: Exploration in Social and Economic Justice..... 3
- SOC WK 4710: Social Justice and Social Policy..... 3

Note: Satisfactory completion (as defined by C range grade or above) of Microeconomics and College Algebra is required. Satisfactory completion (as defined by C range grade or above) of each required course is necessary in order to attain this minor. This minor is available to students regardless of major.





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# **School of Journalism**

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# School of Journalism

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## Degree Offered

**Bachelor of Journalism (BJ)**, with emphasis areas in:  
*Strategic Communication, Radio-TV, Magazine, Convergence,  
Print and Digital News, and Photojournalism*

**Minor**  
Journalism

## Faculty

### Journalism Studies Faculty

**PROFESSOR** B. S. Brooks, D. R. Moen  
**PROFESSOR (PROFESSIONAL PRACTICE)** D. Mason,  
M. M. Steffens  
**LIBRARIAN III** D. Carner  
**ASSOCIATE PROFESSOR** P. R. Brooks, S. Craft, C. N. Davis,  
S. A. Davidson, E. L. Perry Jr., W. G. Pippert  
**ASSOCIATE PROFESSOR**  
(PROFESSIONAL PRACTICE) L. Bruzzese, M. Horvit  
**ASSISTANT PROFESSOR** Y. Volz, T. Voss  
**ASSISTANT PROFESSOR**  
(PROFESSIONAL PRACTICE) W. Allen  
**ADJUNCT INSTRUCTOR** B. Horvit  
**PROFESSOR EMERITUS** G. P. Kennedy, E. Lambeth,  
J. Patterson, K. P. Sanders, B. H. Winfield

### Convergence Journalism Faculty

**PROFESSOR** R. D. Mills  
**PROFESSOR (PROFESSIONAL PRACTICE)** R. Smith,  
L. S. Kraxberger, A. S. McCombs  
**ASSOCIATE PROFESSOR** M. L. McKean  
**ASSISTANT PROFESSOR**  
(PROFESSIONAL PRACTICE) K. Mitchell, D. S. Rice  
A. Simons  
**ADJUNCT ASSOCIATE PROFESSOR** J. Flink, J. Spencer  
**ADJUNCT ASSISTANT PROFESSOR** A. Wharton  
**RJI EDITOR (PRINT)** R. Stern  
**RJI EDITOR (VIDEO)** O. Kyle  
**RJI EDITOR (ADVERTISING)** B. Best

### Print and Digital News

**PROFESSOR** J. M. Banaszynski  
**PROFESSOR (PROFESSIONAL PRACTICE)**  
M. M. Jenner  
**ASSOCIATE PROFESSOR** C. Bentley, T. A. Warhover  
**ASSOCIATE PROFESSOR**  
(PROFESSIONAL PRACTICE) G. Bowers, E. K. Brixey,  
L. Bruzzese, D. L. Herzog, K. Reed, J. T. Schneller,  
S. C. Swafford, M. R. Walter, J. Abbott, J. M. Mayer  
**ADJUNCT ASSOCIATE PROFESSOR** K. Speckman  
**DIRECTOR AND ADJUNCT ASSOCIATE**  
**PROFESSOR** D. Potter, R. Fidler, B. Steffens  
**ASSISTANT PROFESSOR**  
(PROFESSIONAL PRACTICE) N. Estep, L. Johnston  
**ADJUNCT ASSISTANT PROFESSOR** B. Steffens  
**LIBRARIAN II** N. Johnson  
**ADJUNCT INSTRUCTOR** R. Weir

**ASSISTANT INSTRUCTOR** G. Hodder  
**CLINICAL INSTRUCTOR** R. Jensen

### Magazine Journalism Faculty

**ASSOCIATE PROFESSOR** M. K. Blakely, J. L. Colbert,  
F. B. Hudson  
**ASSOCIATE PROFESSOR**  
(PROFESSIONAL PRACTICE) J. Fennell, M. J. Grinfeld,  
J. L. Rowe  
**ASSISTANT PROFESSOR**  
(PROFESSIONAL PRACTICE) A. Heiss  
**ASSISTANT PROFESSOR** A. Hinnant, R. Prast  
**ADJUNCT INSTRUCTOR** P. Smith  
**PROFESSOR EMERITUS** S. R. Weinberg  
**PROFESSOR EMERITUS**  
(PROFESSIONAL PRACTICE) S. Loory

### Photojournalism Faculty

**ASSOCIATE PROFESSOR**  
(PROFESSIONAL PRACTICE) J. S. Bell, R. Reed,  
D. L. Rees  
**ASSISTANT PROFESSOR** K. Greenwood  
**ASSISTANT PROFESSOR**  
(PROFESSIONAL PRACTICE) B. Kratzer  
**ADJUNCT ASSOCIATE PROFESSOR** R. Shaw, J. Curley  
**PROFESSOR EMERITUS** C. Z. Smith

### Radio-Television Journalism Faculty

**PROFESSOR** L. W. Black  
**PROFESSOR (PROFESSIONAL PRACTICE)** M. Carter,  
B. Cochran  
**ASSOCIATE PROFESSOR**  
(PROFESSIONAL PRACTICE) K. S. Collins, G. Kyle,  
A. M. Romero, S. Woelfel, J. L. Reeves, R. A. Reeves,  
G. Grigsby  
**ASSISTANT PROFESSOR**  
(PROFESSIONAL PRACTICE) E. Frogge, J. D. Nevalga,  
J. Saidi  
**ADJUNCT INSTRUCTOR** A. Bailey, E. Blumberg,  
M. Dunn, S. Hill, J. Riek, C. Gervino, S. Wittmeyer  
**PROFESSOR EMERITUS** R. A. Gafke, R. G. Gelatt  
**ASSOCIATE PROFESSOR EMERITUS** C. H. Warner

### Strategic Communication Faculty

**PROFESSOR** G. T. Cameron, G. M. Leshner, E. L. Thorson  
**PROFESSOR (PROFESSIONAL PRACTICE)** J. Sterling,  
S. T. Heiman  
**ASSOCIATE PROFESSOR** P. Bolts, F. W. Cropp IV,  
M. E. Duffy, C. M. Frisby, M. Len-Rios, S. L. Rodgers,  
K. Wise  
**ASSISTANT PROFESSOR**  
(PROFESSIONAL PRACTICE) F. Corridori, B. Ifshin,  
S. Padgett, M. Swanson  
**ASSOCIATE PROFESSOR EMERITUS** H. B. Hager,  
R. Bratek  
**ASSOCIATE PROFESSOR EMERITUS**  
(PROFESSIONAL PRACTICE) S. Kopcha

The world's first School of Journalism was established in 1908 at the University of Missouri to strengthen the effectiveness of public communication in a democratic society. The school's first dean, Walter Williams (who went on to become president of the University in 1930) wrote the Journalist's Creed, which stresses the profession's rights and responsibilities as a public trust.

The faculty is committed to educating students in the responsibilities and skills of the professional journalist. It also has a broader commitment to advance the profession of journalism through scholarly research, analysis and criticism and through special programs to serve practitioners. The school also prepares students for careers in corporate communication through its strategic communication emphasis area. Students in that area typically pursue careers in advertising or public relations or in strategic communication, a combination of those fields.

The Missouri Plan assures a journalism graduate the broad, liberal education essential for a journalist whose work may span many segments of today's complex society. In addition to a liberal arts education, students complete practical laboratory work in a variety of settings, including a public radio station, a commercial daily newspaper and a network-affiliated television station. The school offers the Bachelor of Journalism, Master of Arts and Doctor of Philosophy degrees, along with cooperative programs with other divisions in the University. It was the first school in the world to offer all three of those degrees.

The Accrediting Council on Education in Journalism and Mass Communication has accredited the undergraduate program and a professional master's degree.

## Administration

Dean Mills, Dean  
Esther Thorson, Associate Dean for Graduate Studies  
Brian S. Brooks, Associate Dean for Undergraduate Studies and Administration

Advising Contact: (573) 882-1045  
Scholarship Information Contact: (573) 882-4643

Office Address  
Administration, 120 Neff Hall  
(573) 882-4821  
Student Services, 76 Gannett Hall  
(573) 882-1045  
journalism@missouri.edu

## Admissions

### Admission to Journalism (Effective Fall Semester 2010)

Students must be admitted to the School of Journalism to pursue the Bachelor of Journalism degree. Students are admitted in one of two categories:

#### Directly Admitted Students

A freshman applicant will be directly admitted to the School of Journalism if he or she meets standard MU admissions requirements and *any one* of the following three criteria:

- Ranks in the top 10 percent of his or her high school class.
- Scores 29 or higher on the ACT Composite.
- Scores 1290 or higher on the math-verbal portions of the SAT.

### Pre-Journalism A&S Students

Students accepted by MU who do not meet one of the criteria for direct admission are admitted as pre-Journalism students in the College of Arts and Science and apply for admission to Journalism as the student is completing the fourth journalism course, which is either JOURN 2100: News or JOURN 2150: Fundamentals of Multimedia Journalism. That usually occurs in the second semester of the sophomore year as the student is completing 60 credits and all other requirements.

NOTE: All undergraduate admissions to MU are handled by the Office of Undergraduate Admissions, not the School of Journalism, and no exceptions are made to the standards for direct admission to Journalism. A student either meets one of the admissions standards or does not. *There is no appeals process for direct admission.*

However, once accepted to MU as a pre-Journalism student, the student may continue to take the ACT or SAT to try to improve his or her score. If the student receives the necessary score for direct admission, once the score is received by the Admissions Office the student may request a change of admissions status. The new test score must be received by the Admissions Office at least one month before the student is to begin classes at MU. Similarly, a student who was admitted outside the top 10 percent of his or her class but who subsequently achieves top 10 percent standing at the end of the senior year of high school may request a change of admissions status. *No change is possible later than one month before the student begins classes at MU.*

### Differences in the Admission Categories

Directly admitted students have several advantages over students admitted as pre-Journalism students in the College of Arts and Science. Directly admitted students:

- Advance automatically to upper-class status in Journalism if they maintain a cumulative UM GPA of record of 3.0 or higher upon completion of 60 credit hours and fulfill all other requirements.
- Are guaranteed admission to the upper-class interest area of their choice provided they maintain a cumulative UM GPA of record of 3.0 or higher.
- Have access to a far larger portion of the School of Journalism's freshman scholarship pool. The School of Journalism annually awards about \$100,000 in scholarships in addition to scholarships awarded by the Admissions Office and others. To apply for all scholarships, including those offered by the School of Journalism, apply through the Office of Financial Aid (<https://sfa.missouri.edu/index.php>). Priority consideration is given to those who apply by Dec. 1.

To continue to enjoy these benefits, directly admitted students are expected to maintain a UM cumulative GPA of 3.0 or higher. Those without GPAs of at least 3.0 after completion of 60 credit hours lose these benefits and will be placed in a pool with pre-Journalism students and considered individually for upper-class status through a process outlined below.

Unlike directly admitted students, pre-Journalism A&S students:

- Are not guaranteed to advance to upper-class status in Journalism if they maintain a cumulative UM GPA of record of 3.0 or higher upon completion of 60 credit hours and after fulfilling all other requirements. Students in this category instead are accepted on a space-available basis. However, to date no one who has earned a 3.0 cumulative GPA or higher has been rejected, and space has been available. The School merely reserves the right to reject students should overcrowding occur in the future.
- Are not guaranteed an interest area of choice even with a cumulative GPA of record of 3.0 or higher. Admission to the interest area of choice is dependent upon space availability. To date, no one with a 3.0 GPA or higher has been denied admission to an area of choice.
- Have access to fewer scholarships from the School of Journalism. The school has only four scholarships available to pre-Journalism Arts and Science students. That's because most scholarships are designated for "Journalism students," and pre-Journalism A&S students have not yet been accepted to the School of Journalism. To apply for all scholarships, including those offered by the School of Journalism, apply through the Office of Financial Aid (<https://sfa.missouri.edu/index/php>).

The School of Journalism is eager to accept hard-working pre-Journalism students who earn their way into upper-class status. Many do just that.

### **Admission to Upper-Class Status and Interest Area**

As noted above, directly admitted students who maintain a UM GPA of record of 3.0 or higher and complete the necessary coursework are automatically admitted to upper-class status and their interest area of choice upon completion of 60 credits and other requirements for upper-class status.

Students who do not meet the criteria for direct admission and directly admitted students who have not maintained a cumulative UM GPA of record of 3.0 or higher must apply for upper-class status upon completion of 60 credit hours and fulfillment of all other requirements for upper-class status. Committees of faculty in each emphasis area will review applications for admission, and admission will be by interest area based on space available in that program.

GPA alone will **not** be used to evaluate the applications of pre-Journalism students and directly admitted students with UM GPAs below 3.0. In addition to GPA, the committees will consider a student's stated desire to work in the fields of journalism or strategic communication, demonstrated commitment to journalism or strategic communication (as evidenced by work with student or professional media, high school activities or participation in journalism student groups), needs of the profession, etc. For example, it is possible for a student with a 2.87 GPA who has demonstrated strong commitment to the field to be selected over one with a 2.95 GPA who has shown no similar commitment. Students applying through this process must submit brief letters of application (not to exceed two pages) stating a case for admission to an interest area.

The School will attempt to match interests of students applying through this process with openings in the School's various academic disciplines. The School does not guarantee first choice of interest area to students admitted through this process. It may be necessary from time to time to limit enrollment in high-demand areas.

Students who are rejected for upper-class status through this process must transfer to another MU division and will no longer be considered Journalism or pre-Journalism students. If, however, a student subsequently spends a semester taking non-journalism courses and raises his or her cumulative GPA of record above 3.0, the student may reapply. No such application will be accepted after a student has completed 70 or more hours of college credit.

### **Transfer Student Admissions Standards**

Transfer students are admitted to upper-class status in Journalism when they complete 60 credit hours, fulfill all prerequisites and establish a cumulative GPA of record of at least 3.0. Completion of at least one semester at MU is required for transfer students to qualify for admission. Because of that, students who plan to major in Journalism are encouraged to transfer to MU after taking no more than 45 credit hours elsewhere.

Transfer students who have completed 60 credit hours and the necessary coursework but who do not have a 3.0 UM GPA of record are placed in the same pool of applicants as pre-Journalism students and will be considered using the same process. Criteria used in evaluating these applications are similar to those for pre-Journalism applicants and direct admits who do not maintain 3.0 GPAs. The Admissions Committee will review the student's GPA of record as well as a student's stated desire to work in the fields of journalism or strategic communication, demonstrated commitment to journalism or strategic communication (as evidenced by work with student or professional media, high school or community college activities, or participation in journalism student groups), needs of the profession, etc. A transfer student in this category also must submit a brief letter of application (not to exceed two pages) stating a case for admission.

Unless otherwise specified by a formal articulation agreement that allows additional hours, up to 64 credits may be transferred from two-year colleges at any time before graduation. Students must also complete 30 of their last 36 hours in MU coursework. The Office of Undergraduate Admissions, not the School of Journalism, determines transfer equivalencies for the University. Transfer students from other accredited schools and colleges in Missouri should check the MU website to see how coursework will transfer to MU or contact the Office of Admissions. Students also should contact an advisor to see how these courses would apply toward a degree at MU. A course taken on a pass/fail basis is accepted only if the MU grading system also allows pass/fail grading in that course. The School of Journalism will accept up to six journalism credit hours transferred from other accredited journalism programs or from Missouri colleges with which the school of Journalism has working agreements. The six credits eligible for transfer are those that equate to Principles of American Journalism, Cross-Cultural Journalism, News, History of American Journalism and Communications Law. Other courses may be accepted on

a case-by-case basis by the Associate Dean for Undergraduate Studies. Current Missouri journalism students may not transfer journalism credits from other institutions. Many communications courses are similarly rejected and may not be used toward graduation requirements even as electives. Some other courses may not count toward the degree. See the *Undergraduate Handbook* for additional guidance.

## Honors Eligibility Upon Admission

The School of Journalism attracts some of the best students at MU. The School encourages high-ability students to enroll in the MU Honors College (<http://honors.missouri.edu>) and take honors courses whenever possible. Such courses are taught by some of MU's best professors.

Most directly admitted students, and a few pre-Journalism students in the College of Arts and Science, qualify for admission to the Honors College. Upon admission as freshmen, directly admitted students are designated Journalism Scholars if they earn a composite ACT score of 29 or higher (1290 or higher on the SAT) and rank in the top 10 percent of their high school graduating classes. Students who meet those criteria qualify for automatic admission to the Honors College but must request honors eligibility by filling out a simple application at the Honors College website (<http://honors.missouri.edu/prospective-students/application.html>). *A student must be admitted to the Honors College to be designated as Journalism Scholar.* Those who score a 29 on the ACT but do not rank in the top 10 percent of their high school classes may petition for honors eligibility by completing the form and writing a brief essay. Decisions to award honors eligibility are made by the Honors College and not the School of Journalism.

Journalism Scholars with ACT composite scores of 33 or higher (1440 or higher on the SAT) and who rank near the top of their high school classes are designated Walter Williams Scholars. More about both scholars programs may be found later in this section.

Designation as a Journalism Scholar or Walter Williams Scholar is noted in the program when a student participates in Commencement exercises.

## International Admission

A minimum score of 100 (internet) or 250 (computerized) on the Test of English as a Foreign Language (TOEFL) is required for all pre-Journalism and Journalism students whose native language is other than English. Alternatively, students may take the International English Language Testing System (IELTS) exam: overall-7.0, no band below-6.0.

## Required Entry-Level Courses

Prior to admission to an interest area in the School of Journalism, the student must complete a course of study that includes at least 60 credits of work at MU or another accredited two- or four-year institution. The courses listed below are required for students to be admitted to an interest area in journalism.

### English Composition (3 credits):

- ENGLSH 1000: Exposition and Argumentation (3 credits) with a grade of "B" or better OR a grade of "C" and a satis-

factory score on the Missouri College English Test. AP and IB test credit may satisfy this requirement.

### College Algebra (3 credits):

- MATH 1100 with a C- range grade is required, or an exemption from College Algebra.

### Foreign Language (12-13 credits):

- Unless students have completed four or more years in a single foreign language in high school, they must complete 12-13 credits in a single foreign language at the college level.
- The final 3-credit course may be taken the first semester in an interest area in the School of Journalism. In this case, it will count as elective credit. Placement and proficiency exams are available in French, German and Spanish.
- If you have four or more years of high school credit and elect to take a lower-level course in the same language, you negate the option of satisfying your language requirement based on high school credit. You must either continue through level 3 or request that the credits for the lower-level course not be counted toward graduation.

### Biological, Mathematical and Physical Science (9 credits):

- Statistics (3 credits): STAT 1200: Introductory Statistical Reasoning, STAT 1300: Elementary Statistics or its equivalent in transfer may be accepted.
- Additional courses (6 credits) from the following areas: biological anthropology, astronomy, biology, chemistry, CMP SC 1050: Algorithm Design and Programming I, geology, math and physics. One course must include a lab.
- Note that College Algebra, with a C-range grade, must be the prerequisite for math courses counting in the science area. MATH 1140: Trigonometry, counts as general elective credit only.

### Social and Behavioral Science (14 credits):

- American History: HIST 1100, 1200, 1400, 1410, 2210 or 2440
- American Government OR State Government: POL SC 1100 or 2100.
- Economics: ECONOM 1051/1051H OR ECONOM 1014 AND ECONOM 1015, OR AG EC 1041 and AG EC 1042
- A 3-credit behavioral science course

Note that ECONOM 1014 is the prerequisite for ECONOM 1015

### Humanistic Studies (6 credits):

- Any literature course, including foreign language literature courses.

### Additional courses (3 credits):

- Communication/film studies/theatre
- History or appreciation of art or music
- Humanities
- Non-US civilization or classics
- Philosophy
- Religious studies

### **Journalism (12 credits, effective fall semester 2010):**

- **JOURN 1100: Principles of American Journalism**  
Restricted to first-time college students with a high school core GPA of 3.00 or higher and 15 college credits (dual, AP, IB or other), or current students with 15 completed credits and UM GPA of 2.75. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students only.
- **JOURN 2000: Cross-Cultural Journalism**  
Sophomore standing required. Prerequisites: JOURN 1100 and UM GPA of 2.8. Should be taken concurrently with JOURN 2100 or 2150. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students only.
- **JOURN 2100: News**  
Sophomore standing required. Prerequisites: ENGLSH 1000 with a B- grade or higher, JOURN 1100 and UM GPA of 2.8. Should be taken concurrently with JOURN 2000. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students only.
- **JOURN 2150: Fundamentals of Multimedia Journalism**  
Should be taken in the sophomore year after the completion of 30 credits. To enroll, students must have a minimum UM GPA of 2.8. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students only.

### **Laptop Computer Requirement**

Journalism courses require the use of a computer. Students must demonstrate word-processing proficiency. Since the Fall Semester 2005, incoming freshmen are required to purchase wireless laptop computers, which will be needed in many journalism classes.

## **Special Programs**

### **Journalism Scholars Program**

Any incoming freshman journalism major who has a composite ACT score of 29 (1290 or higher on the combined math and verbal portions of the SAT) and who ranks in the top 10 percent of his or her high school graduating class qualifies for the following:

- Direct admission to the Missouri School of Journalism
- Designation as a Missouri Journalism Scholar
- Automatic eligibility for the MU Honors College. Students still must complete the Honors College enrollment form for admission to the College.

### **The Walter Williams Scholars Program**

The highest-achieving Journalism Scholars win separate designation as Walter Williams Scholars. The Walter Williams Scholars program is named in honor of the school's founding dean, a Missouri newspaper publisher who went on to become president of the University of Missouri. To win acceptance into this circle of top scholars, incoming freshmen must earn an ACT composite score of 33 or higher (1440 or higher on the SAT). Walter Williams Scholars also must rank in the top 20 percent of the high school class or must have maintained a high school GPA of at least 3.25 on a 4.0 scale. In addition to the benefits enjoyed by the Journalism Scholars, benefits to Walter Williams Scholars include the following:

- Placement in a special housing Freshmen Interest Group
- The chance to work with individual faculty mentors

- A \$1,000 scholarship that can be used to study abroad or in the school's New York or Washington, D.C., programs at any time before graduation.

### **Transfer Credit**

The Office of Undergraduate Admissions, 230 Jesse Hall, determines transfer equivalencies for the University, including the School of Journalism.

The School of Journalism accepts transfer credit according to the transfer credit equivalency report. Transfer credit from two-year colleges can transfer only as lower-level credit.

The School of Journalism accepts a maximum of six transfer credits from other schools accredited by the Accrediting Council on Education in Journalism and Mass Communications. It also accepts journalism credits from those two-year colleges with which the School has articulation agreements.

Transfer students from other accredited schools and colleges in Missouri should check the web site of the Office of Undergraduate Admissions to see how course work will transfer to MU.

### **Dual-Degree - Bachelor of Arts/Bachelor of Journalism**

To receive two bachelor's degrees, a Bachelor of Arts and a Bachelor of Journalism, a student must complete a minimum of 132 credits and complete all of the specific requirements for both degrees. Normally, a minimum of one additional semester is required for both degrees. Each candidate for a dual degree is assigned an advisor in the School of Journalism and in the department of major interest in the College of Arts and Science.

### **Science and Agricultural Journalism**

The College of Agriculture, Food and Natural Resources, in cooperation with the School of Journalism, offers an interdivisional Bachelor of Science degree in Science and Agricultural Journalism. This is not considered a dual degree. For more information, see the College of Agriculture, Food and Natural Resources in this catalog.

## **Major Program Requirements**

Effective Fall Semester 2010, the Bachelor of Journalism degree requires 43 journalism credits and 80 non-journalism credits. At least 65 of the 83 non-journalism credits must be in approved credits from the College of Arts and Science or courses in other divisions that have been certified as General Education courses.

To obtain the Bachelor of Journalism degree, a student must:

- Be regularly admitted to an interest area within the school
- Complete at least 30 upper-division credits of acceptable journalism course work
- Complete at least 30 credits of acceptable course work outside the school
- Earn a cumulative GPA of at least 2.0 for all work taken while in the School of Journalism and a GPA of at least 2.0 for all journalism courses
- Complete all University graduation requirements, including University General Education requirements

## Major core requirements

JOURN 4000: Communications Law .....	3
JOURN 4568: History of Photojournalism .....	3
OR JOURN 3000: History of American Journalism.....	3

**Electives outside Journalism .....**32  
(must be numbered 3000 or above or Honors courses numbered 2000H or above.)

**Behavioral, biological, physical and mathematical science .....**3

Select from anthropology, biology, computer science, chemistry, geology, psychology, physics, sociology, statistics or mathematics.

**Social science .....**6

Select from: economics, history, political science or geography.

**Humanities .....**8

Select from: history or appreciation of art or music, non-US civilization or classics, humanities, literature, philosophy, appreciation of communication and theatre or religious studies.

**Non-journalism electives .....**15

Must be numbered 3000 or above or 2000H or above.

## General Electives

Electives necessary to complete a minimum of 80 credits of non-journalism classes. Any course acceptable to the School and advisor is allowed.

## Degree with Honors Requirements

Graduation with honors is based on the grade point average during the final 60 credits in residence. *Cum laude* requires 3.5, *magna cum laude* 3.7, and *summa cum laude* 3.9. The student must have a minimum of 60 credits in residence at MU to be considered for graduation with honors. A student must request consideration for graduation with honors when applying for graduation.

Kappa Tau Alpha is a journalism honorary society that accepts the top 10 percent of each graduating class. Qualifying students are sent a letter with details about the society and are recognized at the journalism graduation ceremony.

# Academic Regulations

## Credit Restrictions

Students may enroll in a maximum of 10 journalism credits each semester without permission from the associate dean for undergraduate studies.

## Academic Assessment

Students in Radio-TV news, magazine, convergence, print and digital news, and photojournalism must compile a portfolio (resume tape or scrapbook) of their best work in each class. This is a requirement for graduation. Information about the assessment process is sent to students from their faculty chair during their final semester in school. Strategic communication students must complete this requirement as part of the capstone course.

## Independent Study

A maximum of six credits, approved in advance by the advising office of the School of Journalism, may be earned through independent study and accepted as partial fulfillment of the

requirements for arts and sciences.

## Standards for Academic Performance

The School of Journalism is a competitive environment in which students are expected to maintain high standards of academic achievement.

In general, the faculty expects each student to maintain a grade point average of 3.0 or higher to be considered in good standing. The faculty has established rules for handling students who fall below that level. Those rules follow:

1. A student admitted directly to the School of Journalism as a freshman must maintain a cumulative GPA of record of at least 2.5 during the first 29 hours of credit. The credits applicable in this sense are all credits earned in any way, including transfer, advanced placement and credit by examination. Grades in courses taken elsewhere will not be considered for this purpose. Those who do not meet the standard will be dismissed from the School of Journalism and will not be permitted to re-enroll.
2. A student admitted directly to the School of Journalism as a freshman must maintain a cumulative GPA of record of at least 2.75 after completion of 30 to 70 hours of credit. The credits applicable in this sense are all credits earned in any way, including transfer, advanced placement and credit by examination. Grades in courses taken elsewhere will not be considered for this purpose. Those who do not meet the standard will be dismissed from the School of Journalism and will not be permitted to re-enroll.
3. Students with 70 credits who have still not earned admission to the School of Journalism will be dismissed from the School of Journalism. The credits applicable in this sense are all credits earned in any way, including transfer, advanced placement and credit by examination.
4. Directly admitted freshmen with 70 credits who have still not earned admission to an emphasis area will be dismissed from the School of Journalism. The credits applicable in this sense are all credits earned in any way, including transfer, advanced placement and credit by examination.
5. Students must repeat any required journalism course in which they do not earn a grade of C- or higher.
6. Only elective, non-journalism courses, and only one per semester, may be taken on an S/U (pass/fail) basis. Journalism courses graded only on a S/U basis are exceptions.

## Probation, Suspension and Dismissal

Journalism students are placed on probation when either their journalism or their overall (term or cumulative) grade point average falls below 2.0. Students may remain on probation no more than one term. They regain good standing when their term and cumulative grade point averages, for journalism and overall, climb to 2.0 or higher.

First semester freshman journalism students are placed on final probation when their first term grade point average falls between 0.50 - 1.99. Students may remain on final probation no more than one term. They regain good standing when

their term and cumulative grade point averages climb to 2.0 or higher.

First-semester freshman journalism students are dismissed and become ineligible to enroll for a period of one calendar year when their first- term grade point average is below 0.50.

Students may be placed on academic probation and may be declared ineligible to enroll if they neglect their academic duties.

Students are suspended and become ineligible to enroll for a period of one regular semester when their term grade point average (journalism or overall) is below 1.5, when they pass less than one-half of their work in any term or when they are on probation and their term grade point average is 2.0 or lower.

Students are dismissed and become ineligible to enroll for a period of one calendar year when their term grade point average (journalism or overall) is below 1.0, when they pass less than one-fourth of their work in any term or when they fail to perform their academic duties.

A student who fails a required course for the second time will be permanently dismissed from the School of Journalism for lack of acceptable progress toward the degree. That student may be readmitted only with the consent of the faculty chair of the student's emphasis area and the associate dean for undergraduate studies. Before recommending approval for the student to reenroll, the faculty chair will consult with the instructor or instructors of record in the required course to determine the likelihood of that student passing the course on the third attempt. The faculty chair then will make a recommendation to the associate dean, who shall make the final decision to readmit or deny admission to the School of Journalism.

A student may be placed on probation, suspended or dismissed for excessive incompletes at the discretion of the associate dean for undergraduate studies. In such cases, the associate dean shall set a time limit for successful completion of all the courses in which the student has an incomplete. That time limit shall be no more than one calendar year from the scheduled completion of the course and may be a shorter duration. The associate dean also may place limitations on the number of additional credit hours in which the student may enroll before the incompletes are resolved. If the student fails to finish the required courses within the time limit set by the associate dean, the student is subject to dismissal.

A student who fails to achieve an acceptable grade (C- or better) in a required journalism course for the second time will be permanently dismissed from the School of Journalism for lack of acceptable progress toward the degree. That student may be readmitted only with the consent of the faculty chair of the student's emphasis area and the associate dean for undergraduate studies. Before recommending approval for the student to re-enroll, the faculty chair will consult with the instructor or instructors of record in the required course to determine the likelihood of that student passing the course on the third attempt. The faculty chair then will make a recommendation to the associate dean, who shall make the final decision to readmit or deny admission to the School of Journalism.

A student who fails to achieve an acceptable grade (C- or better) in two or more required journalism courses may be placed on probation, suspended or dismissed at the discretion of the associate dean for undergraduate studies in consultation with the faculty chair and the instructors of record.

### **Satisfactory/Unsatisfactory Grading System**

No required course or courses in a required area may be taken on a Satisfactory/Unsatisfactory basis either before or after admission to the School of Journalism. Only elective, non-journalism courses may be taken S/U and only one per semester. Journalism courses offered only as S/U courses are exceptions.

### **Ethics of Journalism**

The School of Journalism is committed to the highest standards of academic and professional ethics and expects its students to adhere to those standards. Students are expected to observe strict honesty in academic programs and as representatives of school-related media.

Should any student be guilty of plagiarism, falsification, misrepresentation or other forms of dishonesty in assigned work, he or she may be subject to a failing grade from the course teacher and such disciplinary action as may be recommended pursuant to university regulations.

### **Special Programs**

Students from other divisions with junior or higher standing may take non-laboratory courses in journalism without being admitted to the school. Permission of the journalism academic unit is required. Courses directly related to the skills in the media are usually not open to students while they are undergraduates in other disciplines. Students from other schools or colleges admitted to journalism courses are expected to meet the course prerequisites and grade point averages required of students in the School of Journalism.

## **Student Services**

### **Advising**

Students directly admitted to Journalism as freshmen have a full-time academic advisor in the school.

Pre-Journalism students receive academic advising from the College of Arts and Science. Students admitted to an interest area in the school have a full-time academic advisor and a faculty advisor from their selected emphasis area. Students are expected to seek the advice of the academic advisor in the selection of courses. The faculty advisor provides career counseling.

The school provides advising checklists so that students can maintain a record of academic course work. The forms are used by the student and advisor to plan the student's program. Students are responsible for determining an appropriate schedule of courses each semester; however, the course schedule should be approved by the student's advisor. The responsibility for meeting admission and graduation requirements rests with the student.

# Emphasis Areas and Interest Areas

Undergraduate students in the School of Journalism pursue their degrees in one of six Emphasis Areas approved by the University Board of Curators and the Missouri Coordinating Board of Higher Education. These are Convergence Journalism, Magazine Journalism, Photojournalism, Print and Digital News, Radio-Television Journalism, and Strategic Communication. Degrees are awarded only in one of those six areas.

Each Emphasis Area, however, has separate tracks that permit students to prepare for employment in more specialized fields. These are called Interest Areas, and students select from almost 30 choices among these. Interest Areas do not appear on transcripts or diplomas, although the transcript coursework should provide evidence of competency in the appropriate area.

Administratively, the School of Journalism is divided into Faculties, not Departments as in most other Schools and Colleges at MU. For administrative purposes, all Interest Areas are assigned to one of those Faculties except for two International Interest Areas, which are administered by the School of Journalism's International Programs Office. International programs, however, merely indicate an international interest. The degree is still awarded under the appropriate Emphasis Area.

To ensure maximum flexibility for students, the School also offers an Individually Designed Interest Area. Working with three faculty members, and with the approval of the associate dean for undergraduate studies, a student can design his or her program by selecting from the School's robust offerings of more than 100 courses. Students who pursue this option must do so within accrediting guidelines and within one of the six approved Emphasis Areas.

Students who desire more information on a particular program should see an Academic Advisor or seek out a member of the supervising Faculty, which is indicated following the description of the Interest Area below.

Students interested in one of the international programs should seek out an advisor in the International Programs Office. Interdisciplinary Programs, those that cross traditional media boundaries or depend on skills-based coursework from other MU divisions, are assigned to one of the School's Faculties as indicated.

## Convergence Interest Areas

All Convergence Interest Areas teach multimedia storytelling by having students take the three core convergence classes, JOURN 4804: Convergence Reporting, JOURN 4806: Convergence Editing and Producing; and the capstone, JOURN 4992: Reporting, Editing and Marketing of Converged Media. Students then choose to specialize in another area by taking at least two classes in that area.

### Emerging Media (Interdisciplinary)

The journalism industry is constantly changing as it discovers new ways of covering the news and new technologies to deliver it. This Interest Area is for the student who wants to learn and work with some of the latest developments in journalism,

such as delivery of news via mobile phones. Classes in this area provide a wide range of opportunities from content creation, and Web and application development to classes working with content created by other journalists. This program of study is primarily for students interested in online publications and organizations. *Administered by the Convergence Faculty.*

#### Required Journalism Classes .....15

JOURN 4804: Convergence Reporting.....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4992: Reporting, Editing and Marketing of Converged Media (capstone) .....	3

Take **two** of these:

JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4810: Advanced Global Converged News.....	3
JOURN 4812: Online Audience Development .....	3

#### Suggested Journalism Electives .....10

JOURN 4430: Computer-Assisted Reporting .....	3
JOURN 4436: Investigative Reporting.....	3
JOURN 4438: Business and Economics Reporting .....	3
JOURN 4508: Information Graphics .....	3
JOURN 4662: Global New Across Platforms .....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4720: Internet Law.....	3
JOURN 4810: Advanced Global Converged News.....	3
JOURN 4812: Online Audience Development .....	3
JOURN 4940: Internship in Journalism .....	1-3
JOURN 4950: Understanding Audiences .....	3
JOURN 4974: Advanced Internet Applications for Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3

#### Suggested Non-Journalism Electives

INFOTC 3001: Topics in Information Technologies (see advisor for appropriate topics titles) .....	3
IS LT 4360: Introduction to Web Development.....	3
IS LT 4364: Flash Authoring.....	3

### Entrepreneurial Journalism (Interdisciplinary)

More and more of today's journalism students will go to work in non-traditional news organizations, start their own businesses or freelance. Students in this Interest Area will learn about current markets in journalism and what audiences want. They also will study the relative marketability of content. Students will learn the market value of their own work, how to build their own brands and how to market. *Administered by the Convergence Faculty.*

#### Required Journalism Classes .....12

**(If you are not planning to pursue a R/TV focus in this interest area (i.e. taking Broadcast News I, II & III) you can enroll in JOURN 4300 only on a space available basis.)**

Take **one** of these:

JOURN 4450: News Reporting .....	3
JOURN 4804: Convergence Reporting.....	3
JOURN 4300: Broadcast News I .....	3

Take **one** of these:

JOURN 4460: Advanced News Reporting .....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4306: Broadcast News II.....	3

Take **one** of these:

JOURN 4734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models.....	3
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JOURN 4812: Online Audience Development .....	3
Take one of these capstones:	
JOURN 4992: Reporting, Editing and Marketing of Converged Media .....	3
JOURN 4990: Journalism and Democracy.....	3
JOURN 4974: Advanced Internet Applications for Radio/TV News.....	3
JOURN 4976: Seminar in Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3
JOURN 4994: Magazine Publishing.....	3
<b>Required Non-Journalism Electives.....</b>	<b>3</b>
INFOTC 3001: Topics in Information Technology (see advisor for approval).....	3
<b>Suggested Journalism Electives .....</b>	<b>10</b>
JOURN 4150: Using Infographics.....	1
JOURN 4320: Advanced Broadcast Reporting.....	3
JOURN 4406: News Editing.....	3
JOURN 4410: Intermediate Writing.....	3
JOURN 4148: Interviewing Essentials .....	1
JOURN 4416: Science, Health and Environmental Writing .....	3
JOURN 4436: Investigative Reporting.....	3
JOURN 4438: Business and Economics Reporting .....	3
JOURN 4440: Mapping for Stories and Graphics .....	2
JOURN 4462: Emerging Technologies in Journalism ..	3
JOURN 4500: News Design .....	3
JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4506: Magazine Design.....	3
JOURN 4508: Information Graphics .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4550: Basic Photography and Photo Editing..	3
JOURN 4562: Photojournalism Business Practices .....	2
JOURN 4700: Participatory Journalism .....	3
JOURN 4718: Law and the Courts .....	3
JOURN 4728: Confronting Controls on Information..	3
JOURN 4738: General Semantics in Journalism .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3
JOURN 4986: Advanced Writing .....	3

**Suggested Non-Journalism Electives**

ACCTCY 2010: Introduction to Accounting .....	3
ACCTCY 2036: Accounting I .....	3
MRKTNG 3000: Principles of Marketing .....	3
Note: Required prerequisite for the three courses listed below is MRKTNG 3000.	
MRKTNG 4050: Marketing Research .....	3
MRKTNG 4420: Sales Management .....	3
MRKTNG 4650: e-Marketing .....	3

**Multimedia Producing (Interdisciplinary)**

The focus of this Interest Area is planning and producing content across mediums. A student in this area will have the knowledge and skills to work in traditional newsrooms, Web-only newsrooms, non-traditional news organizations and other growing media areas. A student choosing this path is one who is less interested in a traditional reporting track and is more interested in working with content created by others. *Administered by the Convergence Faculty.*

**Required Journalism Classes .....** 14-15

JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4804: Convergence Reporting.....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4992: Reporting, Editing and Marketing	

of Converged Media (capstone) .....	3
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Take **one** of these:

JOURN 4301: Topics in Journalism (see advisor for approval).....	2
JOURN 4670: Newspaper Photo Desk Management...	3

**Suggested Journalism Electives .....** 10-11

JOURN 4430: Computer-Assisted Reporting .....	3
JOURN 4436: Investigative Reporting.....	3
JOURN 4438: Business and Economics Reporting .....	3
JOURN 4508: Information Graphics .....	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4720: Internet Law.....	3
JOURN 4810: Advanced Global Converged News.....	3
JOURN 4812: Online Audience Development .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3
JOURN 4974: Advanced Internet Applications for Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3

**Suggested Non-Journalism Electives**

INFOTC 3001: Topics in Information Technology (see advisor for approval).....	3
IS LT 4360: Introduction to Web Development.....	3
IS LT 4364: Flash Authoring.....	3

**Convergence Photojournalism (Interdisciplinary)**

This course of study is for those interested in communicating largely through photography and other visual mediums. Skills acquired include documentary photography, lighting and studio techniques, and photo editing with both still and moving images. Students build an appreciation for and understanding of visual communication and can expand into illustrative graphics, video and multimedia management. Students are prepared for careers as photojournalists for print and online publications and as freelancers. *Administered by the Convergence Faculty.*

**Required Journalism Classes .....** 15

JOURN 4556: Fundamentals of Photojournalism .....	3
JOURN 4804: Convergence Reporting.....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4992: Reporting, Editing and Marketing of Converged Media (capstone) .....	3

Take **one** of these:

JOURN 4558: Advanced Techniques in Photojournalism .....	3
JOURN 4566: Electronic Photojournalism.....	3

**Suggested Journalism Electives .....** 10

JOURN 4301: Topics in Journalism (see advisor for approval).....	2-4
JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4430: Computer-Assisted Reporting .....	3
JOURN 4436: Investigative Reporting.....	3
JOURN 4438: Business and Economics Reporting .....	3
JOURN 4508: Information Graphics .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4558: Advanced Techniques in Photojournalism.....	3
JOURN 4560: Staff Photojournalism .....	3
JOURN 4566: Electronic Photojournalism.....	3
JOURN 4568: History of Photojournalism.....	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4670: Newspaper Photo Desk Management...	3
JOURN 4700: Participatory Journalism .....	3

JOURN 4720: Internet Law.....	3
JOURN 4810: Advanced Global Converged News.....	3
JOURN 4812: Online Audience Development .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3
JOURN 4974: Advanced Internet Applications for Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3

**Suggested Non-Journalism Electives**

ART PHOT 3600: Intermediate Photography.....	3
ART PHOT 4600: Advanced Photography .....	3
FILM S 3005: Topics in Film Studies (see advisor for approval).....	3
INFOTC 3001: Topics in Information Technology (see advisor for approval).....	3
IS LT 4360: Introduction to Web Development.....	3
IS LT 4364: Flash Authoring.....	3

**Convergence Radio Reporting and Producing (Interdisc.)**

This interest area is for the student wanting to work largely in audio reporting. This area includes a wide range of reporting classes and producing/management classes, giving the student a sense of radio work both as a reporter and as a behind-the-scenes producer. Several courses offered provide the opportunity for training in media management. *Administered by the Convergence Faculty.*

**Required Journalism Classes .....15**

JOURN 4050: Communications Practice.....	3
JOURN 4310: News Producing (Radio Section) .....	3
JOURN 4804: Convergence Reporting.....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4992: Reporting, Editing and Marketing of Converged Media (capstone) .....	3

**Suggested Journalism Electives .....10**

JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4301: Topics in Journalism (see advisor for approval).....	2
JOURN 4428: Health Reporting Skills .....	2
JOURN 4430: Computer-Assisted Reporting .....	3
JOURN 4436: Investigative Reporting .....	3
JOURN 4438: Business and Economics Reporting .....	3
JOURN 4508: Information Graphics .....	3
JOURN 4650: International Issues Reporting .....	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4720: Internet Law.....	3
JOURN 4810: Advanced Global Converged News.....	3
JOURN 4812: Online Audience Development .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3
JOURN 4974: Advanced Internet Applications for Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3

**Convergence Television Reporting (Interdisciplinary)**

This Interest Area is for the student wanting to work largely in television reporting. This area includes a wide range of reporting classes and producing/management classes, giving the student a sense of television reporting in front of the camera. Other courses in multimedia prepare the student well for Web-based journalism as it complements television. *Administered by the Convergence Faculty.*

**Required Journalism Classes .....16**

JOURN 4050: Communications Practice.....	1
JOURN 4306: Broadcast News II.....	3
JOURN 4308: Broadcast News III .....	3
JOURN 4804: Convergence Reporting.....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4992: Reporting, Editing and Marketing of Converged Media (capstone) .....	3

**Suggested Journalism Electives .....9**

JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4301: Topics in Journalism (see advisor for approval).....	2
JOURN 4310: News Producing.....	3
JOURN 4320: Advanced Broadcast Reporting.....	3
JOURN 4428: Health Reporting Skills .....	2
JOURN 4430: Computer-Assisted Reporting .....	3
JOURN 4436: Investigative Reporting .....	3
JOURN 4438: Business and Economics Reporting .....	3
JOURN 4508: Information Graphics .....	3
JOURN 4650: International Issues Reporting .....	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4720: Internet Law.....	3
JOURN 4810: Advanced Global Converged News.....	3
JOURN 4812: Online Audience Development .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3
JOURN 4974: Advanced Internet Applications for Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3

**Magazine Interest Areas**

**Arts and Culture Journalism (Interdisciplinary)**

This interdisciplinary Interest Area gives students the opportunity to expand their understanding of the arts as they develop critical thinking skills about society, culture and the media. Students are encouraged to see culture as a central part of the journalistic enterprise as they learn about art, music, theatre, popular culture and critical reviewing. This is intended to lay the groundwork for careers not only in traditional and emerging forms of journalism but also as communicators in international cultural institutions, museums, nonprofit agencies and community arts organizations. *Administered by the Magazine Faculty.*

**Required Journalism Classes .....15**

JOURN 4410: Intermediate Writing .....	3
JOURN 4418: Critical Reviewing.....	3

Take **one** of these:

JOURN 4450: News Reporting .....	3
JOURN 4804: Convergence Reporting.....	3

Take **one** of these:

JOURN 4400: Introduction to News Editing .....	2
JOURN 4408: Magazine Editing .....	3

Take **one** of these:

JOURN 4984: Magazine Staff (capstone).....	3
JOURN 4986: Advanced Writing (capstone).....	3
JOURN 4990: Journalism and Democracy (capstone)..	3
JOURN 4994: Magazine Publishing (capstone).....	3

**Suggested Journalism Electives .....10**

JOURN 4150: Using Infographics.....	1
JOURN 4400: Introduction to News Editing .....	2
JOURN 4408: Magazine Editing .....	3

JOURN 4430: Computer-Assisted Reporting .....	3
JOURN 4436: Investigative Reporting .....	3
JOURN 4438: Business and Economics Reporting .....	3
JOURN 4450: News Reporting .....	3
JOURN 4460: Advanced News Reporting .....	3
JOURN 4428: Health Reporting Skills .....	2
JOURN 4508: Information Graphics .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4550: Basic Photography and Photo Editing..	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4804: Convergence Reporting.....	3
JOURN 4812: Online Audience Development .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3
JOURN 4986: Advanced Writing .....	3

**Suggested Non-Journalism Electives**

Arts-In-Depth Classes:

ART GNRL 2030/2030H: Context and Culture .....	3
MUSIC NM 2306/2306H: Perceiving Musical Traditions and Styles.....	3
THEATR 3770: The Theatre Experience: From Page to Stage and Screen .....	3

**Also Recommended**

Minor in Art, Music, Theatre or Film Studies

**Magazine Design**

This Interest Area focuses on visual storytelling in the magazine industry. Critical thinking skills and application methods are studied and practiced in courses that cover design skills, management issues and theoretical frameworks. This Interest Area prepares students to be designers/art directors at print and online publications. *Administered by the Magazine Faculty.*

**Required Journalism Classes ..... 15**

JOURN 4408: Magazine Editing .....	3
JOURN 4410: Intermediate Writing .....	3
JOURN 4450: News Reporting .....	3
JOURN 4506: Magazine Design.....	3
JOURN 4988: Advanced Magazine Design.....	3

**Suggested Journalism Electives ..... 10**

JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4301: Topics in Journalism (see advisor for approval).....	2
JOURN 4500: News Design .....	3
JOURN 4508: Information Graphics .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4550: Basic Photography and Photo Editing..	3
JOURN 4566: Electronic Photojournalism.....	3
JOURN 4568: History of Photojournalism.....	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4670: Newspaper Photo Desk Management...	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4716: Women and the Media .....	2
JOURN 4730: Journalism and Conflict.....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3

**Suggested Non-Journalism Electives**

AR H A 3850: American Art and Culture, 1913-Present.....	3
ART GRDN 2410: Graphic Design I.....	3
ART PHOT 2600: Beginning Photography.....	3
IS LT 4364: Flash Authoring.....	3

IS LT 4370: Intermediate Web Development .....	3
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Arts-In-Depth Classes:

ART GNRL 2030/2030H: Context and Culture .....	3
MUSIC NM 2306/2306H: Perceiving Musical Traditions and Styles.....	3
THEATR 3770: The Theatre Experience: From Page to Stage and Screen .....	3

**Magazine Editing**

Students in this Interest Area focus on the finer aspects of microediting: grammar, style, syntax and usage. They also gain hands-on experience in macroediting: pitching and assigning stories, writing display type, coordinating photography and art, working with designers, fact checking, proofreading and following a publication through all stages of print or online production. Classes provide an analysis of the industry and study of innovative techniques and delivery platforms. Recommended for those who seek careers as editors in the magazine and book-publishing industries. *Administered by the Magazine Faculty.*

**Required Journalism Classes ..... 15**

JOURN 4408: Magazine Editing .....	3
JOURN 4410: Intermediate Writing .....	3
JOURN 4450: News Reporting .....	3
JOURN 4506: Magazine Design.....	3
JOURN 4984: Magazine Staff (capstone).....	3

**Suggested Journalism Electives ..... 10**

JOURN 4400: Introduction to News Editing.....	2
JOURN 4662: Global News Across Platforms.....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4716: Women and the Media .....	2
JOURN 4986: Advanced Writing .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4150: Using Infographics.....	1
JOURN 4301: Topics in Journalism (see advisor for approval).....	3
JOURN 4730: Journalism and Conflict.....	3
JOURN 4718: Law and the Courts .....	3
JOURN 4416: Science, Health and Environmental Writing .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3

**Suggested Non-Journalism Electives**

SOCIOL 2310: Culture and Mass Media .....	3
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Arts-In-Depth Classes:

ART GNRL 2030/2030H: Context and Culture .....	3
MUSIC NM 2306/2306H: Perceiving Musical Traditions and Styles.....	3
THEATR 3770: The Theatre Experience: From Page to Stage and Screen .....	3

**Magazine Publishing and Management**

This Interest Area is directed to students who hope to become leaders in the field. Course requirements and electives are designed to give an overview of all aspects of magazine publishing, both print and online. Theoretical courses in law, business and management as applied to publications complement skills classes in reporting, writing, editing and design. *Administered by the Magazine Faculty.*

**Required Journalism Classes ..... 15**

JOURN 4408: Magazine Editing .....	3
JOURN 4410: Intermediate Writing .....	3
JOURN 4450: News Reporting .....	3

JOURN 4506: Magazine Design.....	3
JOURN 4994: Magazine Publishing (capstone).....	3
<b>Suggested Journalism Electives .....</b>	<b>10</b>
JOURN 4301: Topics in Journalism (see advisor for approval).....	3
JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4510: Visual Communication .....	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4710: Newspaper Management .....	3
JOURN 4716: Women and the Media .....	2
JOURN 4720: Internet Law.....	3
JOURN 4730: Journalism and Conflict.....	2
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3
JOURN 4952: Strategic Communication Research I ...	3
<b>Suggested Non-Journalism Electives</b>	
COMMUN 1200: Public Speaking.....	3
MANGMT 3000: Principles of Management .....	3
MRKTNG 3000: Principles of Marketing .....	3
SOCIOL 2310: Culture and Mass Media .....	3

### Magazine Writing

This Interest Area uses an “intra-disciplinary” approach grounded in magazine traditions, theories and practices. Students learn the power of revision and learn to tell stories with frankness and intimacy and to use narrative storytelling tools: character, key moments, dialogue, telling details and place. They learn to track the notion of the journalist as a savvy, articulate, thoughtful and emphatic witness of events. *Administered by the Magazine Faculty.*

<b>Required Journalism Classes .....</b>	<b>15</b>
JOURN 4408: Magazine Editing .....	3
JOURN 4410: Intermediate Writing .....	3
JOURN 4450: News Reporting .....	3
JOURN 4506: Magazine Design.....	3
JOURN 4986: Advanced Writing (capstone).....	3

<b>Suggested Journalism Electives .....</b>	<b>10</b>
SCI AG J 3201: Topics in Science and Agricultural Journalism (see advisor for approval) .....	3
JOURN 4148: Interviewing Essentials .....	1
JOURN 4400: Introduction to News Editing .....	2
JOURN 4412: Lifestyle Journalism .....	3
JOURN 4416: Science, Health and Environmental Writing .....	3
JOURN 4418: Critical Reviewing.....	3
JOURN 4420: Editorial Writing.....	3
JOURN 4426: Religion Reporting and Writing .....	3
JOURN 4430: Computer-Assisted Reporting .....	3
JOURN 4436: Investigative Reporting .....	3
JOURN 4438: Business and Economics Reporting .....	3
JOURN 4460: Advanced News Reporting .....	3
JOURN 4428: Health Reporting Skills .....	2
JOURN 4650: International Issues Reporting .....	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4716: Women and the Media .....	2
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3

### Suggested Non-Journalism Electives

ENGLSH 2010: Intermediate Composition .....	3
ENGLSH 2520: Creative Writing: Intermediate Nonfiction Prose.....	3
ENGLSH 4520: Creative Writing: Advanced Nonfiction Prose.....	3
Arts-In-Depth Classes:	
ART GNRL 2030/2030H: Context and Culture .....	3
MUSIC NM 2306/2306H: Perceiving Musical Traditions and Styles.....	3
THEATR 3770: The Theatre Experience: From Page to Stage and Screen .....	3

### Photojournalism Interest Areas

#### Photojournalism

This Interest Area educates students in the history, theory and skills of photojournalism, including still and moving images, and audio. Also covered are the principles and practice of visual editing and design for print and online. Photojournalism students learn to create truly integrated multimedia projects, incorporating audio, video and stills into compelling visual story-telling projects. The program’s essential element remains understanding the power of image, and it embraces all the new technologies in presentation. Students are prepared for careers as photojournalists for print and online publications and as freelancers. *Administered by the Photojournalism Faculty.*

#### Required Journalism Classes .....

JOURN 4556: Fundamentals of Photojournalism .....	3
JOURN 4558: Advanced Techniques in Photojournalism .....	3
JOURN 4560: Staff Photojournalism .....	3
JOURN 4980: The Picture Story and Photographic Essay (capstone).....	3

Take **one** of these:

JOURN 4450: News Reporting .....	3
JOURN 4804: Convergence Reporting.....	3

#### Suggested Journalism Electives .....

JOURN 4300: Broadcast News I .....	2-3
JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4301: Topics in Journalism (see advisor for approval) .....	2-3
JOURN 4500: News Design .....	3
JOURN 4506: Magazine Design.....	3
JOURN 4510: Visual Communication.....	3
JOURN 4566: Electronic Photojournalism.....	3
JOURN 4568: History of Photojournalism.....	3
JOURN 4670: Newspaper Photo Desk Management...	3
JOURN 4940: Internship in Journalism .....	3

#### Suggested Non-Journalism Electives

ART PHOT 3600: Intermediate Photography.....	3
ART PHOT 4600: Advanced Photography .....	3
FILM S 3005: Topics in Film Studies (see advisor for approval).....	1-3
IS LT 4360: Introduction to Web Development .....	3

#### Visual Editing and Management

This Interest Area educates students in the skills and theory of picture editing and visual presentation in print and online publications. This will prepare students for careers in visual editing at newspapers, magazines and with online publications. *Administered by the Photojournalism Faculty.*

<b>Required Journalism Classes</b> .....	<b>14</b>
JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4556: Fundamentals of Photojournalism .....	3
JOURN 4566: Electronic Photojournalism.....	3
JOURN 4670: Newspaper Photo Desk Management... 3	
JOURN 4301: Topics in Journalism (see advisor for approval).....	2
<b>Suggested Journalism Electives</b> .....	<b>11</b>
JOURN 4301: Topics in Journalism (see advisor for approval).....	2
JOURN 4500: News Design .....	3
JOURN 4506: Magazine Design.....	3
JOURN 4508: Information Graphics .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4558: Advanced Techniques in Photojournalism.....	3
JOURN 4560: Staff Photojournalism .....	3
JOURN 4568: History of Photojournalism.....	3
JOURN 4710: Newspaper Management .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4980: The Picture Story and Photographic Essay.....	3
<b>Suggested Non-Journalism Electives</b>	
FILM S 3005: Topics in Film Studies (see advisor for approval).....	3
IS LT 4360: Introduction to Web Development.....	3
IS LT 4364: Flash Authoring.....	3

## Print and Digital News Interest Areas

### Business and Economics Journalism (Interdisciplinary)

This Interest Area is for journalism students interested in learning the skills of reporting business and economics news across platforms. It allows students to add a focus on economic, business and consumer reporting and emphasizes the use of financial data analysis in reporting. Similarly, it encourages students to take basic courses in other subject areas that will give them important skills, such as basic accounting, or advanced economics and finance. Students will gain the skills to work covering Wall Street, government economics, consumer and personal finance issues, and local business. A minor in Economics or Business is suggested. *Administered by the Print and Digital News Faculty.*

#### Required Journalism Classes .....

**15**  
(If you are not planning to pursue a R/TV focus in this interest area (i.e. Taking Broadcast I, II & III) you can enroll in JOURN 4300 only on a space available basis.)

Take **one** of these:

JOURN 4450: News Reporting .....	3
JOURN 4804: Convergence Reporting.....	3
JOURN 4300: Broadcast News I .....	3

Take **one** of these:

JOURN 4460: Advanced News Reporting .....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4306: Broadcast News II.....	3

Take **one** of these:

JOURN 4410: Intermediate Writing .....	3
JOURN 4308: Broadcast News III .....	3

#### Required:

JOURN 4438: Business and Economics Reporting .....	3
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Note: Students who want to do business reporting with KOMU must be in or have taken JOURN 4308: Broadcast

News III.

Take **one** of these capstones:

JOURN 4992: Reporting, Editing and Marketing of Converged Media .....	3
JOURN 4990: Journalism and Democracy.....	3
JOURN 4974: Advanced Internet Applications for Radio/TV News.....	3
JOURN 4976: Seminar in Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3

#### Suggested Journalism Electives .....

JOURN 4148: Interview Essentials.....	1
JOURN 4150: Using Infographics.....	1
JOURN 4300: Broadcast News I .....	3
JOURN 4734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models.....	3
JOURN 4414: Field Reporting on the Food System and Environment .....	3
JOURN 4416: Science, Health and Environmental Writing .....	3
JOURN 4410: Intermediate Writing.....	3
JOURN 4436: Investigative Reporting.....	3
JOURN 4508: Information Graphics .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4550: Basic Photography and Photo Editing..	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4718: Law and the Courts .....	3
JOURN 4728: Confronting Controls on Information..	3
JOURN 4736: Changing Media Business Models .....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3
JOURN 4986: Advanced Writing .....	3
JOURN 4058: New York Program: Journalism Theory and Practice.....	3

Independent Study in Personal Finance

#### Suggested Non-Journalism Electives

ACCTCY 2010: Introduction to Accounting .....	3
ACCTCY 2026: Accounting I .....	3
ECONOM 3229: Money, Banking and Financial Markets.....	3
ECONOM 4315: Public Economics .....	3
ECONOM 4316: State and Local Finance .....	3
FINANC 2000: Survey of Business Finance.....	3
FINANC 3000: Corporate Finance .....	3
MANGMT 3000: Principles of Management .....	3
MRKTNG 3000: Principles of Marketing .....	3
GEOG 4840: Geographic Information Systems I.....	3
NAT R 4325: Introduction to Geographic Information Systems.....	3
POL SC 2100: State Government .....	3
POL SC 2200: The Judicial Process.....	3
POL SC 4000: Introductory Statistics for Political Science .....	3
POL SC 4020: Survey Research Methods.....	3
POL SC 4100: Political Parties and Election Campaigns.....	3
POL SC 4320: Public Policy.....	3
POL SC 4330: Policy Analysis .....	3

### Multiplatform Design (Interdisciplinary)

This Interest Area teaches students to tell stories visually across online and print platforms. Students learn to make decisions about the framing and packaging of information, and the effects

of those decisions on user perceptions. They learn to design in a way that lets the users take control of their information consumption and to use multimedia tools to enhance a story or persuasive message, not distract from it. *Administered by the Print and Digital News Faculty.*

**Required Journalism Classes ..... 14-15**

JOURN 4502: Multimedia Planning and Design..... 3

Take **one** of these:

JOURN 4450: News Reporting ..... 3

JOURN 4804: Convergence Reporting..... 3

Take **one** of these:

JOURN 4400: Introduction to News Editing ..... 2

JOURN 4408: Magazine Editing ..... 3

Take **one** of these:

JOURN 4500: News Design ..... 3

JOURN 4506: Magazine Design..... 3

JOURN 4508: Information Graphics ..... 3

Take **one** of these capstones:

JOURN 4990: Journalism and Democracy..... 3

JOURN 4992: Reporting, Editing and Marketing  
of Converged Media ..... 3

**Suggested Journalism Electives ..... 10**

**Highly Suggested:**

JOURN 4226: Strategic Design and Visuals I..... 3

JOURN 4301: Topics in Journalism  
(see advisor for approval)..... 2

JOURN 4502: Multimedia Planning and Design..... 3

JOURN 4500: News Design ..... 3

JOURN 4506: Magazine Design..... 3

JOURN 4508: Information Graphics ..... 3

JOURN 4566: Electronic Photojournalism..... 3

JOURN 4974: Advanced Internet Applications  
for Radio/TV News ..... 3

**Also Suggested:**

JOURN 4050: Communications Practice

OR JOURN 4350: Problems in Journalism  
(see advisor for correct sections)..... 1-3

JOURN 4301: Topics in Journalism  
(see advisor for approval)..... 2

JOURN 4430: Computer-Assisted Reporting ..... 3

JOURN 4440: Mapping for Stories and Graphics ..... 2

JOURN 4510: Visual Communication..... 3

JOURN 4550: Basic Photography and Photo Editing.. 3

JOURN 4940: Internship in Journalism ..... 3

JOURN 4950: Understanding Audiences ..... 3

**Suggested Non-Journalism Electives**

AR H A 3850: American Art and Culture,  
1913-Present ..... 3

ART GRDN 2410: Graphic Design I..... 3

ART PHOT 2600: Beginning Photography..... 3

INFOTC 3001: Topics in Information Technology  
(see advisor for approval)..... 3

INFOTC 3640: Digital Effects ..... 3

IS LT 4364: Flash Authoring..... 3

IS LT 4370: Intermediate Web Development ..... 3

**Arts-In-Depth Classes:**

ART GNRL 2030/2030H: Context and Culture ..... 3

MUSIC NM 2306/2306H: Perceiving Musical  
Traditions and Styles..... 3

THEATR 3770: The Theatre Experience: From  
Page to Stage and Screen ..... 3

**News Reporting (Interdisciplinary)**

This Interest Area provides the opportunity for reporting and writing across a variety of styles and platforms, including breaking news, enterprise and features. Stories are reported and produced using words, video, audio, graphics and more. The program of study prepares students for jobs in online media, and print publications such as newspapers, magazines and non-profit organizations. *Administered by the Print and Digital News Faculty.*

**Required Journalism Classes ..... 15**

JOURN 4400: Introduction to News Editing ..... 2

Take **two** of these:

JOURN 4450: News Reporting ..... 3

JOURN 4460: Advanced News Reporting ..... 3

JOURN 4804: Convergence Reporting..... 3

Take **one** of these:

JOURN 4406: News Editing..... 3

JOURN 4806: Convergence Editing and Producing... 3

Take **one** of these capstones:

JOURN 4990: Journalism and Democracy..... 3

JOURN 4992: Reporting, Editing and Marketing  
of Converged Media ..... 3

**Suggested Journalism Electives ..... 10**

JOURN 4106: Media and Art Criticism:

The Role of the Critic ..... 1

JOURN 4150: Using Infographics ..... 1

JOURN 4406: News Editing..... 3

JOURN 4410: Intermediate Writing ..... 3

JOURN 4416: Science, Health and  
Environmental Writing ..... 3

JOURN 4418: Critical Reviewing..... 3

JOURN 4420: Editorial Writing..... 3

JOURN 4426: Religion Reporting and Writing ..... 3

JOURN 4428: Health Reporting Skills ..... 2

JOURN 4430: Computer-Assisted Reporting ..... 3

JOURN 4436: Investigative Reporting..... 3

JOURN 4438: Business and Economics Reporting ..... 3

JOURN 4450: News Reporting ..... 3

JOURN 4460: Advanced News Reporting ..... 3

JOURN 4508: Information Graphics ..... 3

JOURN 4510: Visual Communication..... 3

JOURN 4650: International Issues Reporting ..... 3

JOURN 4700: Participatory Journalism ..... 3

JOURN 4706: The Community Newspaper..... 3

JOURN 4710: Newspaper Management ..... 3

JOURN 4720: Internet Law..... 3

JOURN 4804: Convergence Reporting..... 3

JOURN 4806: Convergence Editing and Producing ... 3

JOURN 4940: Internship in Journalism ..... 3

JOURN 4950: Understanding Audiences ..... 3

JOURN 4986: Advanced Writing ..... 3

**News Editing**

Students in this Interest Area learn the fundamentals of editing to correct and present copy for publication; content management, selection and display; how to evaluate content; copy flow and time management needed for publishing on deadline, whether that be at a set time or throughout a 24-hour cycle. The program of study prepares students for jobs in online and print publications, including newspapers, magazines and non-profit organizations. *Administered by the Print and Digital News Faculty.*

<b>Required Journalism Classes</b> .....	<b>15</b>
JOURN 4400: Introduction to News Editing .....	2
JOURN 4406: News Editing.....	3
JOURN 4450: News Reporting .....	3
JOURN 4500: News Design .....	3
JOURN 4990: Journalism and Democracy.....	3

<b>Suggested Journalism Electives</b> .....	<b>10</b>
JOURN 4050: Communications Practice OR JOURN 4350: Problems in Journalism (see advisor for correct sections).....	1-3
JOURN 4150: Using Infographics.....	1
JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4301: Topics in Journalism (see advisor for approval).....	2
JOURN 4408: Magazine Editing.....	3
JOURN 4508: Information Graphics .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4738: General Semantics in Journalism .....	3
JOURN 4700: Participatory Journalism .....	3
JOURN 4710: Newspaper Management .....	3
JOURN 4802: Fundamentals of TV, Radio and Photojournalism (not if also taken JOURN 2150).....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4812: Online Audience Development .....	3
JOURN 4940: Internship in Journalism.....	3
JOURN 4950: Understanding Audiences.....	3

<b>Suggested Non-Journalism Electives</b>	
ENGLSH/LINGST 4600: Structure of American English.....	3
ENGLSH/LINGST 4640: Syntax.....	3
GEOG 4840: Geographic Information Systems I.....	3
IS LT 4364: Flash Authoring.....	3
IS LT 4370: Intermediate Web Development .....	3
LINGST/PHIL 4100: Philosophy of Language .....	3
NAT R 4325: Introduction to Geographic Information Systems.....	3
POL SC 4000: Introductory Statistics for Political Science .....	3
POL SC 4020: Survey Research Methods.....	3

### News Design

This Interest Area teaches students to tell stories using the tools of visual journalism. Students learn to make decisions about the framing and packaging of information, and the effects of those decisions on user perceptions. Through hands-on-work in the *Columbia Missourian* newsroom, students gain real-world experience that prepares them to organize information and be clear visual communicators. The program of study prepares students for jobs in online and print publications, including newspapers, magazines and nonprofit organizations. *Administered by the Print and Digital News Faculty.*

<b>Required Journalism Classes</b> .....	<b>15</b>
JOURN 4400: Introduction to News Editing .....	2
JOURN 4406: News Editing.....	3
JOURN 4450: News Reporting .....	3
JOURN 4500: News Design .....	3
JOURN 4990: Journalism and Democracy (capstone)..	3

<b>Suggested Journalism Electives</b> .....	<b>10</b>
JOURN 4050: Communications Practice OR JOURN 4350: Problems in Journalism (see advisor for correct sections).....	1-3
JOURN 4301: Topics in Journalism (see advisor for approval).....	2

JOURN 4502: Multimedia Planning and Design.....	3
JOURN 4430: Computer-Assisted Reporting.....	3
JOURN 4440: Mapping for Stories and Graphics .....	2
JOURN 4506: Magazine Design.....	3
JOURN 4508: Information Graphics .....	3
JOURN 4510: Visual Communication.....	3
JOURN 4550: Basic Photography and Photo Editing..	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3

### Suggested Non-Journalism Electives

AR H A 3850: American Art and Culture: 1913-Present .....	3
ART GRDN 2410: Graphic Design I.....	3
ART PHOT 2600: Beginning Photography.....	3
INFOTC 3001: Topics in Information Technology (see advisor for approval).....	3
INFOTC 3640: Digital Effects .....	3
IS LT 4364: Flash Authoring.....	3
IS LT 4370: Intermediate Web Development .....	3

### Arts-In-Depth Classes:

ART GNRL 2030/2030H: Context and Culture .....	3
MUSIC NM 2306/2306H: Perceiving Musical Traditions and Styles.....	3
THEATR 3770: The Theatre Experience: From Page to Stage and Screen .....	3

### Science and Health Journalism (Interdisciplinary)

This Interest Area educates students in the skills and theory of journalistic coverage of the specialized fields of science, health, environment and engineering. The program prepares students for jobs as journalism professionals at newspapers, magazines, online publications and radio-television operations. *Administered by the Print and Digital News Faculty.*

### Required Journalism Classes .....

JOURN 4416: Science, Health and Environmental Writing .....	3
JOURN 4428: Health Reporting Skills .....	2

### Take **one** of these:

JOURN 4450: News Reporting .....	3
JOURN 4804: Convergence Reporting.....	3

### Take **one** of these:

JOURN 4406: News Editing.....	3
JOURN 4460: Advanced News Reporting .....	3
JOURN 4806: Convergence Editing and Producing ....	3

### Take **one** of these capstones:

JOURN 4990: Journalism and Democracy.....	3
JOURN 4992: Reporting, Editing and Marketing of Converged Media .....	3

### Suggested Journalism Electives .....

JOURN 4410: Intermediate Writing .....	3
JOURN 4414: Field Reporting on the Food System and Environment .....	3
JOURN 4430: Computer-Assisted Reporting .....	3
JOURN 4436: Investigative Reporting.....	3
JOURN 4730: Journalism and Conflict.....	3
JOURN 4940: Internship in Journalism .....	3
JOURN 4950: Understanding Audiences .....	3

### Suggested Non-Journalism Electives

AG EC 2070: Environmental Economics and Policy....	3
ATM SC 1050: Introductory Meteorology.....	3
ATM SC 3600: Climates of the World .....	3
BIO SC 4978: Cancer Biology .....	3
ENGLSH 4045: Rhetorical Studies.....	3

ENV SC 1100: Introduction to Environmental Science .....	3
ENV SC 3290: Soils and the Environment .....	3
F S 1030: Food Science and Nutrition.....	3
F S 1010: Introduction to Viticulture and Enology.....	1
F S 2131: Dairy Products Evaluation.....	2
F S 2195: Grapes and Wines of the World .....	3
F S 3190: Study Abroad: International Meat, Dairy and Enology.....	3
F S 3240: Principles of Viticulture I.....	4
F W 3400: Water Quality and Natural Resource Management.....	3
HTH PR 4300: Health Care in the United States.....	3
HTH PR 4310: Health Policy for the Health Professional.....	1-3
NAT R 1060: Ecology and Conservation of Living Resources.....	3
NAT R 1070: Ecology and Renewable Resource Management.....	3
RU SOC 4370: Environmental Sociology .....	3
SOIL 2100: Introduction to Soils.....	3

**Sports Journalism**

This Interest Area is for those interested in pursuing a career in sports journalism at any level. Covering sports today includes not only knowing the games but also knowing business and even crime reporting. The interest area crosses all disciplines of journalism, and students will learn to use multiple platforms for reporting and telling a story. Students will gain experience in covering games, finding feature stories and covering breaking news in sports. Students pick a core course of study then pick from a wide range of electives to round out their skills, from photography to business. *Administered by the Print and Digital News faculty.*

**Required Journalism Classes ..... 15**

**If you are not planning to pursue a R/TV focus in this interest area (i.e. taking Broadcast News I, II & III) you can enroll in JOURN 4300 only on a space available basis.**

- Take **one** of these:
- JOURN 4450: News Reporting .....
  - JOURN 4804: Convergence Reporting.....
  - JOURN 4300: Broadcast News I .....

- Take **one** of these:
- JOURN 4460: Advanced News Reporting .....
  - JOURN 4806: Convergence Editing and Producing....
  - JOURN 4306: Broadcast News II.....

- Take **one** of these:
- JOURN 4410: Intermediate Writing.....
  - JOURN 4308: Broadcast News III .....

**Required:**

- JOURN 4422: Sports Journalism.....

Note: Students who want to do sports reporting with KOMU must be in or have taken JOURN 4308: Broadcast News III.

- Take **one** of these capstones:
- JOURN 4992: Reporting, Editing and Marketing of Converged Media .....
  - JOURN 4990: Journalism and Democracy.....
  - JOURN 4974: Advanced Internet Applications for Radio/TV News .....
  - JOURN 4976: Seminar in Radio/TV News.....
  - JOURN 4978: Media Management and Leadership.....

**Suggested Journalism Electives ..... 10**

- JOURN 4150: Using Infographics.....
- JOURN 4320: Advanced Broadcast Reporting (The Sports Section).....
- JOURN 4406: News Editing.....
- JOURN 4410: Intermediate Writing .....
- JOURN 4148: Interviewing Essentials .....
- JOURN 4416: Science, Health and Environmental Writing .....
- JOURN 4436: Investigative Reporting.....
- JOURN 4438: Business and Economics Reporting .....
- JOURN 4440: Mapping for Stories and Graphics .....
- JOURN 4508: Information Graphics .....
- JOURN 4510: Visual Communication.....
- JOURN 4550: Basic Photography and Photo Editing..
- JOURN 4950: Understanding Audiences .....
- JOURN 4700: Participatory Journalism .....
- JOURN 4718: Law and the Courts .....
- JOURN 4728: Confronting Controls on Information..
- JOURN 4738: General Semantics in Journalism .....
- JOURN 4940: Internship in Journalism .....
- JOURN 4986: Advanced Writing .....

**Suggested Non-Journalism Electives**

- P R TR 1080: Introduction to Sport Management .....
- P R TR 1081: Sport Facility Design .....
- P R TR 2082: Domestic and International Sports Environment.....
- P R TR 2083: Technological Advancement in Sport.....
- P R TR 2281: The Business of Sport.....
- P R TR 3185: Sports Economics and Finance .....
- P R TR 3282: Governance and Policy in Sport and Leisure.....
- P R TR 4385: Legal Aspects of Sport .....
- HSP MGMT 1505: Fundamentals of Sport Venue Management .....
- HSP MGMT 3510: Guest Service Management: Delivering the Fan Experience.....
- HSP MGMT 3515: Sport Venue Operation Management.....
- HSP MGMT 4520: The Business of Sport Venue Management .....
- HSP MGMT 4525: Sport Venue Design and Risk Management .....

**Watchdog Journalism (Interdisciplinary)**

This Interest Area is for journalism students interested in learning the skills of investigative and computer-assisted reporting across platforms. It allows students to add a strong investigative-watchdog focus and emphasizes the use of data analysis in reporting. The program encourages students to develop a specialty area, such as covering health care or religion, but that is not required. Similarly, it encourages students to take basic courses in other subject areas that will give them important skills, such as introductory accounting (though again, this is not required). Students will gain the skills to work in computer-assisted reporting or investigative reporting. *Administered by the Print and Digital News Faculty.*

**Required Journalism Classes ..... 15**

**(If you are not planning to pursue a R/TV focus in this interest area (i.e. Taking Broadcast News I, II, III) you can enroll in JOURN 4300 only on a space available basis.)**

- JOURN 4430: Computer-Assisted Reporting .....
- JOURN 4436: Investigative Reporting.....

\*(Students who want to do investigative work with KOMU, must be in, or have taken Broadcast News III.)

Take **one** of these:

- JOURN 4300: Broadcast News I ..... 3
- JOURN 4450: News Reporting ..... 3
- JOURN 4804: Convergence Reporting..... 3

Take **one** of these:

- JOURN 4306: Broadcast News II..... 3
- JOURN 4460: Advanced News Reporting ..... 3
- JOURN 4806: Convergence Editing and Producing .... 3

Take **one** of these capstones:

- JOURN 4990: Journalism and Democracy..... 3
- JOURN 4992: Reporting, Editing and Marketing of Converged Media ..... 3

**Suggested Journalism Electives .....10**

- JOURN 4150: Using Infographics..... 1
- JOURN 4300: Broadcast News I ..... 3
- JOURN 4306: Broadcast News II..... 3
- JOURN 4308: Broadcast News III ..... 3
- JOURN 4330: From Murrow to Moore: What Good Journalists Read..... 3
- JOURN 4414: Field Reporting on the Food System and Environment ..... 3
- JOURN 4416: Science, Health and Environmental Writing ..... 3
- JOURN 4426: Religion Reporting and Writing ..... 3
- JOURN 4438: Business and Economics Reporting ..... 3
- JOURN 4440: Mapping for Stories and Graphics ..... 2
- JOURN 4508: Information Graphics ..... 3
- JOURN 4510: Visual Communication..... 3
- JOURN 4550: Basic Photography and Photo Editing.. 3
- JOURN 4700: Participatory Journalism ..... 3
- JOURN 4718: Law and the Courts ..... 3
- JOURN 4728: Confronting Controls on Information.. 3
- JOURN 4940: Internship in Journalism ..... 3
- JOURN 4950: Understanding Audiences ..... 3
- JOURN 4986: Advanced Writing ..... 3

**Suggested Non-Journalism Electives**

- ACCTCY 2010: Introduction to Accounting ..... 3
- ACCTCY 2026: Accounting I ..... 3
- ECONOM 3229: Money, Banking and Financial Markets..... 3
- ECONOM 4315: Public Economics ..... 3
- ECONOM 4316: State and Local Finance ..... 3
- GEOG 2840: Introduction to Mapping Science ..... 3
- GEOG 3840: Computer-Assisted Cartography..... 3
- GEOG 4840: Geographic Information Systems I..... 3
- NAT R 4325: Introduction to Geographic Information Systems..... 3
- POL SC 2100: State Government ..... 3
- POL SC 4000: Introductory Statistics for Political Science ..... 3
- POL SC 4020: Survey Research Methods ..... 3
- POL SC 4100: Political Parties and Election Campaigns..... 3
- POL SC 4320: Public Policy..... 3
- POL SC 4330: Policy Analysis ..... 3

**Radio-Television Interest Areas**

**Radio-Television Producing**

This Interest Area teaches students how to structure, write and

build a newscast. They will receive instruction in newsroom leadership and practice guiding a newscast to completion in the professional newsrooms and control rooms of KBIA Radio and KOMU-TV. *Administered by the Radio-TV Faculty.*

**Required Journalism Classes**

- JOURN 4300: Broadcast News I ..... 3
- JOURN 4306: Broadcast News II..... 3
- JOURN 4308: Broadcast News III ..... 3
- JOURN 4310: News Producing..... 3

Take **one** of these capstones:

- JOURN 4974: Advanced Internet Applications for Radio/TV News..... 3
- JOURN 4976: Seminar in Radio/TV News..... 3
- JOURN 4978: Media Management and Leadership..... 3

**Suggested Journalism Electives .....10**

- SCI AG J 3201: Topics in Science and Agricultural Journalism (see advisor for approval) ..... 3
- JOURN 4301: Topics in Journalism (see advisor for approval)..... 3
- JOURN 4320: Advanced Broadcast Reporting..... 3
- JOURN 4328: Advanced News Communication ..... 1
- JOURN 4116: Managing and Leading People..... 1
- JOURN 4416: Science, Health and Environmental Writing ..... 3
- JOURN 4418: Critical Reviewing..... 3
- JOURN 4426: Religion Reporting and Writing ..... 3
- JOURN 4430: Computer-Assisted Reporting..... 3
- JOURN 4436: Investigative Reporting..... 3
- JOURN 4438: Business and Economic Reporting..... 3
- JOURN 4506: Magazine Design..... 3
- JOURN 4508: Information Graphics ..... 3
- JOURN 4510: Visual Communication..... 3
- JOURN 4550: Basic Photography and Photo Editing.. 3
- JOURN 4650: International Issues Reporting ..... 3
- JOURN 4700: Participatory Journalism ..... 3
- JOURN 4716: Women and the Media ..... 2
- JOURN 4720: Internet Law..... 3
- JOURN 4726: Creativity and Innovation in Journalism ..... 3
- JOURN 4804: Convergence Reporting..... 3
- JOURN 4806: Convergence Editing and Producing .... 3
- JOURN 4940: Internship in Journalism ..... 3
- JOURN 4950: Understanding Audiences ..... 3
- JOURN 4974: Advanced Internet Applications for Radio/TV News..... 3
- JOURN 4976: Seminar in Radio/TV News..... 3
- JOURN 4978: Media Management and Leadership..... 3

**Suggested Non-Journalism Electives .....10**

- ANTHRO 1000: General Anthropology ..... 3
- ANTHRO 1060: Human Language ..... 3
- ART GNRL 1020: Appreciation of Art ..... 3
- ART GNRL 1400: Beginning Digital Imaging ..... 1
- ART GNRL 2410: Graphic Design I ..... 3
- AR H A 2830: American Art and Architecture..... 3
- AR H A 2850: Introduction to Visual Culture..... 3
- COMMUN 1200: Public Speaking..... 3
- COMMUN 3441: Nonverbal Communications ..... 3
- COMMUN 3571: Group Decision Making Processes. 3
- COMMUN 3575: Business and Professional Communication ..... 3
- ENGLSH 2510: Creative Writing: Intermediate Fiction ..... 3

GEOG 1100: Regions and Nations of the World I.....	3
GEOG 2720: Urban Geography.....	3
HIST 1100: Survey of American History to 1865.....	3
HIST 1200: Survey of American History Since 1865 ...	3
HIST 1500: Foundations of Western Civilization.....	3
HIST 1800: History of Modern Africa.....	3
MANGMT 3000: Principles of Management.....	3
MRKTNG 3000: Principles of Marketing.....	3
MRKTNG 4050: Marketing Research.....	3
MRKTNG 4220: Consumer Behavior.....	3
MUSIC NM 1211: Fundamentals of Music I.....	2
MUSIC NM 1310: Masterpieces of Western Music.....	3
MUSIC NM 1311: Jazz, Pop and Rock.....	3
FINPLN 2183: Personal and Family Finance.....	3
PHIL 1000: General Introduction to Philosophy.....	3
PHIL 1100: Introduction to Ethics.....	3
PHIL 1200: Logic and Reasoning.....	3
PHIL 4500: Theories of Ethics.....	3
PHYSICS 1150: Concepts of Physics - Physics for Poets.....	3
POL SC 1100: American Government.....	3
POL SC 3000: Introduction to Political Research.....	3
PSYCH 1000: General Psychology.....	3
PSYCH 2310: Social Psychology.....	3
REL ST 1100: Introduction to Religion.....	3
SOCIOL 1000: Introduction to Sociology.....	3
THEATR 1400: Acting for Non-Majors.....	3

### Radio-Television Reporting and Anchoring

This Interest Area will teach students how to gather the information they'll need to write and edit stories for radio, television and the Internet. They also will learn on-air delivery techniques and receive instruction on how best to deliver their journalism. They will do so in the professional newsroom setting of KBLA Radio and KOMU-TV. *Administered by the Radio-TV Faculty.*

#### Required Journalism Classes .....16

JOURN 4300: Broadcast News I.....	3
JOURN 4306: Broadcast News II.....	3
JOURN 4308: Broadcast News III.....	3
JOURN 4320: Advanced Broadcast Reporting.....	3
JOURN 4328: Advanced News Communications.....	1

Take **one** of these capstones:

JOURN 4974: Advanced Internet Application.....	3
JOURN 4976: Seminar in Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3

#### Suggested Journalism Electives .....9

JOURN 4301: Topics in Journalism (see advisor for approval).....	3
JOURN 4310: News Producing.....	3
JOURN 4116: Managing and Leading People.....	1
JOURN 4416: Science, Health and Environmental Writing.....	3
JOURN 4418: Critical Reviewing.....	3
JOURN 4426: Religion Reporting and Writing.....	3
JOURN 4430: Computer-Assisted Reporting.....	3
JOURN 4436: Investigative Reporting.....	3
JOURN 4438: Business and Economic Reporting.....	3
JOURN 4506: Magazine Design.....	3
JOURN 4508: Information Graphics.....	3
JOURN 4510: Visual Communications.....	3
JOURN 4550: Basic Photography and Photo Editing..	3
JOURN 4650: International Issues Reporting.....	3
JOURN 4700: Participatory Journalism.....	3

JOURN 4716: Women and the Media.....	2
JOURN 4720: Internet Law.....	3
JOURN 4726: Creativity and Innovation in Journalism.....	3
JOURN 4804: Convergence Reporting.....	3
JOURN 4806: Convergence Editing and Producing....	3
JOURN 4940: Internship in Journalism.....	3
JOURN 4950: Understanding Audiences.....	3
JOURN 4974: Advanced Internet Applications for Radio/TV News.....	3
JOURN 4976: Seminar in Radio/TV News.....	3
JOURN 4978: Media Management and Leadership.....	3

#### Suggested Non-Journalism Electives

ANTHRO 1000: General Anthropology.....	3
ANTHRO 1060: Human Language.....	3
ART GNRL 1020: Appreciation of Art.....	3
ART GRDN 1400: Beginning Digital Imaging.....	1
ART GRDN 2410: Graphic Design I.....	3
AR H A 2830: American Art and Architecture.....	3
AR H A 2850: Introduction to Visual Culture.....	3
COMMUN 1200: Public Speaking.....	3
COMMUN 3441: Nonverbal Communications.....	3
COMMUN 3571: Group Decision Making Processes.	3
COMMUN 3575: Business and Professional Communication.....	3
ENGLSH 2510: Creative Writing: Intermediate Fiction.....	3
GEOG 1100: Regions and Nations of the World I.....	3
GEOG 2720: Urban Geography.....	3
HIST 1100: Survey of American History to 1865.....	3
HIST 1200: Survey of American History since 1865 ...	3
HIST 1500: Foundations of Western Civilization.....	3
HIST 1800: History of Modern Africa.....	3
MANGMT 3000: Principles of Management.....	3
MRKTNG 3000: Principles of Marketing.....	3
MRKTNG 4050: Marketing Research.....	3
MRKTNG 4220: Consumer Behavior.....	3
MUSIC NM 1211: Fundamentals of Music I.....	2
MUSIC NM 1310: Masterpieces of Western Music.....	3
MUSIC NM 1311: Jazz, Pop and Rock.....	3
FINPLN 2183: Personal and Family Finance.....	3
PHIL 1000: General Introduction to Philosophy.....	3
PHIL 1100: Introduction to Ethics.....	3
PHIL 1200: Logic and Reasoning.....	3
PHIL 4500: Theories of Ethics.....	3
PHYSICS 1150: Concepts of Physics - Physics for Poets.....	3
POL SC 1100: American Government.....	3
POL SC 3000: Introduction to Political Research.....	3
PSYCH 1000: General Psychology.....	3
PSYCH 2310: Social Psychology.....	3
REL ST 1100: Introduction to Religion.....	3
SOCIOL 1000: Introduction to Sociology.....	3
THEATR 1400: Acting for Non-Majors.....	3

## Strategic Communication Interest Areas

### Strategic Communication

This Interest Area educates students in the principles and practice of all communication designed to create a desired response from a given audience. It includes focused study and hands-on practice within the Pathways of Account Management, Art

Direction, Copywriting, Media Planning, Public Relations, Research and Interactive—and prepares students for careers in these seven areas. Crossover between these Pathways is permissible and encouraged. *Administered by the Strategic Communication Faculty.*

**Required Journalism Classes .....15**

- JOURN 4200: Principles of Strategic Communication 3
- JOURN 4206: Strategic Writing I ..... 3
- JOURN 4226: Strategic Design and Visuals I..... 3
- JOURN 4952: Strategic Communication Research I ... 3
- JOURN 4970: Strategic Campaigns (capstone)..... 3

**Required Non-Journalism Electives .....6**

- MRKTNG 3000: Principles of Marketing ..... 3
- Another MRKTNG Elective..... 3

**Suggested Journalism Electives for**

**Account Management .....10**

- JOURN 4218: MoJo Advertising Staff..... 3
- JOURN 4236: Psychology of Advertising ..... 3
- JOURN 4248: Media Strategy and Planning ..... 3
- JOURN 4250: Management of Strategic Communication ..... 3
- JOURN 4256: Public Relations ..... 3
- JOURN 4262: Interactive Advertising I..... 3

**Suggested Journalism Electives for Interactive.....10**

- JOURN 4218: MoJo Advertising Staff..... 3
- JOURN 4236: Psychology of Advertising ..... 3
- JOURN 4262: Interactive Advertising I..... 3
- JOURN 4263: Interactive Advertising II..... 3

**Suggested Journalism Electives for Research .....10**

- JOURN 4218: MoJo Advertising Staff..... 3
- JOURN 4236: Psychology of Advertising ..... 3
- JOURN 4250: Management of Strategic Communication ..... 3
- JOURN 4262: Interactive Advertising I..... 3

**Suggested Journalism Electives for Art Direction .....10**

- JOURN 4218: MoJo Advertising Staff..... 3
- JOURN 4220: Creative Portfolio ..... 3
- JOURN 4228: Strategic Design and Visuals II..... 3
- JOURN 4236: Psychology of Advertising ..... 3
- JOURN 4262: Interactive Advertising I..... 3

**Suggested Journalism Electives for Public Relations .10**

- JOURN 4218: MoJo Advertising Staff..... 3
- JOURN 4236: Psychology of Advertising ..... 3
- JOURN 4256: Public Relations ..... 3
- JOURN 4262: Interactive Advertising I..... 3
- JOURN 4270: Public Relations Writing ..... 3

**Suggested Journalism Electives for Copywriting.....10**

- JOURN 4208: Strategic Writing II..... 3
- JOURN 4218: MoJo Advertising Staff..... 3
- JOURN 4220: Creative Portfolio ..... 3
- JOURN 4236: Psychology of Advertising ..... 3
- JOURN 4262: Interactive Advertising I..... 3

**Suggested Journalism Electives for Media Planning ..10**

- JOURN 4216: Media Sales..... 3
- JOURN 4218: MoJo Advertising Staff..... 3
- JOURN 4236: Psychology of Advertising ..... 3
- JOURN 4248: Media Strategy and Planning ..... 3
- JOURN 4262: Interactive Advertising I..... 3

**Suggested Strategic Communication Electives**

- JOURN 4130: Account Service..... 1
- JOURN 4136: Creative Techniques..... 1
- JOURN 4138: Public Relations Techniques..... 1
- JOURN 4140: Interactive Techniques ..... 1

- JOURN 4146: Strategic Communication Techniques .. 1
- JOURN 4258: Global Communication ..... 3

**Suggested Journalism Electives**

- JOURN 4100: The Creative Process..... 1
- JOURN 4116: Managing and Leading People..... 1
- JOURN 4118: Media Strategy ..... 1
- JOURN 4120: New Media Basics ..... 1
- JOURN 4126: Digital Audio and Visual Basics for Journalists ..... 1
- JOURN 4400: Introduction to News Editing ..... 2
- JOURN 4506: Magazine Design..... 3
- JOURN 4510: Visual Communication..... 3
- JOURN 4726: Creativity and Innovation in Journalism ..... 3
- JOURN 4940: Internship in Journalism ..... 3

**Suggested Non-Journalism Electives**

- ANTHRO 1000: General Anthropology ..... 3
- ANTHRO 1060: Human Language ..... 3
- ART GRDN 1400: Beginning Digital Imaging ..... 1
- ART GNRL 1020: Appreciation of Art ..... 3
- ART DRAW 1050: Drawing I..... 3
- ART GRDN 2410: Graphic Design I..... 3
- AR H A 1110: Ancient and Medieval Art..... 3
- AR H A 2850: Introduction to Visual Culture..... 3
- COMMUN 1200: Public Speaking..... 3
- COMMUN 3571: Group Decision Making Processes . 3
- COMMUN 3572: Argument and Advocacy ..... 3
- COMMUN 3575: Business and Professional Communication ..... 3
- ENGLISH 1160: Themes in Literature..... 3
- ENGLISH 1300: Reading in American Literature..... 3
- ENGLISH 1800: Introduction to Film Studies..... 3
- ENGLISH 2140: Twentieth-Century Literature..... 3
- ENGLISH 2150: Popular Literature ..... 3
- ENGLISH 2510: Creative Writing: Intermediate Fiction ..... 3
- ENGLISH 2560/THEATR 2920: Beginning Playwriting ..... 3
- FILM S 2520: Film Pre-Planning and Production ..... 3
- GEOG 1100: Regions and Nations of the World I..... 3
- GEOG 2720: Urban Geography..... 3
- HIST 1400: American History ..... 5
- HIST 1500: Foundations of Western Civilization..... 3
- HIST 1510: History of Modern Europe..... 3
- HIST 1800: History of Modern Africa ..... 3
- HIST 1830: Survey of East Asian History ..... 3
- HIST 1850: Latin America Since Independence..... 3
- GN HON 2111H: The Ancient World ..... 3
- GN HON 2112H: The Middle Ages and the Renaissance ..... 3
- GN HON 2113H: The Early Modern World: The 17th-19th Centuries Enlightenment..... 3
- MRKTNG 4050: Marketing Research ..... 3
- MRKTNG 4220: Consumer Behavior ..... 3
- MUSIC NM 1211: Fundamentals of Music I..... 2
- MUSIC NM 1310: Masterpieces of Western Music ..... 3
- MUSIC NM 1311: Jazz, Pop and Rock..... 3
- FINPLN 2183: Personal and Family Finance ..... 3
- PHIL 1000: General Introduction to Philosophy ..... 3
- PHIL 1200: Logic and Reasoning..... 3
- PHIL 2300: Philosophy and Human Nature ..... 3
- PHIL 2420: Ethical Issues in Business..... 3
- PHYSICS 1100: Science and Inventions..... 1

PHYSICS 1150: Concepts of Physics - Physics for Poets .....	3
PSYCH 1000: General Psychology.....	3
PSYCH 2310: Social Psychology .....	3
REL ST 1100: Introduction to Religion.....	3
SOCIOL 1000: Introduction to Sociology.....	3
THEATR 1100: The Theatre in Society.....	3
THEATR 1400: Acting for Non-Majors.....	3
THEATR 2800: Principles of Script Analysis .....	3

**International Strategic Communication**

The next generation of strategic communication students must be equipped to work in a global environment. This Interest Area is designed to capitalize on Missouri’s international reputation and its international resources by placing under one umbrella the school’s existing Study Abroad opportunities, its internationally focused media and multimedia projects with global partners. Students in this area take Strategic Communication courses to complement their international interests. *The Strategic Communication Interest Area is administered by the School’s International Programs Office.*

**Required Journalism Classes .....15**

JOURN 4200: Principles of Strategic Communication	3
JOURN 4206: Strategic Writing I.....	3
JOURN 4226: Strategic Design and Visuals I.....	3
JOURN 4952: Strategic Communication Research I ...	3
JOURN 4970: Strategic Campaigns (capstone).....	3

**Suggested Journalism Electives .....10**

Journalism Study Abroad ..... 6  
(It is recommended that the student study abroad in the second semester of their junior year or the first semester of their senior year.)

Take **one** of these:

JOURN 4050: Communication Practice (see advisor for approval).....	3
JOURN 4198: Area Seminar (see advisor for approval)	3
JOURN 4258: Global Communications.....	3
JOURN 4350: Problems in Journalism (see advisor for approval).....	3
JOURN 4650: International Reporting Issues .....	3
JOURN 4656: International News Media Systems.....	3
JOURN 4658: International Journalism .....	3

**Suggested Non-Journalism Electives**

AG EC 3150: International Agribusiness.....	3
AG EC 3271: International Agricultural Development	3
AG EC 3272: International Food Trade and Policy.....	3
ANTHRO 3700: Cultures of Europe .....	3
ANTHRO 3780: Cultures of Southeast Asia.....	3
ANTHRO 4400: Language and Culture .....	3
ANTHRO 4790: Culture and Society in South Asia ...	3
ATM SC 3600: Climates of the World .....	3
BL STU 4230: Women, Development and Globalization.....	3
CHINSE 3300: Chinese Traditions and Global Integration.....	3
FINANC 4720: International Finance.....	3
GEOG 1100: Regions and Nations of the World I.....	3
GEOG 2780: World Political Geography: Patterns and Processes.....	3
GEOG 3530: Global Politics of HIV/AIDS .....	3
HIST 3820: Twentieth Century China.....	3
HIST 3850: Islam and the West.....	3
HIST 3870: Social Revolution in Latin America .....	3

HIST 4870: Southeast Asia Since the Eighteenth Century .....	3
HTH PR 3400: Global Health.....	3
KOREAN 4220: Korean Unification.....	3
MRKTNG 3975: Current Issues in International Marketing .....	1-3
MRKTNG 3985: Problems in International Business..	3
MRKTNG 4720: Global Marketing.....	3
PEA ST 2780: World Political Geography.....	3
POL SC 1400: International Relations.....	3
POL SC 4400 Theories of International Relations.....	3
POL SC 4420: Politics of International Economic Relations.....	3
POL SC 4440: International Organization.....	3
POL SC 4500: The European Union in the Global System.....	3
POL SC 4540: American Foreign Policies .....	3
POL SC 4600: Latin American Politics.....	3
POL SC 4610: European Political Systems.....	3
RU SOC 2010: Leadership in Today’s World.....	3
RU SOC 3235: Global Perspectives and Realities.....	3
S A ST 3245: Nonviolence in the Modern World.....	3
S A ST 4850: Traversing the Muslim World .....	3
SOCIOL 3210: Sociology of Globalization.....	3
SOCIOL 3255: Youth in Today’s World .....	3
SOCIOL 4230: Women, Development and Globalization.....	3
T A M 2400: Global Consumers .....	3
T A M 3110: Textiles and Apparel in the Global Economy .....	3
T A M 4110: Global Sourcing.....	3
T A M 4310: Global Retailing.....	3

**Special Offerings**

**International Journalism (Interdisciplinary)**

The next generation of journalism students must be equipped to work in a global environment. This Interest Area is designed to capitalize on Missouri’s international reputation and its international resources by placing under one umbrella the school’s existing Study Abroad opportunities, its internationally focused media and multimedia projects with global partners. Students in this Interest Area may take courses within any of the existing or prospective areas to complement their international interests. *This degree is granted in the student’s emphasis area of choice (Convergence, Magazine, Photojournalism, Print and Digital News or Radio-TV) but is administered by the School’s International Programs Office.*

**Required Journalism Classes .....15**

Take **one** of these:

JOURN 4258: Global Communications.....	3
JOURN 4650: International Issues Reporting .....	3
JOURN 4656: International News Media Systems.....	3
JOURN 4658: International Journalism .....	3

Take **one** of these:

JOURN 4300: Broadcast News I .....	3
(only on a space available basis)	
JOURN 4450: News Reporting .....	3
JOURN 4556: Fundamentals of Photojournalism .....	3
JOURN 4804: Convergence Reporting.....	3

Take **one** of these capstones:

JOURN 4980: The Picture Story and Photographic Essay.....	3
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JOURN 4990: Journalism and Democracy.....	3
JOURN 4992: Reporting, Editing and Marketing of Converged Media .....	3
Journalism Study Abroad .....	6
(It is recommended that the student study abroad in the second semester of their junior year or the first semester of their senior year.)	
<b>Suggested Journalism Electives .....</b>	<b>10</b>
JOURN 4050: Communications Practice (see advisor for approval).....	3
JOURN 4258: Global Communications.....	3
JOURN 4300: Broadcast News I .....	3
JOURN 4450: News Reporting .....	3
JOURN 4556: Fundamentals of Photojournalism .....	3
JOURN 4650: International Issues Reporting .....	3
JOURN 4656: International News Media Systems.....	3
JOURN 4658: International Journalism .....	3
JOURN 4660: Media Forces Shaping the European Union .....	3
JOURN 4662: Global News Across Platforms.....	3
JOURN 4730: Journalism and Conflict.....	3
JOURN 4804: Convergence Reporting.....	3
<b>Suggested Non-Journalism Electives</b>	
AG EC 3150: International Agribusiness.....	3
AG EC 3271: International Agricultural Development	3
AG EC 3272: International Food Trade and Policy.....	3
ANTHRO 3700: Cultures of Europe .....	3
ANTHRO 3780: Cultures of Southeast Asia.....	3
ANTHRO 4400: Language and Culture .....	3
ANTHRO 4790: Culture and Society in South Asia ....	3
ATM SC 3600: Climates of the World .....	3
BL STU/SOCIOLOG 4230: Women, Development and Globalization.....	3
CHINSE 3300: Chinese Traditions and Global Integration .....	3
FINANC 4720: International Finance.....	3
GEOG 1100: Regions and Nations of the World I.....	3
GEOG 2780: World Political Geography: Patterns and Processes.....	3
GEOG 3530: Global Politics of HIV/AIDS .....	3
HIST 3820: Twentieth Century China .....	3
HIST 3850: Islam and the West.....	3
HIST 3870: Social Revolution in Latin America .....	3
HIST 4870: Southeast Asia Since the Eighteenth Century .....	3
HTH PR 3400: Global Health.....	3
KOREAN 4220: Korean Unification.....	3
MRKTNG 3975: Current Issues in International Marketing.....	3
MRKTNG 3985: Problems in International Business..	3
MRKTNG 4720: Global Marketing.....	3
PEA ST 2780: World Political Geography.....	3
POL SC 1400: International Relations .....	3
POL SC 4400: Theories of International Relations.....	3
POL SC 4420: Politics of International Economic Relations .....	3
POL SC 4440: International Organization.....	3
POL SC 4500: The European Union in the Global System.....	3
POL SC 4540: American Foreign Policies .....	3
POL SC 4600: Latin American Politics .....	3
POL SC 4610: European Political Systems.....	3
RU SOC 2010: Leadership in Today's World.....	3

RU SOC 3235: Global Perspectives and Realities.....	3
S A ST 3245: Nonviolence in the Modern World.....	3
S A ST 4850: Traversing the Muslim World .....	3
SOCIOLOG 3210: Sociology of Globalization.....	3
SOCIOLOG 3255: Youth in Today's World .....	3
T A M 2400: Global Consumers .....	3
T A M 3110: Textiles and Apparel in the Global Economy .....	3
T A M 4110: Global Sourcing.....	3
T A M 4310: Global Retailing.....	3

## Individually Designed Interest Area

Students who find that none of the existing Interest Areas meet their needs may work with the faculty to construct a tailored Interest Area to meet their educational objectives. To do this, students work with a faculty mentor and at least two other faculty members to design a course plan using existing courses in the School of Journalism, relevant courses outside the School and no more than six credits of Problems, Topics or Communication Practice courses. *The Faculty of the student's faculty mentor shall be the emphasis area in which the degree is granted. Students wishing to pursue this option should start by seeing a Journalism Advisor in 76 Gannett.*

### Electives to Achieve the Interest Area's Goal .....16

The student must complete 16 hours of elective journalism courses mutually agreed to in advance by the student and the three supervising faculty members. These courses must form a coherent plan that leads to competency in the targeted area of expertise and must fit within one of the approved Emphasis Areas of the School.

### Journalism or Non-Journalism Electives (6 Non-Journalism Credits)

In consultation with the faculty mentor, the student should choose a minimum of six non-journalism credits that complement the program's objectives. For example, if a student were to design a program in some aspect of entrepreneurial journalism, six or more credits in business courses might be desirable. In the absence of relevant courses for the targeted interest area, these credits become general electives for students.

### Capstone .....3

Students pursuing this interest area should choose from among the School's available capstone courses to find one that best meets the model's objectives. In the absence of a clear choice, JOURN 4990: Journalism and Democracy, is recommended. Students also are required to complete an upper-division Writing Intensive (WI) course. Some capstones carry WI designation. Others may be found in the journalism curriculum or outside the school.

### Approval Procedure

Students who wish to construct a special interest area may pick up a form for that purpose in Students Services, 76 Gannett. After meeting with the three faculty members chosen to oversee progression through the program, the student will submit the form - complete with the signatures of the student and the three supervising faculty members - to the Associate Dean for Undergraduate Studies. The student must win approval of the tailored program from the associate dean before beginning the program. Thus, a student must file a proposal for approval by the time he or she has completed no more than 70 total credits. Once approved, the proposal goes to the student's academic advisor, who places it in the student's file and uses it to help the

student navigate the remainder of the curriculum.

### **Total Credits for the Degree and their Breakdown**

Students pursuing a tailored program must complete 123 credit to include:

- The same 60 credits that all students must complete before entering upper-division status.
- Not more than 43 journalism credits.
- A total of at least 80 non-journalism credits, at least 65 of which must qualify as liberal arts and science courses.
- No more than 15 of the 80 non-journalism credits may be in applied areas such as agriculture, education, engineering and the like.

## **Options**

### **Summer Session**

The School of Journalism offers three summer sessions in which most of its media laboratory courses are offered. The first session begins in mid-May and the second in early July. The third extends for the entire summer. Students may combine one or both of the sessions with the regular University summer session or in special four-week sessions if their enrollment does not exceed 9 credits at any one time.

Many non-media journalism courses, including graduate courses, are offered in the regular University summer session. Courses offered in the journalism summer sessions include those courses in which lab work is completed under faculty supervision on the *Missourian*, KBIA and KOMU-TV.

Classes are smaller in the summer sessions, and students have the opportunity to consult on a one-to-one basis with faculty members. Because labs are smaller, students' opportunities are much greater for obtaining publishing and broadcasting experience.

### **Opportunities for Graduate Study on the MU Campus**

The five-year combined bachelor/master degree program was designed for students in the Missouri School of Journalism who desire a graduate education after the undergraduate program is complete. Students in the program complete requirements as outlined for the Bachelor of Journalism degree and then spend one more year (approximately 12 months) to earn a master's degree. The program requires students to carry an intensive load (12-15 credits) each semester. Course work in the program builds on the undergraduate program and enhances student's skills and understanding of the chosen area of journalism. At the present time, students can focus their program in areas such as strategic communication, newspaper design, broadcast management, computer-assisted reporting and magazine areas such as magazine writing and magazine design.

## **Journalism Minor**

### **Journalism Minor Policies and Procedures**

The School of Journalism's minor is for students within other MU academic divisions who wish to broaden their understanding of the news media's role in society. Courses for minors parallel MU's broader liberal arts traditions and are not

skills-oriented.

### **Admissions**

JOURN 1000 is open to any MU student who is a non-journalism major in good academic standing. To declare a minor, a student must be in good academic standing at MU and have completed 60 credits.

Pre-Journalism students who follow the School of Journalism's general education requirements are preferred for admission. Pre-Journalism students who complete JOURN 1100 and JOURN 2100 with a C or better (and then decide to minor within the School of Journalism) are eligible to take 9 more credits within the School. The 6 credits already earned in JOURN 1100 and JOURN 2100 will count toward completion of a minor. Pre-Journalism students who decide to minor after completing JOURN 1100 are ineligible to take JOURN 1000.

Other MU students with a GPA of record of 3.0 or higher are eligible as space permits. Journalism majors are ineligible for this program.

All students apply to be a journalism minor and complete a form that is available from a designated staff liaison. Journalism minors must apply to be eligible to register for courses.

All admission and other requirements apply to both current and transfer students. Transfer students with more than 6 credits of mass communication and society courses from another college or university will not be eligible to minor in journalism.

### **Courses**

Up to 15 credits selected from the following classes:

- JOURN 1000: The News Media: Journalism and Advertising in a Democratic Society
- JOURN 1100: Principles of American Journalism
- JOURN 2000: Cross-Cultural Journalism
- JOURN 3000: History of American Journalism
- JOURN 4000: Communication Law

JOURN 2100: News, is not open to journalism minors. However, Pre-Journalism students who complete JOURN 2100 as part of their requirements and then decide to minor in journalism will receive full course credit toward the minor.

Other eligible courses: (all require permission of course instructor emailed or sent to the designated advisor for minors):

- JOURN 4568: History of Photojournalism
- JOURN 4656: International News Media Systems
- JOURN 4658: International Journalism
- JOURN 4990: Journalism and Democracy

These are the classes the School of Journalism currently offers for international and U.S. exchange, MU interdisciplinary and general studies majors plus non-degree seeking undergraduate students. These courses are not skills oriented and frequently have room for non-majors to enroll. JOURN 1000 also was intended as a class for non-majors.

The selected courses focus on news media and society issues. Students can choose whatever combination of classes they wish

to reach 15 credits. Journalism minors are ineligible to take any other courses with the School of Journalism. Journalism minors may take no more than 15 credits within the School of Journalism.

## **Registration**

MU students can register for JOURN 1000 through regular procedures. For all other classes, journalism minors place their course preference on a waiting list. Students are eligible to enroll after course registration by journalism majors is completed. The School's designated liaison for journalism minors will inform students when course space is available following registration periods each semester.

## **Academic Status**

Journalism minors are subject to probationary or suspension status as determined by the division in which each student's major resides. Journalism minors who receive lower than a C- in any journalism course must repeat it until they receive a C- or better.

## **Fees**

Journalism minors must pay School of Journalism activity fees for all journalism courses.

## **Advising**

Journalism minors will not be assigned a faculty advisor or an academic advisor within the Journalism School. Academic advising occurs in the division of each student's major. Journalism minors are free to consult with the school's designated liaison and with the School of Journalism faculty on course-specific matters at any time. Journalism minors also can consult on longer-range career and professional issues with journalism faculty. However, faculty advising priority is given to journalism majors.

## **Career Services**

Journalism minors are ineligible to interview with prospective employers who visit the School of Journalism. Journalism minors should interview employers in their home division. The School of Journalism's placement website is open for use by journalism minors. Journalism minors can consult with the School of Journalism's placement officers, although priority is given to journalism majors and Pre-Journalism students.

## **Other Disciplinary Actions**

Disciplinary actions for Journalism minors are the same as for Journalism majors. All cases of alleged academic misconduct will be immediately forwarded and reviewed by the MU Provost's office. All cases of classroom misconduct will be immediately forwarded and reviewed by the office of the Vice Chancellor for Student Affairs.





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# **School of Nursing**

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# School of Nursing

## Degree Offered

Bachelor of Science in Nursing (BSN)

## Faculty

**PROFESSOR** J. Armer, V. S. Conn, L. H. Ganong,  
J. Miller, M. J. Rantz

**ASSOCIATE PROFESSOR** G. Alexander, M. A. Aud,  
M. Enriquez, D. Finfgeld, R. A. Johnson, R. W. McDaniel,  
C. L. Russell, P. Schnitzer, D. D. Wipke-Tévis

**ASSISTANT PROFESSOR** T. Bloom, K. Lane, L. Phillips,  
L. Popejoy, A. Vogelsmeier

**ASSOCIATE TEACHING PROFESSOR** J. E. Bostick,  
S. Farrah, D. A. Gayer, T. Rupp

**ASSISTANT TEACHING PROFESSOR** C. Bausler,  
C. Koetting, L. Kuensting, G. M. Oliver, D. Pennington

**INSTRUCTOR OF NURSING** V. Bader, N. Bartow,  
L. Chronister, K. Ellis, P. Evans-Smith, L. Frey, G. Gregory,  
C. Grider, B. M. Hanson, A. G. Heine, A. James,  
P. Mascendero, D. L. Mendenhall, K. Metcalf-Wilson,  
G. Nickell, D. C. Otto

**ADJUNCT ASSOCIATE PROFESSOR** C. Brooks,  
C. Wakefield

**ADJUNCT ASSISTANT PROFESSOR** S. Brier, S. Ulbrich

**ADJUNCT INSTRUCTOR** L. Phillips, S. Revelle

**TEACHING PROFESSOR** L. Miller

## Administration

Judith F. Miller, Dean

Roxanne McDaniel, Associate Dean for Academic Affairs

Vicki Conn, Associate Dean for Research

### Office of Student Affairs

S235 Nursing School Bldg.

(573) 882-0277

The nursing program at MU began in 1901 with the establishment of Parker Memorial Hospital Training School. Today, the Sinclair School of Nursing is committed to promoting, maintaining and improving health and health-care delivery in Missouri and worldwide through nursing education, research and service. Nursing faculty combine research and education to offer students hands-on experience in the art and science of nursing.

The school offers a baccalaureate program that prepares students for the general practice of nursing, a master's degree program that prepares advanced-practice nurses and a doctoral degree program. The continuing education program serves practicing nurses throughout the state to update and increase nursing knowledge and skills.

The graduate of the baccalaureate program is a generalist in the practice of nursing, able to design, implement and evaluate nursing systems for individuals, families and small groups. As a generalist, the graduate uses a general concept of nursing as a

framework for integrating and organizing specific knowledge in nursing, the sciences and the humanities. Graduates begin their professional careers with a focused nursing perspective and, along with other professional health providers, assume responsibility for meeting the health needs of our society.

The School of Nursing is approved by the Missouri State Board of Nursing and has national accreditation.

The undergraduate program is approved by the Missouri State Board of Nursing. The Baccalaureate Program at the University of Missouri is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202) 887-6791.

## Admissions

### Traditional BSN Option

The freshman and sophomore years are designated as the "pre-nursing" years. The junior and senior years are designated as the "clinical nursing major" years. *Pre-nursing students apply for admission to the clinical major during the last semester of general education and prerequisite coursework and are admitted to the clinical nursing major on a competitive and space-available basis when prerequisite courses have been completed.* Any student who is a Nursing Scholar is guaranteed admission into the clinical nursing major. Please see the Nursing and/or Honor's College websites for eligibility information and application details.

Each student's application is reviewed systematically and considered holistically for each admission period. The School values MU's Commitment to Diversity and the call of the American Nurses Association that the nursing workforce should reflect the diversity of the population. The School is also committed to rural health care and to educating nurses for practice in rural Missouri. Therefore, the School seeks to ensure that the student body includes persons from rural Missouri and persons of backgrounds that are underrepresented in the nursing workforce.

### Clinical application and admission criteria include:

- Successful completion of all general education and prerequisite coursework prior to beginning clinical coursework;
- Satisfactory grades from biology, chemistry, and two of the three advanced lab sciences (microbiology, anatomy, physiology) to be eligible to apply for the clinical nursing major;
- Minimum cumulative grade-point average of 3.0 (on a 4.0 scale) for all college/university courses;
- Competitive grade-point average in nursing prerequisite courses;
- Minimum GPA of 3.0 for any nursing prerequisite courses;
- Evidence of capacity to uphold the practice standards and ethical codes of the nursing profession; and
- Evidence of motivation toward a nursing career

### RN to BSN Option

The RN/BSN online option is for registered nurses who have earned a diploma or associate degree in nursing with a

cumulative GPA of a 2.8 or higher and seek a bachelor's degree in nursing. RN/BSN courses are offered via the Internet with limited trips to campus for each nursing course.

RN/BSN registered nurse applicants must meet the same admission standards described above for the Traditional BSN Option. They must be currently licensed to practice nursing (or eligible for licensure) in Missouri or another state. Completion of the program includes 120 credit hours. The length of the program varies, depending on equivalent prerequisite courses completed and choice of part-time or full-time enrollment.

### **BSN Accelerated Option**

The BSN Accelerated Option is a 15 month program designed for individuals who hold a non-nursing degree at the baccalaureate level or higher.

Students are admitted to the Accelerated BSN Option based on the following criteria:

- A baccalaureate or higher degree from an accredited college or university.
- Two letters of reference from individuals that can attest to the student's motivation and ability to complete a course of intensive study.
- Statement of career goals
- Description of the applicant's view of nursing as a profession.
- A personal interview.
- Evidence of academic achievement of a 2.8 cumulative GPA or higher on a 4.0 scale on undergraduate degree.
- Completion of prerequisite courses with a minimum of a C or better
- Evidence of potential and motivation for nursing.
- Evidence of prior work success and/or ability to handle a fast-paced academic program.

A Bachelor of Science (BSN) degree is awarded at graduation, and the graduate may be eligible to take the licensing examination to become a registered nurse (RN).

### **Transfer Students**

Students transferring to MU from another accredited institution of higher education or other schools and colleges within the University are subject to the regulations established by the MU Faculty Council concerning transfer of credit.

For more information regarding the transfer guidelines for the School of Nursing, call (573) 882-0277. Prior to admission, transfer students must have the following:

- Appropriate GPA for credit hours attempted, 3.0 cumulative GPA or higher
- Approval from the associate dean's office

Transfer students must apply for admission through the MU Admissions Office.

### **International Students**

In addition to the admission criteria described above, international students must meet the following criteria:

- Test of Written English (TWE) score of 4 or higher
- Test of Spoken English (TSE) score of 50 or higher
- TOEFL score of 600 (paper-based) or 250 (computer-

based) or 100 (internet-based)

- English Language Support Program Test taken with success

## **Academic Regulations**

### **Credit by Examination**

RN/BSN and Accelerated BSN students may earn advanced-standing credit in some courses by satisfactorily completing examinations. Those who elect not to take the examinations or who fail to achieve satisfactory results are required to enroll in the courses. The cumulative grade point average is not affected by examination results. A student who has a record of enrollment in a support course with a grade lower than C is not eligible later for credit on the basis of an examination covering the same subject.

The student may acquire advanced standing by taking subject CLEP examinations in university general education courses and required support courses. If no CLEP examination is offered, department examinations may be available. More information on CLEP examinations is available through MU Testing Services.

### **Distance Education Courses**

Certain courses offered by the Mizzou Online (self-paced) may be applied toward degree requirements. Courses such as literature, advanced psychology or sociology may be taken through independent study. Students should not expect to begin nor continue work on independent study courses during the regular semester except by special permission of the associate dean and then only when carrying less than a full course load in residence.

### **Progression Criteria**

#### **Pre-nursing Years**

- Satisfactory academic standing requires a minimum semester GPA of 2.0 and a cumulative GPA at or above the standards listed below:

Freshman	1st semester	1-15 credits	2.8
Freshman	2nd semester	16-30 credits	3.0
Sophomore	3rd semester	31-45 credits	3.0
Sophomore	4th semester	46-60 credits	3.0

- A grade of C or better is required for anatomy, biology, chemistry, ENGLSH 1000, human development, microbiology, nutrition, physiology, nursing courses and Writing Intensive courses. A grade of "C-" or better is required in algebra or statistics. A grade of "F" is unacceptable for any course.
- Students may repeat a course in which an unsatisfactory grade was earned. If less than a C is earned on repetition of a course, students are ineligible to continue enrollment in the School of Nursing.
- Students who are in the traditional BSN option and withdraw in good standing for any reason must contact the Associate Dean for readmission.

#### **Clinical Nursing Years**

- Progression into the next semester's nursing courses is con-

tingent on the completion, with a grade of C or better, of all of the previous semester's courses.

- A satisfactory academic standing for clinical students is a minimum semester GPA and cumulative GPA of 2.0.
- A grade of C or better is required for all nursing courses. One repetition of a course is permitted, but requires approval of SAP committee. Students who earn less than a C on repetition of a nursing course are ineligible to continue enrollment in the School of Nursing.
- Students in the clinical nursing phase who withdraw in good standing for any reason must contact the Associate Dean for readmission.

### Probation and Academic Dismissal

The faculty of the School of Nursing has established criteria governing nursing probation and dismissal.

#### Pre-nursing Years

- Students who do not meet the requirements set forth in the progression criteria are placed on academic probation. They must attain the cumulative grade point average required for their classification, as outlined previously, within two semesters or they are ineligible to re-enroll in the School of Nursing, and must transfer divisions.
- A student whose semester GPA falls below 1.0 is ineligible to re-enroll at MU for the period of one year.

#### Clinical Nursing Years

- A student who does not meet the requirements set forth in progression criteria is placed on academic probation.
- A student on academic probation must obtain a cumulative GPA of 2.0 within two semesters or is ineligible to re-enroll in the School of Nursing.
- Students who have been dismissed may reapply through the established admissions procedure for all students and petition the Faculty Assembly Student Admissions and Progression Committee. Students who are readmitted are guided by the rules in operation for the class they join.
- A student in the clinical nursing phase who has been dismissed from the School of Nursing for a second time may not reapply for admission.

### Major Core Requirements - Nursing (BSN)

The completion of all requirements for graduation is the responsibility of the student. The Bachelor of Science in Nursing (BSN) is granted to candidates who have satisfactorily completed all of the following requirements:

- Completion of all foundational and clinical nursing courses
- Minimum cumulative GPA of 2.0
- No more than 30 credits through independent study or extension courses
- Completion of all University graduation requirements, including University general education requirements

#### Pre-Nursing requirements..... 61-68

Curriculum is based on prerequisite of one year of high school biology with lab and grades of C or better. The student must meet all University general education requirements.

#### General courses..... 24-27

- ENGLISH 1000: Exposition and Argumentation ..... 3
- HIST: American History or American Government .... 3
- \*\*Humanities/Fine Arts ..... 9-12
- Upper-level behavioral science ..... 3

STAT 1200: Introductory Statistical Reasoning (MP)

OR ESC PS 4170: Introduction to Applied

Statistics (MP) ..... 3

\*MATH 1100: College Algebra ..... 3

\*Check the Math Placement website for more information.  
http://mathplacement.missouri.edu.

\*\*If foreign language is taken for humanity/fine art credit, 12 hours must be completed of same language.

#### Foundation courses ..... 37-40

BIO SC 1010: General Principles and Concepts

of Biology ..... 3

OR BIO SC 1500: Introduction to Biological

Systems with Lab ..... 5

CHEM 1100: Atoms and Molecules with Lab ..... 3

OR CHEM 1310: General Chemistry I ..... 2

PTH AS 2201: Human Anatomy Lecture ..... 3

AND PTH AS 2203: Human Anatomy Laboratory . 2

MPP 3202: Elements of Physiology ..... 5

MICROB 2800: Microbiology for Nursing and

Health Professions ..... 4

OR MICROB 3200: Medical Microbiology and

Immunology ..... 4

H D FS 2400: Principles of Human Development ..... 4

NUTR S 2380: Diet Therapy for Health

Professionals ..... 3

PSYCH 1000: General Psychology ..... 3

SOCIOL 1000: Introduction to Sociology

OR RU SOC 1000: Rural Sociology ..... 3

NURSE 2000: Nursing as a Profession ..... 3

NURSE 2100: Psychosocial and Communication

Issues in Nursing..... 2

#### Clinical nursing requirements - professional courses

NURSE 3170: Nursing Skills, Technologies

and Simulation ..... 4

NURSE 3200: Pathophysiology and Therapeutics ..... 4

NURSE 3270: Foundations of Nursing: Physical

Assessment and the Nursing Process ..... 6

NURSE 3300: Pharmacology and Nursing

Implications..... 4

NURSE 3470: Mental Health Nursing ..... 4-5

NURSE 3670: Nursing of Adults I ..... 6

NURSE 3770: Nursing of Women and Newborns ..... 5

NURSE 3870: Gerontological Nursing Care ..... 3

NURSE 3900: Introduction to Nursing Science..... 3

NURSE 4200: Nursing Ethics and Law ..... 3-4

NURSE 4270: Nursing of Children ..... 5

NURSE 4400: Nursing Leadership and Management.. 2

NURSE 4870: Nursing of Adults II..... 7

NURSE 4970: Nursing in Communities..... 5

#### Total for BSN ..... 123-131

Admission to the nursing clinical major is a requirement to take these courses.

### Additional Requirements

Students in the clinical phase of the degree requirements must be prepared to provide their own transportation to clinical agencies. In addition, they must meet the following requirements:

- Valid CPR certificate
- Yearly TB tests

- Hepatitis B series
- School of Nursing medical form showing current immunizations
- Negative drug screen
- Criminal background check

## **Practicums**

Clinical practicums (patient/client care) are an integral part of the curriculum. Students have the opportunity to practice in a variety of health care and related agencies, including:

- University of Missouri Health Care
- Boone Hospital Center
- Truman Veterans Hospital
- Fulton State Hospital
- Mid-Missouri Mental Health Center
- Multiple county and city health departments
- Long-term care facilities
- Day-care centers
- Schools (K-12)

## **Licensure by the Missouri State Board of Nursing**

On receipt of the Bachelor of Science in Nursing degree, students may be eligible to take the NCLEX examination for licensure as registered nurses. The Missouri State Board of Nursing grants a license to practice to persons who meet the policies and regulations contained within the Nursing Practice Act, Chapter 335.011 to 335.096.

# **Student Services**

## **Advising**

The academic advisor's office is in room S235 of the School of Nursing Building, (573) 882-0277. In addition, each clinical nursing major is assigned a faculty advisor who is available for consultation about academic or professional matters.

## **Health Care**

Nursing students participate in a variety of on- and off-campus educational experiences. The School of Nursing does not assume responsibility for health-care expenses incurred in either setting. Students assume responsibility for all health care for illness and injury, including emergency treatment. Student Health is located at University Physicians Medical Building, 1101 Hospital Drive, (573) 882-7481. For additional information, visit their web site at <http://studenthealth.missouri.edu/>.



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# **Graduate School**

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# Graduate School

## Nuclear Science and Engineering Institute

Graduate School  
<http://nsei.missouri.edu>

The NSEI administers the graduate Nuclear Engineering degree program, with some courses available to undergraduate students. Undergraduate minors are available in one of three emphasis areas in Nuclear Engineering. The descriptions and requirements for each of these are listed below.

### Faculty

#### Core Faculty

**CURATORS' PROFESSOR** S. K. Loyalka  
**PROFESSOR** T. K. Ghosh, W. H. Miller, M. A. Prelas  
**ASSOCIATE PROFESSOR** R. T. Tompson  
**ASSOCIATE RESEARCH PROFESSOR** J. W. Eerkens  
**PROFESSOR EMERITUS** D. Viswanath, W. A. Volkert

#### Affiliated Faculty

**PROFESSOR** H. R. Chandrasekhar, M. Chandrasekhar,  
G. D. Christensen, V. S. Gopalaratnam, D. Jonassen,  
S. S. Jurisson, J. D. Robertson, H. Taub, H. Tillema,  
H. W. Tyrer  
**ASSOCIATE PROFESSOR** R. D. Curry, T. J. Hoffman,  
K. V. Katti, J. C. Lattimer, J. R. Lever, M. R. Lewis,  
P. F. Miceli, T. P. Quinn, A. Singh, G. K. Springer,  
R. A. Winholtz, D. L. Worcester  
**ASSISTANT PROFESSOR** R. Marra, W. T. Montfrooij,  
J. C. Smith, K. M. Trauth, P. Yu  
**ASSISTANT RESEARCH PROFESSOR** M. F. Giblin  
**ADJUNCT PROFESSOR** C. S. Cutler, K. Gangopadhyay

### Minor Program Requirements

Three minors are offered within the Nuclear Engineering academic curriculum to provide students the opportunity to obtain education and training in the nuclear sciences: Nuclear Engineering; Medical and Health Physics, and Radioenvironmental Sciences. Each minor requires a minimum of 15 credits of course work. As background preparation, the Nuclear Engineering minor requires math through differential equations and two semesters of calculus-based physics. The other two minors require prerequisites of a minimum of college algebra and two semesters of college physics.

#### Minor in Nuclear Engineering

The minor in Nuclear Engineering is designed for students in the College of Engineering who are interested in nuclear power engineering. The minor is satisfied by selecting five courses from the following list (*courses denoted with an "\*" are required*):

ENGINR 2300: Engineering Thermodynamics*	3
NU ENG 2201: Topics in Nuclear Engineering	3
NU ENG 4303: Radiation Safety	3
NU ENG 4315: Energy Systems and Resources*	3
NU ENG 4330: Science and Technology of Terrorism and Counter Terrorism	3

NU ENG 4346: Introduction to Nuclear Reactor Engineering I*	3
NU ENG 4353: Introduction to Fusion	3
NU ENG 4391: Nuclear Radiation Detection* (cross-listed with CHEM 4600)	3

#### Minor in Medical/Health Physics

The minor in Medical/Health Physics is designed for students from Biology, Chemistry, Engineering, Physics or related disciplines who are interested in the biological effects of radiation in medical utilization and in occupational health and safety. The minor is satisfied by selecting five courses from the following list (*courses denoted with an "\*" are required*):

NU ENG 2201: Topics in Nuclear Engineering	3
NUCMED 3256: Clinical Nuclear Medicine I	2
NU ENG 4303: Radiation Safety*	3
CHEM 4170: Medicinal Chemistry	3
NU ENG 4319: Physics and Chemistry of Materials	3
NU ENG 4328: Introductory Radiation Biology*	3
NUCMED 4329: Radiopharmaceuticals in Nuclear Medicine	3
BIOL EN 4570: Biomedical Imaging	3
NU ENG 4391: Nuclear Radiation Detection* (cross-listed with CHEM 4600)	3
BIOCHM 3630: General Biochemistry	3

#### Minor in Radioenvironmental Sciences

The minor in Radioenvironmental Sciences is designed for students from Biology, Chemistry, Engineering, Physics or related disciplines who are interested in radiation in the environment. The minor is satisfied by selecting five courses from the following list (*courses denoted with an "\*" are required*):

NU ENG 2201: Topics in Nuclear Engineering	3
NU ENG 4303: Radiation Safety*	3
NU ENG 4328: Introductory Radiation Biology*	3
NU ENG 4330: Science & Technology of Terrorism and Counter Terrorism	3
NU ENG 4350: Nuclear Methods in Bioenvironmental Studies	3
NU ENG 4379: Particulate Systems Engineering	3
NU ENG 4391: Nuclear Radiation Detection* (cross-listed with Chem 4600)	3
CHEM 3300: Fundamentals of Physical Chemistry	3
CHEM 4280: Environmental Chemistry	3
CV ENG 3200: Fundamentals of Environmental Engineering	4
CV ENG 4220: Hazardous Waste Management	3
CV ENG 4250: Environmental Regulatory and Compliance	3





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# **Professional Schools**

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# College of Veterinary Medicine

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## Administration

Dr. Neil Olson Dean  
W-203 Veterinary Medicine  
(573) 882-3768

Dr. C. B. Chastain, Director  
W-207 Veterinary Medicine  
(573) 882-9594  
chastainc@missouri.edu

### Advising Contact

Dr. C. B. Chastain  
W-207 Veterinary Medicine  
(573) 882-9594  
chastainc@missouri.edu

## Faculty

**PROFESSOR** C. B. Chastain, M. H. Laughlin  
**ASSOCIATE PROFESSOR** C. S. Reddy, L. J. Rubin  
**ASSISTANT PROFESSOR** D. Bowles, P. Pithua  
**CLINICAL ASSISTANT PROFESSOR** L. Berent,  
D. Cross, C. Datz, J. Kramer, D. Teachout

In addition to the four-year professional curriculum leading to the Doctor of Veterinary Medicine (DVM) degree, the college offers a variety of undergraduate courses. Currently the college does not offer a major or minor in any of the departments. However, courses serve as electives for other degree programs, a component to the Bachelor of General Studies degree program, Bachelor of Health Sciences and as partial requirements in the Pre-veterinary Medicine and Agriculture Scholars programs.



# School of Medicine

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Alison Martin  
Manager Admissions  
School of Medicine  
Office of Admissions  
Room MA213-215  
Columbia, MO 65212  
(573) 882-9219  
martinat@health.missouri.edu

## Medical Pharmacology and Physiology

School of Medicine  
MA415 Medical Science Building  
(573) 882-4957  
<http://www.muhealth.org/~mpp/>

### Faculty

**PROFESSORS** E. H. Blaine, G. E. Davis, M. J. Davis,  
W. Durante, M. A. Hill, L. J. Holland, T. W. Hurley,  
V. H. Huxley, T. C. Hwang, R. J. Korthuis, G. A. Meininger,  
M. A. Milanick, M. J. Rovetto, S. S. Segal, S. D. Shukla  
**ASSOCIATE PROFESSORS** K. H. Byington, S. P. Halenda,  
M. J. James-Kracke, R. W. Lim, K. S. McDonald, P. A. Wilden  
**ASSISTANT PROFESSORS** P. J. Fadel, M. Krenz  
L. A. Martinez-Lemus, L. Polo-Parada, G. Sowa  
**JOINT PROFESSORS** F. W. Booth, K. C. Dellsperger,  
W. P. Fay, K. D. Gillis, E. M. Hasser, J. A. Ibdah,  
M. H. Laughlin, L. J. Rubin, J. R. Sowers, R. L. Terjung  
**JOINT ASSOCIATE PROFESSORS** D. K. Bowles,  
V. Demarco, J. R. Lever  
**JOINT ASSISTANT PROFESSOR** C. Baines, M. Thakkar

The Department of Medical Pharmacology and Physiology in the School of Medicine does not offer an undergraduate degree in Medical Pharmacology and Physiology, but some courses are available to undergraduate students.

## Molecular Microbiology and Immunology

School of Medicine  
M616 Medical Science Building  
(573) 882-8152  
<http://mmi.missouri.edu>

### Faculty

**PROFESSOR** M. A. McIntosh, M. L. Misfeldt, D. J. Pintel,  
K. S. Wise, H. Zaghouni  
**ASSOCIATE PROFESSOR** K. L. Bennett, D. Burke,  
J. F. Cannon, D. Duan, D. R. Lee, L. S. Thai  
**ASSISTANT PROFESSOR** M. Johnson, S. Sarafianos  
**JOINT PROFESSOR** J. K. Critser, H. Mullen, G. Stacey,  
J. D. Wall  
**JOINT ASSOCIATE PROFESSOR** C. R. Brown,  
K. L. Fritsche, C. L. Lorson, W. J. Mitchell, R. A. Ortmann  
**JOINT ASSISTANT PROFESSOR** M. J. Calcutt, D. Fang,  
U. Atasoy

The Department of Molecular Microbiology and Immunology in the School of Medicine does not offer an undergraduate degree in microbiology, but some courses are available to undergraduate students. These courses are listed later in the Course Offerings section of the catalog.

# Pathology and Anatomical Sciences

Douglas Anthony, Chair  
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M263 Medical Science Building  
(573) 882-1201  
<http://www.pathology~missouri.org>

## Faculty

**PROFESSOR** D. Anthony, C. Caldwell, G. Davis, W. Krause II,  
M. Ravosa, S. Stack, C. Ward

**ASSOCIATE PROFESSOR** E. Adelstein, A. Diaz-Arias,  
E. Ingram, T. Loy, A. Luger, R. Mitra, M. Petrides, L. Spollen

**ADJUNCT ASSOCIATE PROFESSOR** T. Scanlon

**RESEARCH ASSOCIATE PROFESSOR** R. Little

**CLINICAL ASSOCIATE PROFESSOR** A. Havey

**PROFESSOR EMERITUS** M. Rosenholtz

**ASSISTANT PROFESSOR** K. Aldridge, L. Bennett,  
M. Esebua, S. Frazier, V. Glinskii, Z. Gu, H. Shi, C. Stacy,  
M. Wang

**INSTRUCTOR** A. Konrad, D. Shin

**LECTURER** A. Deane



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# **Course Offerings**

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## ACCOUNTANCY COURSES

**ACCTCY 2010: Introduction to Accounting (3).** Introduction to accounting for non-business majors. Emphasis on introducing students to business operations, as well as preparing and using management information and financial accounting information for business decisions (does not count as either Accountancy [ACCTCY] 2036 or 2037).

**ACCTCY 2026: Accounting I (3).** An introduction to the field of accounting, this course covers the fundamentals of financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both Accountancy [ACCTCY] 2026 and 2036. Course only offered through the Mizzou Online (self paced).

**ACCTCY 2027: Accounting II (3).** This course covers the fundamentals of managerial accounting and additional topics in financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both Accountancy [ACCTCY] 2027 and 2037. Prerequisite: Accountancy [ACCTCY] 2026. Course only offered through Mizzou Online (self paced).

**ACCTCY 2036: Accounting I (3).** First half of two-part course focusing on the business environment and the use of managerial and financial accounting information for decision making in various business settings. Emphasizes the use of accounting information about a retail company (sole proprietorship) by internal and external users, followed by an introduction to other forms of business and, then, planning for corporate operations. Prerequisite: sophomore standing.

**ACCTCY 2037: Accounting II (3).** Second half of two-part course focusing on the business environment and the use of managerial and financial accounting information for decision making in various business settings. This half emphasizes the use of accounting information about a manufacturing company (corporation) by internal and external users. Prerequisite: Accountancy [ACCTCY] 2036 or 2136H.

**ACCTCY 2136H: Honors Accounting I (3).** First part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users. Prerequisite: sophomore standing in Accounting or Business, 3.3 or higher GPA. Honors eligibility required.

**ACCTCY 2137H: Honors Accounting II (3).** Continuation of Accountancy [ACCTCY] 2136H. Prerequisite: C or better Accountancy [ACCTCY] 2136H. Honors eligibility required.

**ACCTCY 2258: Computer-Based Data Systems (3).** Introduces the computer as a tool in the efficient operation of a business. Skills developed in the course include electronic information retrieval, information analysis using a spreadsheet, what-if analysis macro development, and information presentation. In addition, computer components, data storage, networks, and information technology are discussed. Prerequisite: Accountancy [ACCTCY] 2036 or 2136H.

**ACCTCY 3326: Financial Accounting Theory and Practice I (3).** Institutional structure, conceptual framework, and reporting standards and practices of financial accounting, with special emphasis on accounting for assets. Prerequisite: Accountancy [ACCTCY] 2037 or 2137H.

**ACCTCY 3328: Accounting Information Systems (3).** Introduction to accounting information systems (AIS). General AIS concepts. Transaction processing systems and accounting cycles. Alternative platforms for computerized transaction processing. Database management and data modeling. Control concepts and design. Prerequisite: Accountancy [ACCTCY] 2258.

**ACCTCY 3346: Financial Accounting Theory and Practice II (3).** Continuation of Accountancy [ACCTCY] 3326, with special emphasis on income recognition and accounting for liabilities and ownership equity. Prerequisite: Accountancy [ACCTCY] 3326.

**ACCTCY 3347: Cost and Managerial Accounting (3).** Activity based and traditional job order and process cost systems for service, merchandising, and multinational manufacturing companies; Cost accounting techniques and procedures for financial reporting by multinational companies. Strategic focus to management accounting measurement and reporting. Standard costs and variances, capital budgeting. Prerequisites: Accountancy [ACCTCY] 2037 or 2137H and 2258.

**ACCTCY 4000: Accountancy Professional Speakers and Symposia (0).** This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/or professional accounting organizations. Prerequisites: Accountancy [ACCTCY] 2036, 2037, and 2258; Accountancy Majors. This will be a non-credit, non-billed, no hours course.

**ACCTCY 4301: Topics in Accounting (1-3).** Independent investigations, reports on approved topics. Prerequisites: instructor's consent.

**ACCTCY 4353: Introduction to Taxation (3).** Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns. Prerequisite: Accountancy [ACCTCY] 2037 or 2137H.

**ACCTCY 4356: Financial Accounting Concepts (3).** Current issues in the financial reporting of business corporations to external parties. Not open to accountancy majors. Prerequisite: Accountancy [ACCTCY] 2037 or 2137H.

**ACCTCY 4365: Governmental Accounting and Budgeting (3).** Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting, budgeting, auditing, and financial reporting in government and not-for-profit entities. Prerequisite: Accountancy [ACCTCY] 3326.

**ACCTCY 4384: Auditing Theory and Practice I (3).** Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits. Prerequisites: Accountancy [ACCTCY] 3328 and 3346.

**ACCTCY 4940: Professional Accounting Internship (3-6).** Provides full-time professional accounting work experience of at least eight weeks duration. Completion of first 105 hours of 150-hour accountancy curriculum (or equivalent) and consent of Internship Coordinator. Graded on S/U basis only.

## AEROSPACE STUDIES COURSES

**AERO 1100: The Foundations of the United States Air Force (2).** Introduces the Air Force and Air Force ROTC. Topics include professional appearance, military customs and courtesies, core values, equal opportunity and treatment, officer opportunities, group leadership problems. Applies communicative skills. Leadership lab.

**AERO 1200: The Foundations of the United States Air Force (2).** Continues the introduction to the Air Force and Air Force ROTC. Topics include Air Force origins, organizations, major commands, installations, sister services (Army and Navy), group leadership problems. Applies communicative skills. Leadership lab.

**AERO 2100: The Evolution of USAF Air and Space Power (2).** A survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC officer candidate. Explores Air Force heritage, Air Force leaders and Air Power doctrine. Applies communicative skills. Leadership lab.

**AERO 2200: The Evolution of USAF Air and Space Power (2).** Continues the examination of air and space power from the Vietnam era through the present. Topics include the Vietnam War, the Persian Gulf War, and overseas contingency operations.

Applies communicative skills. Leadership lab.

**AERO 3100: Air Force Leadership Studies (3).** An integrated leadership and management survey course emphasizing development of the individual as an Air Force leader. Special topics include situational leadership, principle centered leadership, corrective supervision and counseling. Leadership lab.

**AERO 3200: Air Force Leadership Studies (3).** Air Force leadership principles are examined from the foundation developed in Aerospace Studies [AERO] 3100. Ethical decision making, personal core values, and character development are discussed. Military evaluation systems are outlined. Leadership lab.

**AERO 4100: National Security Affairs/Preparation for Active Duty (3).** Examines the national security process, regional studies, Air Force and joint doctrine. Special topics include the military as a profession and civilian control of the military. Continued emphasis on communicative skills. Leadership lab.

**AERO 4200: National Security Affairs/Preparation for Active Duty (3).** Examines civilian control of the military, officership, the military justice system, and current issues affecting military professionalism. Continued refinement of communicative skills. Leadership laboratory.

## AGRICULTURE, FOOD AND NATURAL RESOURCES COURSES

**AFNR 1101: Special Topics in Agriculture (1-3).** Selected topics not offered in other courses. Prerequisite: instructor's consent.

**AFNR 1111: Computing and Information Systems I (3).** Provide students with a basic understanding of microcomputer usage, electronic communications, and use of the Internet. Topics include operating systems, word processing, database management systems, spreadsheets, electronic mail, online library searches, and the World Wide Web.

**AFNR 1115: Foundations for College Success (1).** An investigation of principles and practices associated with academic success and the interpersonal challenges encountered in collegiate life. Learning preferences, time investment, study skills, degree requirements, and personal development opportunities available in the College and across campus are explored. Prerequisite: freshman standing. Graded on A/F basis only.

**AFNR 1120: Computing and Information Technology (2).** Provide students with a basic understanding of computer usage, electronic communications and use of the Internet. Topics include understanding of operating systems, word processing, and presentation media. Restricted to freshmen and sophomores.

**AFNR 2115: College to Career: Strategies for Success (1).** Systematic approach to self-assessment, career research and exploration, goal-setting and implementation of a career development plan. Students will learn specific skills, research knowledge and lifelong career management techniques.

**AFNR 2120: Working with Data Using Excel (1).** Provide students with a basic understanding of computer usage and spreadsheet applications.

**AFNR 2150: Agricultural Travel Course (cr.arr.).** General travel course designed to broaden perspective of agricultural students. Prerequisites: one course in each of the following areas: agricultural economics, animal science, plant science, and instructor's consent. Cost of course is borne by the student.

**AFNR 2190: International Agriculture and Natural Resources (cr.arr.).** This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Prerequisites: instructor's and student's advisor consent. Selected sections of this course may be graded either on A/F or S/U basis only.

**AFNR 2191: International Agriculture and Natural Resources - Humanities (1-6).** This course is designed to provide students with an introduction to

valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. Prerequisites: student's advisor or consent of instructor. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**AFNR 2192: International Agriculture/Natural Resources-Social Science (1-6).** This course is designed to provide students with an examination of the social sciences of the host country; including the sociology, psychology, economics, government, and history of the country; including the dynamics of urban and rural communities. Prerequisite: student's advisor and instructor's consent. May be repeated for credit. Selected sections of this course may be graded either on A/F or S/U basis only.

**AFNR 2215: Introduction to the Theory and Practice of Sustainable Agriculture (3).** This experiential course provides an overview of the theoretical and practical principles of sustainable agriculture by exploring the holistic nature of sustainable agriculture, and analyzing agriculture systems based on their impact on the environment, economy and community.

**AFNR 3115: Lifelong Career Management and Success Strategies (1).** Systematic approach to understanding the importance of effective leadership in the professional world, obtaining transferable skills necessary in the work force, and understanding important aspects that allow one's career to grow over the course of one's professional life. Prerequisites: junior standing or higher. Graded on A/F basis only.

**AFNR 3215: Community Food Systems (3).** Essential concepts in research, implementation and understanding of community food systems and macro-level global trends in food production and distribution will be discussed. Students will examine the social, economic and health implications of conventional and alternative food systems. Prerequisite: Agriculture, Food and Natural Resources [AFNR] 2215.

**AFNR 4001: Topics in Agriculture-General (cr. arr.).** Topics in Agriculture-General

**AFNR 4972: Capstone Project in Agriculture, Food and Natural Resources (1-3).** A culminating learning experience focused on student's area of concentration that requires the application of knowledge and skills taught in the undergraduate curriculum. The capstone project comprises independent, original work culminating in a scholarly project, written document, and/or presentation. Graded on S/U basis only. Prerequisite: junior standing; instructor's consent.

**AFNR 4993: Internship in Agriculture, Food and Natural Resources (1-6).** Field-based learning experience combining the study, observation, and employment with a business, organization, or governmental agency. The internship provides opportunities to apply skills, concepts and theories about agriculture, food and natural resources in a practical context. The student intern, internship supervisor, and university coordinator will develop an individualized internship plan. May be repeated for credit. Prerequisite: junior standing; instructor's consent.

#### AGRICULTURAL ECONOMICS COURSES

**AG EC 1010: Introduction to Agribusiness Management (1).** Management concepts and techniques. Coordination of business activity, motivation, and decision-making approaches used by industry leaders in global food chain. Unique aspects of managing enterprises in the agriculture-food sector.

**AG EC 1011: Survey of Global Agribusiness (1).** Economic, social and political forces and trends and the impact on U.S. and global agribusinesses. Global production, consumption trade, and investment patterns in agriculture-food sector. Developing management strategy in changing economic political environment.

**AG EC 1041: Applied Microeconomics (3).** Introduction to the microeconomic principles and their application to decision-making in agribusinesses. Consumer decision analysis, producer goals

and optimization and the market environment where they meet and trade. Applications to current issues. Students who complete Agricultural Economics [AG\_EC] 1041 may not have credit for Economics [ECONOM] 1014.

**AG EC 1042: Applied Macroeconomics (3).** Introduction to macroeconomic principles and their application to agriculture-food sector and natural resource issues. Using macroeconomic principles in decision making and in evaluating national and regional economic problems and issues. Students who complete Agricultural Economics [AG\_EC] 1042 may not have credit for Economics [ECONOM] 1015.

**AG EC 2070: Environmental Economics and Policy (3).** (same as Environmental Studies [ENV\_ST] 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels. Prerequisite: English [ENGLISH] 1000 and sophomore standing.

**AG EC 2123: Quantitative Applications in Agricultural Economics (3).** Familiarize students with the use of calculus and other quantitative tools in developing and analyzing fundamental economic concepts. Prerequisites: Agricultural Economics [AG\_EC] 1041 and Mathematics [MATH] 1400.

**AG EC 2156: Introduction to Environmental Law (3).** Environmental issues from a legal perspective, using current controversies from both the USA and other countries. Major environmental laws dealing with water, air, noise, endangered species, waste disposal, and land use.

**AG EC 2183: The Agricultural Marketing System (3).** Analysis of marketing systems that transforms agricultural products into food products. Examines functions and institutions in marketing and distributing food from both micro and macro perspectives. Prerequisite: Agricultural Economics [AG\_EC] 1041, 1042 and English [ENGLISH] 1000.

**AG EC 2223: Agricultural Sales (3).** Principles of salesmanship in agricultural input and output markets; buyer motivations; time and territory management; communication models and techniques; planning and executing sales calls; after-sale service. Prerequisites: Agricultural Economics [AG\_EC] 1041.

**AG EC 2225: Statistical Analysis (3).** Elementary statistical inference. Prerequisite: Agricultural Economics [AG\_EC] 1041 and Mathematics [MATH] 1100. Math Reasoning Proficiency Course.

**AG EC 2940: Practicum in Agricultural Economics (1-3).** Off-campus integrated working and learning experience for departmental majors and minors. Application of economic concepts in business or government. Prerequisites: 6 credit hours Agricultural Economics, 3 credits communications, and 30 total University credits. Graded on S/U basis only.

**AG EC 3150: International Agribusiness (3).** This course covers the primary factors that shape the business environment for food and agricultural firms conducting business across borders. The course examines how culture, institutions and public policy affect business operations and business strategies. Prerequisites: Agricultural Economics [AG\_EC] 2183 or instructor's consent.

**AG EC 3224: New Products Marketing (3).** Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product. Prerequisites: English [ENGLISH] 1000 and either Agricultural Economics [AG\_EC] 1041 or Economics [ECONOM] 1014.

**AG EC 3230: Agricultural and Rural Economic Policy (3).** Study and analysis of past and present government policies affecting agriculture and rural economy. Prerequisite: Agricultural Economics [AG\_EC] 1041 and 1042 or equivalent.

**AG EC 3241: Ethical Issues in Agriculture (3).** The study of how economics, philosophy, and science inform on and impact important ethical problems in agriculture, such as the environment, biotechnology, animal welfare, farm structure, the role of agribusiness, development, sustainability, and agriculture-related public policy. Course may be repeated once for credit. Prerequisite: Agricultural Economics [AG\_EC] 1041 or equivalent and junior standing.

**AG EC 3251: Agricultural Prices (3).** Variations in prices of agricultural products; underlying factors. Prerequisites: Agricultural Economics [AG\_EC] 1041, 1042, 2123 and 2225 or Statistics [STAT] 2500.

**AG EC 3256: Agribusiness and Biotechnology Law (3).** Legal concepts applicable to agribusiness and biotech firms. To include contracts, torts, product liability, warranties, corporate farming laws, UCC, corporations/partnerships/limited liability companies, labor laws, patent copyrights/trademark laws, international and ethical perspectives. Prerequisites: 3 hours of Agricultural Economics or Economics.

**AG EC 3257: Rural and Agricultural Law (3).** Everyday practical legal problems facing rural residents, farmers, agribusiness, and local government. Laws include statutes, common law (cases), customs, and administrative regulations. Topics include corporate/contract farming, right-to-farm, leases, fence laws, estate planning and water rights. Prerequisites: 3 hours of Agricultural Economics or Economics.

**AG EC 3260: General Farm Management (3).** Economics and management principles applied to planning and operating farm businesses. Includes enterprise combination, resource acquisition, water management, profit maximizing techniques and annual adjustments to changing conditions. Prerequisite: Agricultural Economics [AG\_EC] 1041.

**AG EC 3270: Conservation and Use of Protected Areas (3).** Evaluation of socioeconomic, cultural and ecological values influencing the development and management of protected areas including parks, forests, wildlife refuges, wilderness and wild/scenic rivers. Prerequisites: Agricultural Economics [AG\_EC] 1041 or equivalent, or Agricultural Economics [AG\_EC] 2070 and introductory natural resources courses, or instructor's consent.

**AG EC 3271: International Agricultural Development (3).** Examines world food problem; analyzes its causes; economic and noneconomic policy alternatives for modernizing agriculture in less-developed countries. Prerequisites: Agricultural Economics [AG\_EC] 1041 and 1042 and junior standing.

**AG EC 3272: International Food Trade and Policy (3).** Examines food trade; develops economic analyses of trade impacts on domestic agricultural policies; examines international trade agreements; and interface of trade and environment. Prerequisites: Agricultural Economics [AG\_EC] 1041 and 1042.

**AG EC 3282: Agribusiness Finance (3).** Application of the concepts and methods of finance to the management of agribusiness firms, including cooperatives. Special attention is given to the working capital needs of agribusiness and to the specialized lending institutions in the agricultural economy. Prerequisite: Agricultural Economics [AG\_EC] 1041 and Accountancy [ACCTCY] 2037.

**AG EC 3283: Fundamentals of Entrepreneurship (3).** Introduce students to entrepreneurial way of thinking. Entrepreneurship is a way of thinking about identifying/creating opportunities and transforming those opportunities into new businesses, new institutions, or solutions to problems. Students will participate in the process of formulating and evaluating solutions to problems and identifying and exploiting opportunities. Prerequisites: Agricultural Economics [AG\_EC] 1041 and Accountancy [ACCTCY] 2036 or equivalent.

**AG EC 3285: Problems in Agricultural Economics (1-3).** Supervised study in a specialized phase of agricultural economics. Prerequisite: Agricultural Economics [AG\_EC] 1041 and 1042; instructor's consent. Graded on S/U basis only.

**AG EC 3286: Economics of Managerial Decision Making (3).** Introduces tools and concepts from

price theory, game theory, industrial organization and organizational economics, and applies them to managerial decision making activities for businesses in the agrifood system and for natural resource and environmental management. Prerequisite: Agricultural Economics [AG\_EC] 1041, 2123 and 2183.

**AG EC 3294: Agricultural Marketing and Procurement (3).** Content of course focuses on marketing issues in the agriculture supply chain. Topics covered include price discovery, basis, futures/options, contracting, logistics, and management decision making. Prerequisites: Agricultural Economics [AG\_EC] 2183 and 2225.

**AG EC 3295: Commodity Futures/Options Trading (3).** Familiarize students with the learning components of commodity future/options trading. Students learn through involvement by investing in a commodity pool and trading futures/options. Students apply both fundamental and technical analysis. Students taking this course are required to invest from \$100 to \$300 in \$100 increments. Prerequisites: Agricultural Economics [AG\_EC] 2183, 3294 or instructor's consent.

**AG EC 3321: Economic History of Agriculture (3).** Emphasizes Europe and U.S. historical interpretation; usefulness in evaluating present and probable future developments in agriculture. Prerequisite: Agricultural Economics [AG\_EC] 1041.

**AG EC 3383: Rural Entrepreneurship II (3).** Rural Entrepreneurship II is designed for students that realize they may need to create their own career or opportunity if they want to return to their rural community and for students who would like to better understand how to create that option in their career choice set. Prerequisites: Agricultural Economics [AG\_EC] 1041, 3283 and Accountancy [ACCTCY] 2036.

**AG EC 4110: In-Service Course in Agricultural Economics (2-10).** A. Profit Maximizing Principles B. Farm Planning C. Farm Records and Analysis D. Business Management E. Using Computers in Farm Management Decision Making. Basic principles of farm management. Applications of principles and subject matter in successful classroom presentation primarily for high school teachers. Course is offered in sections A-E as listed, for 2 hours each. Prerequisites: 10 hours credit in Agricultural Economics, including Agricultural Economics [AG\_EC] 3260, or instructor's consent.

**AG EC 4230: Understanding the Agricultural Policy Process (3).** The goal of this course is to prepare students for a career in agricultural policy and will build the skill set needed in the agricultural policy environment. Prerequisites: Agricultural Economics [AG\_EC] 3230 and instructor's consent.

**AG EC 4295: Agricultural Risk Management (3).** This class will examine the range of risks business face and explore ways of characterizing and evaluating those risks. Prerequisites: Agricultural Economics [AG\_EC] 2183 and 2225 or instructor's consent.

**AG EC 4301: Topics in Agricultural Economics (1-6).** Current and new topics not currently offered in applied and/or theoretical areas in Agricultural Economics.

**AG EC 4310: Local Economic Analysis (1).** Economic based theory, including multipliers and how local economies are affected by external events. Methods for local economic analysis: trends, location quotients, shift-share, and retail analyses. Prerequisite: junior standing.

**AG EC 4340: Rural Real Estate Appraisal (3).** Principles, techniques, practices of rural real estate appraisal. Field trips. Prerequisites: Agricultural Economics [AG\_EC] 3260.

**AG EC 4356: Environmental Law and Policy (3).** Legislative, administrative, and common law dealing with the environment. Introduces the fundamental concepts and classic issues underlying the body of law and policy dealing with the environment. Includes air and water quality, endangered species preservation, land use, and waste disposal. Prerequisites: senior or graduate standing. For non-law students. Recommended Agricultural Economics [AG\_EC] 2156, 3256

or 3257.

**AG EC 4940: Internship Experiences in Agricultural Economics (1-3).** Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required. Prerequisites: 2.5 GPA; 75 hours of course work and instructor's consent. Graded on S/U basis only.

**AG EC 4962: Planning the Farm Business (3).** Economic analysis and planning of the farm business and its organization. Applications of computerized management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets. Prerequisites: Agricultural Economics [AG\_EC] 3260 or Agriculture, Food and Natural Resources [AFNR] 1111 or equivalent.

**AG EC 4971: Agribusiness Management Strategy (3).** Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement. Prerequisites: Agricultural Economics [AG\_EC] 2183, 3282, 3286, English [ENGLISH] 1000 and Agriculture, Food and Natural Resources [AFNR] 1111.

**AG EC 4972: Agri-Food Business and Cooperative Management (3).** Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms. Prerequisites: Agricultural Economics [AG\_EC] 2183, 3256, 3286 and 4971

**AG EC 4983: Strategic Entrepreneurship in Agri-Food (3).** Strategic entrepreneurship is the search for opportunities to generate income streams from innovation, development of new markets, and altering the rivalry positions in existing markets. Prerequisites: Agricultural Economics [AG\_EC] 3257, 3282, 3283, and 3383; senior standing.

**AG EC 4990: Agricultural Economics Capstone Seminar (3).** Apply key concepts of agricultural economics in traditional and non-traditional settings. Prerequisites: Agricultural Economics [AG\_EC] 3230, 3251, and senior standing.

**AG EC 4995: Economics of Agricultural Production and Distribution (3).** Applies economic principles to agricultural production including price theory, linear programming and uncertainty. Prerequisites: Economics [ECONOM] 3251, Statistics [STAT] 1400 or equivalent.

## AGRICULTURAL EDUCATION COURSES

**AG ED 1000: Orientation to Agricultural Education (1).** Overview of the discipline of agricultural education including: career opportunities, certification requirements, professional development, and current issues.

**AG ED 2220: Verbal Communication in Agriculture, Food and Natural Resources (3).** Application of verbal communication skills used in the dissemination of information related to agriculture, food, and natural resource topics. Acquisition of interpersonal communication skills and small group, impromptu and professional presentation skills. Restricted to College of Agriculture, Food and Natural Resources students only during Early Registration.

**AG ED 2250: Introduction to Leadership (3).** Overview of basic leadership principles and theories, including, but not limited to: personal leadership development, characteristics of effective leaders, leadership styles, ethics as a leader and leadership obstacles.

**AG ED 2260: Team and Organizational Leadership (3).** Principles and practices in planning, developing, conducting, and evaluating leadership programs for agricultural groups. The course focuses on helping students better understand themselves and others, improving group communications; becoming

effective leaders and members of groups; improving leadership and personal development skills; assessing leadership situations, determining and administering appropriate leadership strategies, and evaluating results.

**AG ED 3085: Problems in Agricultural Education (cr.arr.).** Supervised and independent study of problems and issues in Agricultural Education at the undergraduate level. Prerequisite: instructor's consent.

**AG ED 3310: Teaching Financial Management and Economics (2).** Application of methods and techniques used in teaching principles of financial management and economics. Topics include: Agricultural accounting principles, depreciation, tax management, credit management, budgeting, and economic principles.

**AG ED 3320: Metal Fabrication and Laboratory Management (3).** Application of metal fabrication skills, including cutting, bending, and welding, using a variety of processes. Operations of hand tools and power equipment used in project construction. Also includes laboratory management, instructional strategies, and assessment techniques related to secondary agriculture programs. Prerequisite: junior standing.

**AG ED 4001: Topics in Agricultural Education (1-3).** Courses on specialized topics offered on a trial basis until the course has been assigned a course number.

**AG ED 4087: Internship Seminar in Agricultural Education (3).** Seminar focused on the problems of practice and developing skills needed for a career in teaching agriculture at the secondary level. The core of the seminar is on coordinating experiential learning and leadership development activities, managing the complete program, and professional development. Prerequisite: concurrent enrollment in Agricultural Education [AG\_ED] 4995.

**AG ED 4310: Rationale and Structure of Agricultural Education Programs (3).** This course provides future agricultural educators with a comprehensive overview of a complete Agricultural Education program involving classroom instruction, supervised experience, and personal development. Prerequisite: junior standing.

**AG ED 4311: Integrated Field Experience I (1).** A field-based experience that provides students with comprehensive experience directed toward the planning, supervision, and evaluation of Supervised Agricultural Experience Programs in secondary agriculture programs. Prerequisite: concurrent enrollment in Agricultural Education [AG\_ED] 4310. Graded on S/U basis only.

**AG ED 4320: Designing Curriculum and Instruction in Agriculture (3).** Instructional methodology course focused on analyzing the principles of learning and teaching and designing curriculum and instruction for teaching agriculture subjects in formal and informal educational settings. Prerequisites: junior standing.

**AG ED 4321: Integrated Field Experience II (1).** A field-based experience that examines the integration of Supervised Agricultural Experience and Career Development Events into the secondary agriculture curriculum. Investigates the use of advisory committees and graduate follow-up data in curriculum planning. Prerequisite: concurrent enrollment in Agricultural Education [AG\_ED] 4320. Graded on S/U basis only.

**AG ED 4330: Teaching Agriculture Subjects (3).** Instructional methodology course focused on teaching approaches and methods, problem-solving teaching techniques, and managing learning environments for teaching agriculture subjects in formal and informal settings. Prerequisite: Agricultural Education [AG\_ED] 4320.

**AG ED 4340: Desinging and Delivering Nonformal Educational Programs (4).** Course designed to overview learning theory and practice applicable to teaching adults and youth in nonformal education contexts including: planning programs, methods of instructional delivery, marketing, and evaluation of educational outcomes. Prerequisite: Agricultural

Education [AG\_ED] 2220 or equivalent; junior or senior standing.

**AG ED 4993: Internship in Agricultural Education (1-4).** Field-based learning experience that combines study, observation, and employment with an agricultural business, industry or government agency in the area of education, training, and development. Individual internship plans are developed by a student, faculty supervisor, and an industry cooperator. Prerequisite: departmental consent.

**AG ED 4995: Student Teaching Internship in Agriculture (cr.arr.).** A field-based learning experience that combines observation and practice in a secondary/adult agriculture program. The purpose of the internship is to provide an opportunity to apply teaching and learning concepts in a practical context. Prerequisite: departmental consent.

## AGRICULTURAL SYSTEMS MANAGEMENT COURSES

**AG S M 1002: Topics in Agricultural Systems Management-Biological/Physical/Math (3).** Current and new technical developments in agricultural systems management. Prerequisites: 6 hours in Agricultural Systems Management [AG\_S\_M] or instructor's consent.

**AG S M 1020: Introduction to Agricultural Systems Management (3).** Introductory course that acquaints students with the general technical areas of Agricultural Systems Management [AG\_S\_M]. A systematic problem-solving approach is applied to problems derived from each of the technical areas within Agricultural Systems Management [AG\_S\_M].

**AG S M 1040: Physical Principles for Agricultural Applications (3).** Introductory survey course to help students to: formulate problems; understand units/accuracy; learn basic definitions; understand simple machines, power transmission, fluid statics, electricity, heat-flow, and temperature/moisture relationships. Prerequisite: Mathematics [MATH] 1120.

**AG S M 1120: Agricultural/Industrial Materials and Processes (3).** Structure and properties of manufacturing materials; conditioning and machining materials; assembling processes; finishing processes; automation of manufacturing systems.

**AG S M 2002: Topics in Agricultural Systems Management-Biological/Physical/Math (3).** Current and new technical developments in agricultural systems management. Prerequisites: 6 hours in Agricultural Systems Management [AG\_S\_M] or instructor's consent.

**AG S M 2020: Environmental Ethics in Agriculture (3).** Influence of agricultural technology and production practices on environmental quality. Stewardship concepts. Long-term vs. short-term consequences. Development of a scientifically sound ethic toward agricultural production. Prerequisites: English [ENGLSH] 1000 and sophomore standing.

**AG S M 2220: Agricultural/Industrial Structures (3).** A building science course looking at construction materials, structural component selection, ventilation, moisture control and energy use. Prerequisite: Mathematics [MATH] 1100 required, Agricultural Systems Management [AG\_S\_M] 1040 recommended or instructor's consent. Math reasoning proficiency course.

**AG S M 2320: Internal Combustion Power (3).** Basic internal combustion engine principles, mechanisms, combustion cycles, fuels, fuel injection, electrical systems, engine testing. Prerequisite: Agricultural Systems Management [AG\_S\_M] 1040.

**AG S M 2340: Pesticide Application Equipment (3).** Principles of pesticide application; sprayer hydraulics and spray atomization; calibration, mixing calculations and compatibility of tank mixes; personal and environmental protection; pesticide labels and regulations. Students earn their private applicators license. Prerequisites: Mathematics [MATH] 1100 or instructor's consent.

**AG S M 2345: Chemical Application Systems (2-3).** Systems, components and operation practices

used in the chemical application industry. Liquid and granular application systems and respective components will be studied along with procedures for minimizing drift, system calibration, recommended maintenance, and off-season storage procedures. Prerequisite: Mathematics [MATH] 1100 or equivalent.

**AG S M 2360: Fluid Power (3).** Basic power hydraulic theory. Hydraulic systems, components and circuits. Prerequisite: Mathematics [MATH] 1100; sophomore standing. Math reasoning proficiency course.

**AG S M 3350: Problems in Agricultural Systems Management (1-5).** Supervised independent study at the undergraduate level. Prerequisite: instructor's consent.

**AG S M 4020: Agricultural Safety and Health (3).** Analysis, organization and implementation of agriculture safety and health programs. Physical and economic impact of accidents, standards and liabilities. Role of man in the man-machine system. Prerequisite: junior or senior standing or instructor's consent.

**AG S M 4120: Advanced Agricultural/Industrial Materials and Processes (2-3).** Primarily for students majoring in agricultural education. Applies shop principles to the design and construction of projects. Prerequisite: instructor's consent.

**AG S M 4140: Electricity: Wiring and Equipment (3).** Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Basic electrical theory. Prerequisites: Mathematics [MATH] 1100 or instructor's consent; junior standing.

**AG S M 4145: Sensors and Control Systems for Agri-Industries (2).** This course helps one understand sensors including performance, data acquisition systems and selection. In addition, introduction to programmable logic controllers, ladder-rung diagram programming, fluid flow rate, and associated analysis is discussed. Junior Standing Required. Prerequisites: Agricultural Systems Management [AG\_S\_M] 1040 and 4140.

**AG S M 4150: Biorenewable Systems Technology (3).** Converting biorenewable resources into bioenergy and biobased products. Biorenewable concepts as they relate to drivers of change, feedstock production, processes, products, co-products, economics, transportation and logistics, and marketing. Prerequisites: Mathematics [MATH] 1100, Chemistry [CHEM] 1100 and Agricultural Economics [AG\_EC] 1041 or equivalent.

**AG S M 4220: Material Handling and Conditioning (3).** Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk material. Prerequisites: Mathematics [MATH] 1100, Agricultural Systems Management [AG\_S\_M] 1040 and junior standing.

**AG S M 4225: Preservation of Grain Quality (2).** Principles and management for grain quality preservation. Grain drying and grain storage. Psychrometrics. Fan and airflow. Grain handling methods and system planning. Grain quality measurement and end-use value analysis. Prerequisite: Mathematics [MATH] 1100 or equivalent.

**AG S M 4320: Agricultural Equipment and Machinery (3).** Operation of agricultural machinery. Selection and management of equipment. Prerequisite: Agricultural Systems Management [AG\_S\_M] 1040 and junior standing.

**AG S M 4350: Problems in Agricultural Systems Management (1-5).** Supervised independent study at the undergraduate level. Prerequisite: instructor's consent.

**AG S M 4360: Precision Agriculture Science and Technology (3).** (same as Plant Science [PLNT\_S] 4360 and Soil Science [SOIL] 4360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote

sensing), mapping methods, and case studies illustrating decisions and management. Prerequisites: Soil Science [SOIL] 2100, Plant Science [PLNT\_S] 2110 or instructor's consent.

**AG S M 4365: Machinery Management Using Precision Agriculture Technology (3).** Planters, combines, fertilizer application equipment, and sprayer management along with GPS technologies are the focus of the course. One will learn how to manage these tools efficiently and accurately. Valuable precision agriculture management skills emphasized. Junior standing required. Prerequisite: Prefer Agricultural Systems Management [AG\_S\_M] 4360. Graded on A/F basis only.

**AG S M 4370: In-Service Course AG S M.-Farm Power and Machinery (1-8).** A. Farm Power and Machinery B. Farm Buildings and Conveniences C. Soil and Water Management D. Rural Electrification and Processing E. Agricultural Construction and Maintenance Basic principles relating to agricultural systems management. Applies principles and subject matter in successful classroom presentation at the high school level. Prerequisites: 10 credits from Agricultural System Management courses; a B.S. degree in Agriculture or instructor's consent.

**AG S M 4390: Optimization and Management of Food and Agricultural Systems (3).** (same as Food Science [F S] and Hospitality Management [HSP MGMT] 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function. Prerequisite: Mathematics [MATH] 1100.

**AG S M 4420: Surface Water Management (3).** Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures. Prerequisites: Mathematics [MATH] 1100 and junior standing.

**AG S M 4440: Water Quality and Pollution Control (3).** Applies scientific principles to a variety of water quality problems arising from activities associated with nonpoint pollution, agricultural chemicals, land disposal of wastes, on-site sewage disposal and individual drinking water systems. Prerequisites: Mathematics [MATH] 1100, and junior standing.

**AG S M 4460: Irrigation and Drainage (3).** Soil, water, plant relationships. Selection and layout of irrigation and drainage systems. Prerequisites: Agricultural Systems Management [AG\_S\_M] 4420 or instructor's consent.

**AG S M 4940: Agricultural Systems Management Internship (2-5).** Problem course following prior approved internship work experience. Problem selected by internship company representative, faculty problem advisor and student. Supervised by faculty problem advisor and presented in technical report form.

**AG S M 4970: Agricultural Systems Management - Capstone (3).** Capstone course required of Agricultural Systems Management majors. Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis. Prerequisites: Senior Standing.

## ANIMAL SCIENCE COURSES

**AN SCI 1001: Topics in Animal Science (1-4).** Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. Prerequisite: department consent.

**AN SCI 1011: Animal Science (3).** Principles of animal science including importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**AN SCI 1012: Introduction to Captive Wild Animal Management (3).** (same as Fisheries and Wildlife [F\_W] 1012). General introduction to housing, husbandry, behavior, genetics, nutrition,

reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A/F basis only.

**AN SCI 1013: Biotechnology in Animal Agriculture (3).** Concepts, discoveries, and applications of biotechnology ranging from the discovery of brewing and baking to animal cloning and genetic engineering are covered. Students will acquire a foundation to understand how biotechnology affects agriculture and our everyday lives. Graded on A/F basis only.

**AN SCI 1065: Animal Science Laboratory Practicum (2).** An introductory course in skill related to the care and management of livestock and poultry plus a section dealing with meats and a section dealing with research methods. Students will be expected to participate in hands-on learning development of fundamental skills and animal husbandry. This class will include one 3 hour lab and 1 hour DIS per week.

**AN SCI 2001: Topics in Animal Science (1-4).** Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. Prerequisite: departmental consent.

**AN SCI 2085: Problems in Animal Science (1-5).** Library and laboratory study of assigned problems in animal breeding, nutrition, physiology or production and management. Planning, conduction and reporting to be in consultation with instructor. Prerequisite: instructor's consent.

**AN SCI 2095: Equine Behavior and Training (3).** Students learn the psychology and ethology of equine behavior and how it relates to training. The use and proper fitting of equipment is taught and students learn to teach horses to perform the basic movements needed prior to advancing to specialized training. Prerequisite: Animal Science [AN\_SCI] 1065 and instructor's consent

**AN SCI 2110: Global Animal Agriculture (2).** Animal Agriculture as influenced globally by political, religious cultural, economic and climatic factors. Prerequisite: sophomore standing.

**AN SCI 2111: Sophomore Seminar: Societal Issues Facing Animal Agriculture (3).** Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Prerequisites: English [ENGLSH] 1000. Graded on A/F basis only.

**AN SCI 2114: Live Animal and Meat Evaluation (3).** (same as Food Science [F\_S] 2114). The composition and quality meat produced from food animals is the driving component of livestock economic value. This course will teach the principles and procedures involved in evaluation, grading, selection, and economic value of meat animals and poultry and the carcasses they produce. This course is an excellent introduction and (or) prerequisite for all livestock production courses and will provide a baseline of information for students interested in livestock or meat judging.

**AN SCI 2115: Livestock Judging (3).** Comparative judging and evaluation; various classes of farm animals; particular reference to utility. Reference reading; illustrated lectures. Prerequisites: Animal Science [AN\_SCI] 1065.

**AN SCI 2131: Dairy Products Evaluation (2).** (same as Food Science [F\_S] 2131). Sensory Evaluation and judging of dairy products.

**AN SCI 2135: Horse Selection and Evaluation (2).** Techniques of selecting and evaluating horses based on conformation and performance characteristics. Effects of conformation on soundness. Includes learning to organize observations on the relative merits of a group of horses into an oral presentation. Prerequisite: Animal Science [AN\_SCI] 1065.

**AN SCI 2140: Companion Animals (3).** (same as Biomedical Sciences [BIOMED] 2140). Focus on companion dog, cat, and horse owners concerns re: health zoonoses, legal responsibilities, inbreeding, choice of breeds, behavioral problems and loss

of companion animals. Prerequisite: sophomore standing.

**AN SCI 2165: Introduction to Ruminant Livestock Production (3).** This is an introductory theory course which provides fundamental understanding of ruminant livestock - beef cattle and dairy cattle, production, management and associate industries. Prerequisite: Animal Science [AN\_SCI] 1065. Graded on A/F basis only.

**AN SCI 2175: Introduction to Monogastric Production (3).** Introductory course which provides fundamental understanding of hogs, horses and poultry. Prerequisite: Animal Science [AN\_SCI] 1065. Graded on A/F basis only.

**AN SCI 2195: Equine Facility Management and Marketing (3).** Focuses on learning equine facility management through student care and management of the University's equine facility and breeding herd. Students also learn handling techniques for a wide variety of horses and gain experience in general equine facility maintenance. Students will be responsible for marketing horses sold in the annual MU online horse auction. Prerequisites: Animal Science [AN\_SCI] 2135 and instructor's consent. Cannot be taken at the same time as AN SCI 2095. Graded on A-F basis only.

**AN SCI 3001: Topics in Animal Science (1-4).** Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. Prerequisite: department consent.

**AN SCI 3085: Problems in Animal Science (1-6).** Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Prerequisite: instructor's consent. Some sections may be graded either on S/U or A/F basis only.

**AN SCI 3190: Study Abroad: International Meat, Dairy and Enology (3).** (same as Food Science [F\_S] 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparisons to the US industries. Prerequisite: instructor's consent.

**AN SCI 3212: Principles of Animal Nutrition (3).** The purpose of this course is to teach students the essential nutrients for animal life and to understand the basic principles of nutrition. Prerequisites: 1 course in biochemistry or at least 4 hours of chemistry and Mathematics [MATH] 1100 or equivalent. Graded on A/F basis only.

**AN SCI 3213: Genetics of Agricultural Plants and Animals (2-3).** (same as Plant Science [PLNT\_S] 3213). Concepts of molecular, transmission, and population and quantitative genetics. Special emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: Biological Science [BIO\_SC] 1010, 1020 or 1500, Mathematics [MATH] 1100.

**AN SCI 3214: Principles of Meat Science (3).** (same as Food Science [F\_S] 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food. Prerequisite: one course in Biology.

**AN SCI 3231: Principles of Dairy Foods Science (3).** (same as Food Science [F\_S] 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.) Prerequisite: One course is Chemistry [CHEM] or Biological Sciences [BIO SC].

**AN SCI 3232: Animal Feeds and Feeding (3).** Description of feed ingredients, formulation of diets, and animal feeding management. Prerequisites: Animal Science [AN\_SCI] 3212; Mathematics [MATH] 1100 or equivalent.

**AN SCI 3254: Physiology of Domestic Animals (3).** Basic concepts of physiology and anatomy as related to domestic animals. Prerequisites: Biological Sciences [BIO\_SC] 1010 and 1020 or 1500; Chemistry [CHEM] 1310 and 1320.

**AN SCI 3255: Physiology of Domestic Animals Laboratory (2).** This laboratory course covers the basic concepts of physiology as related to domestic animals. Prerequisites: Biological Sciences [BIO\_SC] 1010 and 1020 or 1500; Chemistry [CHEM] 1310 and 1320; Animal Science [AN\_SCI] 3254 or equivalent.

**AN SCI 3275: Meat Animal Evaluation (2).** Meat animal evaluation highlights the relationships and limitations that exist when evaluating market and breeding animals and develops an appreciation for carcass excellence as it relates to production, merchandising and consumption. Some travel time and commitments will be necessary. Prerequisites: Animal Science [AN\_SCI] 2114 and 2115.

**AN SCI 4001: Topics in Animal Science (1-4).** Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. Prerequisite: instructor's consent.

**AN SCI 4304: Processing Muscle Foods (3).** (same as Food Science [F\_S] 4344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility. Prerequisites: One Chemistry course.

**AN SCI 4312: Monogastric Nutrition (3).** (same as Nutritional Sciences [NUTR\_S] 4020). Principles of nutrition, feed formulation and recent research in poultry feeding. Prerequisites: Animal Science [AN\_SCI] 3212. Graded on A/F basis only.

**AN SCI 4314: Physiology of Reproduction (3).** Principles of animal reproduction with emphasis on endocrine control of reproductive processes. Prerequisites: Animal Science [AN\_SCI] 3254 and Biological Sciences [BIO\_SC] 1500 or equivalent; or Animal Science [AN\_SCI] 3254 as a co-requisite and instructor's consent.

**AN SCI 4323: Applied Livestock Genetics (2).** Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems. Prerequisite: Biological Sciences [BIO\_SC] 1010, 1020 or 1500 and Mathematics [MATH] 1100. Math Reasoning Proficiency Course.

**AN SCI 4324: Genomics of Plants and Animals (2).** Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics. Prerequisites: Biological Sciences [BIO\_SC] 1010, 1020 or 1500, Mathematics [MATH] 1100, Animal Science [AN\_SCI]/Plant Science [PLNT\_S] 3213 or equivalent.

**AN SCI 4332: Ruminant Nutrition (3).** Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients. Prerequisites: Animal Science [AN\_SCI] 3212.

**AN SCI 4354: Physiology and Biochemistry of Muscle as Food (3).** (same as Food Science [F\_S] 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food. Prerequisite: Biological Science [BIO\_SC] 1010 or equivalent or Animal Science [AN\_SCI] 3214 or instructor's consent.

**AN SCI 4384: Reproductive Management (3).** Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies. Prerequisites: senior standing and Animal Science [AN\_SCI] 4314 and instructor's consent.

**AN SCI 4387: Equine Breeding Management (5).** Focuses on practical applications of reproductive management techniques and breeding in the horse.

Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Students will gain hands-on experience in each of these areas. Prerequisite: Animal Science [AN\_SCI] 2175 and 4314; instructor's consent.

**AN SCI 4434: Molecular and Network Evolution (3).** Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized. Prerequisites: Biological Sciences [BIO SC] 1500 and Mathematics [MATH] 11000; instructor's consent.

**AN SCI 4437: Environmental Physiology (3).** Principles of environmental physiology and animal adaptation with emphasis on mechanisms of temperature regulation and related nutritional and metabolic-hormonal functions. Prerequisite: Animal Science [AN\_SCI] 3254 or equivalent.

**AN SCI 4910: Senior Seminar in Captive Wild Animal Management (1).** (same as Fisheries and Wildlife [F\_W] 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Prerequisite: Animal Science [AN\_SCI] or Fisheries and Wildlife [F\_W] 1012 or instructor's consent; junior or senior standing. Graded A-F only.

**AN SCI 4940: Internship in Animal Science & Technology (cr.arr.).** Off-campus training to develop technical skills and understanding of an area of animal science. Written reports required. Prerequisites: instructor's consent. Graded on an S/U basis only.

**AN SCI 4950: Undergraduate Research in Animal Science (1-3).** Individually directed field or laboratory research culminating in a poster or oral presentation for upper-class students under faculty supervision. Prerequisites: At least sophomore standing or instructor's consent.

**AN SCI 4973: Molecular and Cellular Techniques in Animal Science (4).** A directed research project that employs current molecular and cellular technologies. Students will generate experimental data, analyze the data and draft a research report in the format of a scientific paper. Prerequisites: an introductory course in chemistry and a course in organic chemistry, at least junior standing and instructor's consent.

**AN SCI 4975: Beef Production and Management (3).** Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle. Prerequisites: Animal Science [AN\_SCI] 1065, 2165 and 3212 or instructor's consent.

**AN SCI 4976: Dairy Production (3).** Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects. Prerequisites: Animal Science [AN\_SCI] 1065, 2165, 3212, and 3232 or instructor's consent.

**AN SCI 4977: Horse Production (3).** Systems of horse production: breeding, feeding and management of horses. Prerequisites: Animal Science [AN\_SCI] 1065, 2175 and 3212 or instructor's consent.

**AN SCI 4978: Swine Production (3).** Systems of pork production: breeding, feeding, management of commercial and purebred swine. Prerequisites: Animal Science [AN\_SCI] 1065, 2175 and 3212 or instructor's consent.

**AN SCI 4979: Poultry Production (3).** Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys. Prerequisites: Animal Science [AN\_SCI] 1065, 2175 and 3212 or instructor's consent.

## ANTHROPOLOGY COURSES

**ANTHRO 1000: General Anthropology (3).** General survey course in fields of anthropological concern: archaeology, cultural anthropology, physical

anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**ANTHRO 1000H: General Anthropology - Honors (3).** General survey course in fields of anthropological concern: archaeology, cultural anthropology, physical anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world. Honors eligibility required.

**ANTHRO 1001: Topics in Anthropology - General (3).** Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 1002: Topics in Anthropology - Biological/Physical/Mathematics (1-3).** Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 1003: Topics in Anthropology - Behavioral (3).** Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 1004: Topics in Anthropology - Social Science (3).** Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 1005: Topics in Anthropology - Humanities (3).** Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 1060: Human Language (3).** (same as Linguistics [LINGST] 1060, Communication Science and Disorders [C\_S\_D] 1060 and English [ENGLSH] 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**ANTHRO 1150: Introduction to Folklore Genres (3).** (same as English [ENGLSH] 1700). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**ANTHRO 1200: Significant Discoveries of Archaeology (3).** Detailed consideration of approximately 20 archaeological discoveries and conclusions, from the field and the laboratory, which have been of surpassing importance for an understanding of human origins, behavior, culture and past experiences on earth.

**ANTHRO 1300: Multiculturalism: An Introduction (3).** Examines contemporary multiculturalism (and its origins) globally; introduces key concepts; uses diverse, extended cross-cultural and American examples; and emphasizes complexity of cultures, practicality of issues, and change.

**ANTHRO 1350: Deviance: A Cross-Cultural Perspective (3).** Cross-cultural studies of problem behavior with emphasis on violence, suicide, sexual misconduct, drug use and mental disorder.

**ANTHRO 1500: Monkeys, Apes and Humans (3).** For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**ANTHRO 2001: Topics in Anthropology-General (3).** Problems, topics, issues or review of research in

any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 2002: Topics in Anthropology-Biological/Physical/Mathematics (3).** Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 2003: Topics in Anthropology - Behavioral (3).** Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 2004: Topics in Anthropology - Social Science (3).** Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 2005: Topics in Anthropology - Humanities (3).** Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 2020: Fundamentals of Archaeology with Laboratory (4).** Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. The lab involves hands-on experience with archaeological materials. Prerequisites: sophomore standing recommended. No credit for both Anthropology [ANTHRO] 2020 and 2021.

**ANTHRO 2021: Fundamentals of Archaeology (3).** Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. Prerequisites: sophomore standing recommended. No credit for both Anthropology [ANTHRO] 2020 and 2021.

**ANTHRO 2022: Fundamentals of Archaeology Lab (1).** Involves hands-on experience with archaeological materials. Prerequisite: must have completed Anthropology [ANTHRO] 2021. No credit given to students who have taken Anthropology [ANTHRO] 2020.

**ANTHRO 2030: Cultural Anthropology (3).** Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior. Prerequisites: sophomore standing recommended.

**ANTHRO 2040: Anthropological Linguistics (3).** (same as Linguistics [LINGST] 2040). Language in relation to other aspects of human behavior. Introduction to description and analysis of the basic units of language. Emphasis on non-Indo-European and preliterate languages. Prerequisites: sophomore standing recommended.

**ANTHRO 2050: Introduction to Biological Anthropology with Laboratory (5).** A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. Three hours lecture and two hours lab. Prerequisite: Math [MATH] 1100/1120; sophomore standing recommended. No credit for both Anthropology [ANTHRO] 2050 and 2051. Satisfies A&S foundation requirement in Biological Sciences. Math Reasoning Proficiency Course.

**ANTHRO 2051: Introduction to Biological Anthropology (3).** A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. Prerequisite: sophomore standing recommended. No credit for both Anthropology [ANTHRO] 2050 and 2051. Satisfies A&S foundation requirement in Biological Sciences.

**ANTHRO 2052: Biological Anthropology Laboratory (2).** Laboratory exercises dealing with human genetics, non-human primates, the human fossil record, and human variation. Prerequisites: Anthropology [ANTHRO] 2051 or equivalent and Math [MATH] 1100/1120. Credit not given for students who have taken Anthropology [ANTHRO] 2050. Satisfies A&S foundation requirement in Biological Sciences. Math Reasoning Proficiency Course.

**ANTHRO 2100: Indigenous Religions (3).** (same as Religious Studies [REL\_ST] 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**ANTHRO 2100H: Indigenous Religions - Honors (3).** (same as Religious Studies [REL\_ST] 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred. Honors eligibility required.

**ANTHRO 2150: Introduction to Folklore Field Research (3).** (same as English [ENGLSH] 2700). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities. Prerequisite: English [ENGLSH] 1000.

**ANTHRO 2215: World Archaeology (3).** Major events in cultural evolution such as control of fire, invention of ceramic and metallurgical technologies, colonization of Australia and the Americas, development of agriculture, and emergence of complex sociopolitical organization are described in all regions of the world. Prerequisite: sophomore standing recommended.

**ANTHRO 2300: Anthropology of War (3).** Anthropological approaches to tribal and modern war; theories of war's origins; relation to ecology, economy, gender, belief systems, politics; transformation of tribal warfare by state expansion; peace. Prerequisite: sophomore standing recommended.

**ANTHRO 2340: Hunters and Gatherers (3).** Exploration of how different hunter-gatherer groups interact with their physical and social environment. Topics include food acquisition, allocation of labor, reproduction and family life, and deciding where to live and when to move. Prerequisite: sophomore standing recommended.

**ANTHRO 2500: Primate Anatomy and Evolution (3).** This course will explore why primates (and humans) are built the way they are, how they evolved, and what their anatomy tells us about their biology. We will cover basic primate anatomy and ecology, and then survey the fossil record of primate evolution. Prerequisite: sophomore standing recommended. Satisfies A&S foundation requirement in Biological Sciences.

**ANTHRO 2520: Forensic Anthropology (3).** This course will introduce students to how biological anthropologists apply expertise in human osteology, skeletal variation and plasticity, skeletal pathology, body decomposition, and archaeological recovery of evidence to medicolegal investigations. Prerequisite: sophomore standing recommended.

**ANTHRO 2570: Parents and Offspring (3).** A comparative investigation of the evolution of parental behaviors and family interactions in humans and other primates. Prerequisite: sophomore standing recommended.

**ANTHRO 2580: Evolution of Human Sexuality (3).** Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory. Prerequisite: sophomore standing recommended.

**ANTHRO 2800: Introduction to Field Methods in Archaeology (1-6).** Techniques of field research and laboratory analysis through field experience. Prerequisite: Anthropology [ANTHRO] 2020/2021 or instructor's consent.

**ANTHRO 2825: Analyzing Artifacts (3).** A brief introduction to the main methods used to analyze artifacts.

**ANTHRO 2950: Research Skills in Anthropology (1-3).** Participation in faculty research activities. Course coordinator matches students with participating faculty. Three hours of research activities per week per credit hour. May be repeated to a maximum of nine hours. Prerequisite: instructor's consent.

**ANTHRO 3001: Topics in Anthropology - General (3).** Problems, topics, issues, or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**ANTHRO 3002: Topics in Anthropology-Biological/Physical/Mathematics (3).** Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**ANTHRO 3003: Topics in Anthropology - Behavioral Science (3).** Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**ANTHRO 3004: Topics in Anthropology - Social Science (3).** Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**ANTHRO 3005: Topics in Anthropology - Humanities (3).** Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**ANTHRO 3150: American Folklore (3).** (same as English [ENGLSH] 3700). Regional and ethnic American folklore, with emphasis on analysis of folklore in context. Book reports and two analytical papers based on student field research required.

**ANTHRO 3380: Native American Religions (3).** (same as Religious Studies [REL\_ST] 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts. Prerequisite: Anthropology [ANTHRO] 2100/Religious Studies [REL\_ST] 2100.

**ANTHRO 3380H: Native American Religions - Honors (3).** (same as Religious Studies [REL\_ST] 3380H). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts. Prerequisite: Anthropology [ANTHRO] 2100/Religious Studies [REL\_ST] 2100. Honors eligibility required.

**ANTHRO 3470: Culture as Communication (3).** (same as Communication [COMMUN] 3470). Linguistics [LINGST] 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction. Prerequisites: sophomore standing.

**ANTHRO 3540: Human Biology and Life History (3).** A general survey of human biology, focusing on the development of the individual from infancy to adult and the biology of human populations. Prerequisites: one course in Anthropology or Biological Sciences. Satisfies A&S foundation requirement in Biological Sciences.

**ANTHRO 3560: Plagues and Peoples (3).** Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments. Prerequisite: sophomore standing or instructor's consent.

**ANTHRO 3600: North American Indian Culture (3).** Comparative study of American Indians north of

Mexico, emphasizes eastern United States.

**ANTHRO 3610: Peoples of Canada (3).** This course provides an anthropological approach to the culture and peoples of Canada. The course will include in depth studies of several First Nations People, Quebec, various recent immigrant populations, and the modern popular culture of Canada.

**ANTHRO 3650: Aztec, Maya, and Inca Civilization (3).** Origin of native Americans and development of American civilizations emphasizing Aztecs, Mayas, and Incas; rise of these civilizations known from archaeology, early European and early native American accounts, and the condition of the descendants today. Prerequisite: sophomore standing.

**ANTHRO 3660: Peoples of the Andes (3).** Archaeological and linguistic prehistory set the stage for the clash of Iberian and indigenous peoples whose descendants make up the Andean countries. Ethnographic studies provides a basis for their understanding. Prerequisite: sophomore standing.

**ANTHRO 3680: Plants and People in Native America (3).** Explores the present and past interactions between people and the plant world, covering use of plants as foods, medicines, and in rituals, and reviewing the origin of major food plants. Prerequisite: sophomore standing.

**ANTHRO 3700: Cultures of Europe (3).** Examines ethnic, linguistic, and folk cultural backgrounds of contemporary Europe and the articulation of local sociocultural units with national society and culture. Prerequisite: sophomore standing or instructor's consent.

**ANTHRO 3780: Cultures of Southeast Asia (3).** Survey of peoples and cultures of Southeast Asia; topics include regional geography and prehistory, European colonialism, economic and social organization, religious practices, changing status of women, urban and rural poverty, and environmental transformations.

**ANTHRO 4001: Topics in Anthropology-General (3).** Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 4002: Topics in Anthropology - Biological/Physical/Mathematics (3).** Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 4003: Topics in Anthropology - Behavioral Science (3).** Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 4004: Topics in Anthropology - Social Science (3).** Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 4005: Topics in Anthropology - Humanities (3).** Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**ANTHRO 4150: Special Themes in Folklore (3).** (same as English [ENGLSH] 4700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**ANTHRO 4160: Themes in African Diaspora Folklore (3).** (same as English [ENGLSH] 4710 and Black Studies [BL\_STU] 4710). Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. Anthropology [ANTHRO] 4150 and 4160 may be

repeated for a maximum of six hours with instructor's consent. Prerequisite: junior standing.

**ANTHRO 4200: Environment and Archaeology (3).** Study of Quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction. Prerequisite: Anthropology [ANTHRO] 2020/2021 or instructor's consent.

**ANTHRO 4240: History of Archaeology (3).** Growth of archaeology worldwide since AD 1700. Emphases include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline. Prerequisites: Anthropology [ANTHRO] 2020/2021 or instructor's consent.

**ANTHRO 4280: Archaeology of Religion (3).** (same as Religious Studies [REL\_ST] 4280). Examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmogonical constructs, worldview and ideology in the Americas. Prerequisites: Anthropology [ANTHRO] 2020 and/or Religious Studies [REL\_ST] 2100.

**ANTHRO 4300: Comparative Social Organization (3).** Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross-culturally. Prerequisites: Anthropology [ANTHRO] 2030 or instructor's consent.

**ANTHRO 4320: Ecological and Environmental Anthropology (3).** Cultural anthropological approaches to human-environment interaction; cultural adaptations to diverse environments; theoretical developments and current issues; cultural, social, and historical contexts of natural resource use. Prerequisites: junior or senior standing or instructor's consent.

**ANTHRO 4340: Cultural Evolution and Change (3).** Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence. Prerequisites: Anthropology [ANTHRO] 2030 or instructor's consent.

**ANTHRO 4350: Psychological Anthropology (3).** Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**ANTHRO 4360: Medical Anthropology (3).** Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail. Prerequisite: junior/senior standing or instructor's consent.

**ANTHRO 4370: Anthropology of Gender (3).** (same as Women's & Gender Studies [WGST] 4370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**ANTHRO 4380: Anthropological Theories of Religion (3).** (same as Religious Studies [REL\_ST] 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today. Prerequisites: Anthropology [ANTHRO] 2030, Anthropology [ANTHRO] or Religious Studies [REL\_ST] 2100, or instructor's consent.

**ANTHRO 4400: Language and Culture (3).** (same as Linguistics [LINGST] 4400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis. Prerequisite: Anthropology [ANTHRO] 2040 or Linguistics [LINGST] 2040 or instructor's consent.

**ANTHRO 4412: Gender, Language, and Communication (3).** (same as Communication [COMMUN] 4412 and Linguistics [LINGST] 4412). Relationship among gender, language, nonverbal communication, and culture. Prerequisite: junior standing or departmental consent.

**ANTHRO 4420: Historical Linguistics (3).** (same as Linguistics [LINGST] 4420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics. Prerequisites: junior/senior standing or instructor's consent.

**ANTHRO 4500: Human Origins (5).** History and theory in the study of human paleontology. Prerequisites: Anthropology [ANTHRO] 2050/2052 or instructor's consent. Satisfies A&S foundation requirement in Biological Sciences.

**ANTHRO 4540: Human Biological Variation (3).** Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation. Prerequisites: Anthropology [ANTHRO] 2050/2051 or Biological Science [BIO\_SC] 1010 and Math [MATH] 1100/1120. Satisfies A&S foundation requirement in Biological Sciences.

**ANTHRO 4560: Anthropological Genetics (3).** Population genetics theory and methods applied to human and primate evolution and variation. Prerequisites: Anthropology [ANTHRO] 2050 or 2051 and 2052, or Biological Science [BIO\_SC] 1500, or instructor's consent.

**ANTHRO 4580: Evolutionary Medicine (3).** Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class. Prerequisites: lower level course in Biology or Biological Anthropology, junior/senior standing or instructor's consent.

**ANTHRO 4600: Ethnographic Studies of Selected Cultures (3).** Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses. Prerequisites: junior standing or instructor's consent.

**ANTHRO 4620: North American Archaeology (3).** Ancient peoples and development of American Indian culture. Prerequisites: Anthropology [ANTHRO] 2020/2021 or instructor's consent.

**ANTHRO 4640: Prehistory of the Greater Southwest (3).** The course will introduce students to the archaeology of aboriginal peoples of the American Southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well. Prerequisites: Anthropology [ANTHRO] 2020/2021.

**ANTHRO 4650: Prehistory of Mesoamerica (3).** Archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**ANTHRO 4670: Archaeology of South America (3).** Development of culture in South America from the Pleistocene to European contact. Prerequisites: Anthropology [ANTHRO] 2020/2021, or junior/senior standing.

**ANTHRO 4680: Cultures and Peoples of the Amazon (3).** Ethnographic survey of indigenous Amazonian cultures. Junior Standing Required.

**ANTHRO 4700: Old World Prehistory (3).** Beginnings of culture in the Old World through the early Iron Age. Prerequisites: Anthropology [ANTHRO] 2020/2021, or instructor's consent.

**ANTHRO 4720: Mesolithic, Neolithic, and Bronze Age Archaeology (3).** Analysis of both hunter-gatherer and food-producing prehistoric sociocultural systems in western Eurasia and adjacent areas from the end of the Pleistocene until the development of iron metallurgy. Includes the symbolic material of these periods. Prerequisites: junior/senior standing or instructor's consent.

**ANTHRO 4740: Celtic and Iron Age Archaeology (3).** Analysis of the pre- and protohistoric sociocultural systems of the Celts and other iron-using tribal cultures of western Eurasia from the inception of an iron based technology until the full historic period. Includes the symbolic material of these cultures. Prerequisites: junior/senior standing or instructor's consent.

**ANTHRO 4770: Asiatic Prehistory (3).** Prehistory and early cultures of Asia excluding the Near East. Emphasis on Northern Asia, China, Japan, South and Southeast Asia and Oceania. Prerequisites: junior/senior standing or instructor's consent.

**ANTHRO 4790: Culture and Society in South Asia (3).** (same as South Asian Studies [S\_A\_ST] 4790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora. Prerequisite: junior standing.

**ANTHRO 4800: Field Methods in Archaeology (1-8).** Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials. Prerequisites: Anthropology [ANTHRO] 2800 or equivalent.

**ANTHRO 4810: Paleoethnobotany (3).** Application of ethnobotanical approaches in archaeology; techniques to recover and interpret floral remains (macroremains, phytoliths, pollen); research questions in ethnobotany; integration of ethnobiological and archaeological data. Critique of original works in the field emphasized. Prerequisites: junior/senior standing or instructor's consent.

**ANTHRO 4820: Zooarchaeology (3).** Survey of specialized techniques for archaeological faunal analysis, including zooarchaeological sampling, taphonomy, study of paleoecology, and recognition of domestication. Prerequisites: Anthropology [ANTHRO] 2020/2022 or instructor's consent.

**ANTHRO 4826: Stone Artifact Analysis (3).** Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations. Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools. Prerequisite: Anthropology [ANTHRO] 2020/2022 or instructor's consent.

**ANTHRO 4828: Archaeological Analysis of Ceramics (3).** To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain insights into everything from the organization of craft production to trade to symbolism. Prerequisite: Anthropology [ANTHRO] 2020 and/or 2022.

**ANTHRO 4830: Ethnographic Methods (3).** Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials. Prerequisites: Anthropology [ANTHRO] 2030 or instructor's consent.

**ANTHRO 4850: Practical Phonetics for Fieldwork (3).** (same as Linguistics [LINGST] 4850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions. Prerequisites: junior standing or instructor's consent.

**ANTHRO 4860: Techniques in Linguistic Analysis (3).** (same as Linguistics [LINGST] 4860). Problems in analyzing data from various languages. Prerequisites: introductory course in Linguistics [LINGST] or instructor's consent.

**ANTHRO 4870: Field Methods in Linguistics (4).** (same as Linguistics [LINGST] 4870 and English [ENGLISH] 4670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language. Prerequisites: 9 hours Linguistics [LINGST] or instructor's consent.

**ANTHRO 4880: Demographic Anthropology (3).** The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography. Prerequisites: Math [MATH] 1100/1120 and junior/senior standing or instructor's consent. Math Reasoning Proficiency Course.

**ANTHRO 4890: Human Skeletal Identification and Analysis (5).** Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification. Prerequisite: Anthropology [ANTHRO] 2050/2052 or instructor's consent.

**ANTHRO 4894: Skeletal Biology (3).** This course is designed to provide students advanced and in-depth training in skeletal biology. Basic bone biology will be studied and advanced methods of skeletal analysis applicable to forensic anthropology and bioarchaeology will be explored. Prerequisites: Anthropology [ANTHRO] 4890 or equivalent background in osteology and/ or anatomy. Satisfies A&S foundations requirement in Biological Sciences.

**ANTHRO 4940: Internship in Anthropology (3-6).** Students will work for a semester in a community-based organization (NGO, nonprofit, for profit, or governmental). They will conduct a research study in coordination with that agency. Upon completion of the research study, students will prepare a final report to be given to the agency and turned in for course credit. The course coordinator will help students identify and make contact with interested organization and oversee their progress during the internship. Prerequisites: junior standing, Anthropology major, coordinator's consent, 2.5 GPA. Graded on S/U basis only.

**ANTHRO 4950: Undergraduate Research in Anthropology (2-8).** Advanced research approved by and under the direction of a departmental faculty member. Prerequisites: junior/senior standing and instructor's consent.

**ANTHRO 4950H: Honors Research in Anthropology (3).** Individual study and research leading to Honors in Anthropology. In consultation with instructor, student works on Honors Thesis. Anthropology majors only. Prerequisites: junior or senior standing; Honors level GPA, instructor's consent. May be repeated for up to 6 credit hours.

**ANTHRO 4960: Undergraduate Readings in Anthropology (cr.arr.).** Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis. Prerequisites: two courses in Anthropology and instructor's consent.

**ANTHRO 4990: Capstone Seminar in Anthropology (3).** Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples. Prerequisites: Anthropology major and senior standing, or instructor's consent.

## ARABIC COURSES

**ARABIC 1100: Elementary Arabic I (6).** An elementary level course designed to facilitate student's acquisition of basic proficiency in communication within culturally significant contexts. Students learn Modern Standard Arabic language skills in an environment integrating interactive video and classroom instruction.

**ARABIC 1200: Elementary Arabic II (6).** This course builds upon the foundation established in 1100. Greater emphasis is placed on oral and written expression. Cultural issues are explored in an environment integrating interactive video and classroom instruction.

**ARABIC 2005: Undergraduate Topics in Arabic - Humanities (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit. Prerequisite: sophomore standing or instructor's consent. Graded on A/F basis only.

## ARCHITECTURAL STUDIES COURSES

**ARCHST 1005: Topics in Architectural Studies - Humanities (cr.arr.).** Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. Prerequisite: instructor's consent. May be repeated for credit up to 6 credit hours.

**ARCHST 1100: Visual Design (3).** Design study on introduction to basic design and visual composition and their application to creation of two- and three-dimensional abstract and /or functional design. Studio exercises expressed through drawings and abstract models, using various media.

**ARCHST 1200: Architectural Drafting and Working Drawings (3).** Beginning drafting including equipment and materials; lettering; floor plans, sections, elevations; orthographic and axonometric drawings; working drawings; and details.

**ARCHST 1600: Fundamentals of Environmental Design (3).** Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**ARCHST 2005: Topics in Architectural Studies - Humanities (cr.arr.).** Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. Prerequisite: instructor's consent. May be repeated for credit up to 6 credit hours.

**ARCHST 2085: Problems in Architectural Studies (3).** Supervised independent work. Prerequisite: instructor's consent.

**ARCHST 2100: Understanding Architecture and the American City (3).** Analysis of the American city and its architecture.

**ARCHST 2210: Understanding Visualization for Animated Films (3).** Provides a critical overview of design and visualization techniques in animated film making. Emphasizes the role of built environment and spatial design features.

**ARCHST 2220: Computer-Aided Drafting with AutoCad (3).** Introduction to computer-aided drafting and design with AutoCad software. Emphasis will be placed on development of skills and problem solving related to the professions of environmental and interior design. Prerequisite: Architectural Studies [ARCHST] 1200.

**ARCHST 2230: Design Communication I (3).** Beginning studio course in techniques and conventions of graphic communication as an aid in the design process for interior designers. Prerequisites: Architectural Studies [ARCHST] 1200 or equivalent and admission to Studio Sequence in Architectural Studies.

**ARCHST 2310: Building Systems (3).** Integrated building systems: structure, construction, technology, comfort; including voice-data communication, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems; and project estimating. Prerequisites: Architectural Studies [ARCHST] 1200, Mathematics [MATH] 1100/1120.

**ARCHST 2315: Introduction to Building Systems Laboratory (1).** Building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. All equipment training and safety is covered in this introductory course.

**ARCHST 2316: Advanced Building Systems Lab (2).** Advanced exposure to building system renovations, materials, processes, finishes, and applications

testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. Prerequisite: Architectural Studies [ARCHST] 2315. Graded on A/F basis only.

**ARCHST 2811: Studio I (4).** Application of basic design and composition to built form. Studio exercises in two and three dimensions using various media relating to usable spaces. Formation of design concept, development of form and space, and application in built environment. Prerequisite: Architectural Studies [ARCHST] 1200 and admission to Studio Sequence in Architectural Studies.

**ARCHST 3100: Color and Light (3).** The theory, application, and specification of color and light for interior and architectural design. Lecture and studio format. Prerequisite: Architectural Studies [ARCHST] 1100

**ARCHST 3182: Studio II (4).** Application of basic design principles to built forms and functional spaces. Identification and manipulation of elements of design, understanding spatial relationships between human body and spatial enclosures related to built forms. Spatial organization and familiarity with role of immediate context. Prerequisites: Architectural Studies [ARCHST] 2811, instructor's consent. Co-requisites: Architectural Studies [ARCHST] 2230, 2310.

**ARCHST 3230: Design Communication II (3).** Advanced studio course in techniques and conventions of graphic communication as aids in the design process. Prerequisite: Architectural Studies [ARCHST] 2230.

**ARCHST 3371: Design Resource Management (1).** Field experience (5 hours per week) in organization and management of resources used by interior designers, including references, product information, and samples of materials and finishes. Prerequisite: restricted to Architectural Studies students only.

**ARCHST 3600: Environmental Analysis (3).** Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection. Prerequisite: Architectural Studies [ARCHST] 1200, 1600.

**ARCHST 3860: Human Factors Programming (2).** Design Programming for Human Factors using a Case Study. Prerequisite: Architectural Studies [ARCHST] 1600.

**ARCHST 4001: Topics in Architectural Studies (cr.arr.).** Selected current topics in field of interest.

**ARCHST 4085: Problems in Architectural Studies (cr.arr.).** Supervised independent work. Prerequisites: 3000-level course in field of problem and junior or senior standing and instructor's consent.

**ARCHST 4230: Computer Graphic Application for Design I (3).** Applications of computer graphics for design and art; includes visualization, animation and creative development. Prerequisite: junior standing. May repeat up to 12 credit hours maximum.

**ARCHST 4320: Materials, Methods and Products (3).** Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials. Prerequisite/Corequisite: Architectural Studies [ARCHST] 2310 or instructor's consent.

**ARCHST 4323: Sustainable Technologies and Systems (3).** An in-depth study of ecologically-sensitive and energy-efficient strategies used in building and interiors. Prerequisite: junior standing required.

**ARCHST 4333: Compliance and Specifications (3).** Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents. Prerequisites: Architectural Studies [ARCHST] 2220, 4320, 4813 or 4823.

**ARCHST 4355: Recent Trends in Digital Media I (cr.arr.).** Recent Trends in Digital Media I

**ARCHST 4410: History of the Designed Environment to 1750 (3).** An in-depth study of the designed environment including housing interiors, and furniture of the major historical periods from prehistory to the Industrial Revolution. Prerequisites: Art History and Archaeology [AR\_H\_A] 1110 or 1120.

**ARCHST 4411: Study Abroad in Architectural History (1-3).** Discovery of historic architecture through on-site tour of timeless cities and places. Prerequisites: instructor's consent. May be repeated for credit

**ARCHST 4420: History of the Designed Environment after 1750 (3).** An in-depth study of the designed environment, including housing, interiors, and furniture of the major historical periods from the Industrial Revolution to today. Prerequisites: Art History and Archaeology [AR\_H\_A] 1110 or 1120.

**ARCHST 4430: Guiding Design with Historic Preservation (3).** Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties. Pre- or co-requisite: American History or Government, or Art History, or instructor consent.

**ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution (3).** Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110 or 1120, or Architectural Studies [ARCHST] 4430.

**ARCHST 4550: Visual Presentation for Design (3).** Emphasizes principles and techniques for effective visual design presentation. Focuses on concepts of design, layout, storytelling, critiques, and hands on exercise.

**ARCHST 4555: Recent Trends (cr.arr.).** Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**ARCHST 4620: Environment and Behavior (3).** Evaluate relationships between human behavior and environmental design. Survey of environment and behavior theoretical foundations examining how these concepts translate into a more responsive theory of design. Prerequisites: junior standing.

**ARCHST 4630: Shaping Human Settlements (3).** Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design. Prerequisite: junior standing.

**ARCHST 4660: Housing Concepts and Issues (3).** Evaluate housing policies, regulations, codes, programs; global and ecological perspectives of environment and behavior; historic preservation; financial issues; trends and projections. Prerequisite: junior standing.

**ARCHST 4700: Place-Making in Community Design (3).** Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project. Prerequisite: junior standing.

**ARCHST 4710: Design Business Practices (3).** Analysis of the basic professional, human, and business skills necessary for the successful design practice. Pre- or Co-requisites of Studio IV and anticipated graduation during final academic year.

**ARCHST 4813: Interiors Studio III (4).** Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design processes. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specific to interiors. Instructor's consent required. Co-requisite: Architectural Studies [ARCHST] 3182 and 3230.

**ARCHST 4814: Interiors Studio IV (4).** Continuation of Architectural Studies 4813. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed

by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces--both vertically and horizontally. Prerequisite: Architectural Studies [ARCHST] 4813.

**ARCHST 4815: Construction Documents and Building Information Modeling Studio (4).** Studio of how materials, systems, and assemblies reinforce and extend intentions of designers. Course teaches strategies and techniques for integration and coordination of the building components and details in construction documents and building information modeling. Pre or co-requisite: Architectural Studies [ARCHST] 4814 or 4824.

**ARCHST 4823: Architectural Studio III (4).** Continuation of Architectural Studies [ARCHST] 3182. Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design process. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specifics to architecture. Prerequisites: Architectural Studies [ARCHST] 3182; 3230.

**ARCHST 4824: Architectural Studio IV (4).** Continuation of Architectural Studies [ARCHST] 4823. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces - both vertically and horizontally. Prerequisite: Architectural Studies [ARCHST] 4823.

**ARCHST 4860: Programming for Thesis Design Studio (1-2).** Develop written comprehensive program for thesis design studio project. Supervised by student-selected committee -- one departmental thesis advisor and at least one additional faculty member. Prerequisite/co-requisite: Architectural Studies [ARCHST] 4814 or 4824.

**ARCHST 4940: Internship in Environmental Design (cr.arr.).** Field experience in design under professional and educational supervision. Prerequisites: instructor's consent. Graded on S/U basis only.

**ARCHST 4960: Readings in Architectural Studio (cr.arr.).** Readings in recent research materials.

**ARCHST 4990: Thesis Design Studio (4).** Capstone experience on a single comprehensive project. Objective is to enable synthesis of previous course work by addressing a design problem defined in Architectural Studies [ARCHST] 4860. Prerequisites: Architectural Studies [ARCHST] 4860, 4814 or 4824.

#### ART-CERAMICS COURSES

**ART CERM 2100: Beginning Ceramics (3).** Exploration of ceramic art as an expressive, communicative medium. Study of ceramic design, technique and historic and contemporary models within the context of the creative process. Group critiques, slides, demonstrations. Expendable materials fee. Prerequisite: instructor's consent.

**ART CERM 3100: Intermediate Ceramics (3).** Continuation of Art-Ceramics [ART\_CERM] 2100 with emphasis on wheel throwing and the vessel format. Further exploration of glazing and firing techniques. Group and individual critiques, demonstrations, slide lectures and visiting artists. Expendable materials fee. Prerequisite: instructor's consent.

**ART CERM 4100: Advanced Ceramics (3).** Continuation of Art-Ceramics [ART\_CERM] 3100. Includes advanced problems in firing, clay and glaze technology, forming and ornamentation. Payment of expendable materials fee required. Prerequisite: instructor's consent. May be repeated to 15 hours maximum.

**ART CERM 4110: Ceramics Sculpture (3).** Sculptural forms constructed of slabs, coils and wheel-thrown elements. Payment of expendable materials expense is required. Prerequisite: Art-Ceramics [ART\_CERM] 4100. May be repeated to 15 hours maximum.

**ART CERM 4185: Problems in Ceramics (1-3).** Prerequisites: departmental consent.

#### ART-DRAWING COURSES

**ART DRAW 1050: Drawing I (3).** An introduction to visual hierarchy, composition, and pictorial space in drawing. Emphasis on linear perspective and the language of light and shadow using black and white media (graphite, charcoal and/or conte crayon). Development of skills and concepts in drawing based on historical models, lectures, demonstrations and critiques. Expendable materials fee required.

**ART DRAW 2200: Drawing II (3).** An introduction to drawing systems, problem solving and study of the proportions of the human form. Development of skills and concepts in drawing based on historical and contemporary models, lectures, demonstrations and critiques. Prerequisite: Art Drawing [ART\_DRAW] 1050. Expendable materials fee required.

**ART DRAW 2210: Beginning Color Drawing (3).** Theory and practice in the use of pastel working from stilllife, landscape, and portrait. Expendable materials fee required. Prerequisites: Art Drawing [ART\_DRAW] 1050.

**ART DRAW 3200: Drawing III (3).** Development of drawing techniques with an emphasis on materials and methods. Emphasis in conceptual and formal skills based on contemporary and historical models. May be repeated to 15 hours maximum. Expendable materials fee required. Prerequisite: Art Drawing [ART\_DRAW] 1050 and 2200.

**ART DRAW 3210: Intermediate Color Drawing (3).** Continuation of Art-Drawing 2210 with emphasis on design and organization. Expendable materials fee required. Prerequisite: Art Drawing [ART\_DRAW] 1050 and 2210.

**ART DRAW 3220: Anatomical Drawing (3).** Anatomical structure of human figure as it relates to art. Drawing from live model; emphasis on gross anatomy as defined by skeletal and muscular structure. Expendable materials fee required. Prerequisites: Art Drawing [ART\_DRAW] 1050 and either 2200 or instructor's consent.

**ART DRAW 3230: Beginning Illustration (3).** An introduction to visual problem solving from initial concept through final execution. Emphasis in drawing and painting skills and exploration of mixed media techniques including drawing from the model. Graded on A/F basis only. Expendable materials fee. Prerequisites: Art Drawing [ART\_DRAW] 1050 and 2200.

**ART DRAW 4200: Drawing IV (3).** This course will provide an intensive experience in the development of a portfolio of artwork. Students will explore the connections between their work and contemporary art. May be repeated 3 times. Expendable Materials Fee Required. Prerequisite: Art Drawing [ART\_DRAW] 1050, 2200 and 3200.

**ART DRAW 4210: Advanced Color Drawing (3).** Continuation of Art-Drawing 3210 with emphasis on the expressive properties of color in figural compositions. Repeatable to 15 hours. Expendable materials fee required. Prerequisites: Art Drawing [ART\_DRAW] 1050, 2210 and 3210.

**ART DRAW 4220: Advanced Anatomical Drawing (3).** Continuation of Art-Drawing 3220, Anatomical Drawing, with an emphasis on formal analysis of the figure in drawing based on superficial and deep anatomical structure. May be repeated to 15 hour maximum. Expendable materials fee required. Prerequisites: Art Drawing [ART\_DRAW] 1050 and 3220. It is also recommended to take Art Drawing [ART\_DRAW] 2200 and 3200 before taking this class.

**ART DRAW 4230: Advanced Illustration (3).** Further development of conceptual problem solving skills and technical proficiency through self-generated assignments. Emphasis is placed on portfolio development by exploring sequential and narrative themes. Topics include contract, copyrights, and the art of freelancing. Students are advised to take the course a minimum of two times. May be repeated

to 15 hours maximum. Expendable materials fee required. Prerequisites: Art Drawing [ART\_DRAW] 1050, 2200 and 3230.

**ART DRAW 4285: Problems in Drawing (1-3).** Prerequisites: departmental consent.

#### ART-FIBERS COURSES

**ART FIBR 2300: Beginning Fibers (3).** Exploration of various fiber and media including papermaking, weaving, surface design and sculptural techniques. Expendable materials fee required. Prerequisite: Art Fibers [ART\_FIBR] 1030.

**ART FIBR 3300: Intermediate Fibers (3).** Continuation of Art-Fibers 2300 with emphasis on utilizing acquired technical processes in loom and off weaving, paper making and surface design and a means of developing visual statements. Expendable materials fee required. Prerequisite: Art Fibers [ART\_FIBR] 2300.

**ART FIBR 4300: Advanced Fibers (3).** Exploration of aesthetic concepts, development of personal style and instruction in advanced fiber techniques within medium selected by student. Expendable materials fee required. Prerequisites: Art Fibers [ART\_FIBR] 3300 or approved equivalents. May repeat to 15 hours maximum.

**ART FIBR 4385: Problems in Fibers (1-3).** Prerequisites: departmental consent.

#### ART-GENERAL COURSES

**ART GNRL 1010: Introduction to Art (3).** Basic practice in drawing, painting, design. Exploratory course for beginners. Non-majors only.

**ART GNRL 1020: Appreciation of Art (3).** Illustrated discussion with examples from varied historic and contemporary art fields on nature of art, functions, methods of creative expression. One section is writing intensive each semester and the other is NON writing intensive each semester.

**ART GNRL 1030: Basic 2-D Design (3).** Basic study of line, shape and texture; their use and control according to the basic variables and the principles of design. Two dimensional exercises employing a variety of tools and materials.

**ART GNRL 1040: Basic 3-D Design (3).** A foundational course designed to familiarize students with the elements and principles of three-dimensional design as well as some of the materials, tools, processes and techniques used in the creation of sculptural art. Study and development of formal aesthetic ideas, conceptual vocabulary and technical skills is emphasized. Expendable materials fee required.

**ART GNRL 2000: Color Theory (3).** An investigation of various color systems and their application to art. Prerequisites: Art-General [ART\_GNRL] 1030 or its equivalent, and sophomore standing.

**ART GNRL 2001: Topics in Art (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics course are repeatable for up to 6 credits per individual topic. Prerequisite: instructor's consent.

**ART GNRL 2001H: Topics in Art - Honors (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Prerequisite: instructor's consent. Honors eligibility required.

**ART GNRL 2005: Topics in Art - Humanities (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Prerequisite: Instructor's consent.

**ART GNRL 2005H: Topics in Art - Humanities - Honors (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Prerequisite: Instructor's consent. Honors eligibility required.

**ART GNRL 2020: International Summer Study Abroad (4).** A four-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at scheduled critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated once for credit.

**ART GNRL 2030: Context and Culture (3).** The purpose of this course is to give journalism students a framework for engaging with the visual arts, with a focus on the 20th century and today. Our goal is to conduct a foundation for thinking, talking and writing about the visual arts, especially works and movements that might be challenging for the novice to understand. Prerequisite: instructor's consent.

**ART GNRL 2030H: Context and Culture - Honors (3).** The purpose of this course is to give journalism students a framework for engaging with the visual arts, with a focus on the 20th century and today. Our goal is to conduct a foundation for thinking, talking and writing about the visual arts, especially works and movements that might be challenging for the novice to understand. Prerequisite: instructor's consent. Honors eligibility required.

**ART GNRL 3001: Topics in Art (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Prerequisites: junior standing and instructor's consent.

**ART GNRL 3001H: Topics in Art - Honors (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Prerequisites: instructor's consent. Honors eligibility required.

**ART GNRL 3005: Topics in Art - Humanities (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Prerequisite: Instructor's consent.

**ART GNRL 3005H: Topics in Art - Humanities Honors (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Prerequisite: Instructor's consent. Honors eligibility required.

**ART GNRL 3020: International Summer Study Abroad (4).** A four-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at scheduled critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated once for credit. Prerequisites: instructor's consent.

**ART GNRL 3030: Undergraduate Internship in Art (1-3).** Special learning situations not covered by coursework. Credit standards pre-arranged with dept. Prerequisites: junior standing and departmental consent. Open only to Art and Art Education majors. Limit on total hours of problems courses applies.

**ART GNRL 3040: 2-D Portfolio Development (3).** This course will provide an intensive experience in the development of a portfolio of personal work outside the traditional media boundaries. Students will explore media relevant to their particular needs and begin to explore the connections between their work and contemporary art and culture through readings, discussions and critiques. Prerequisites: 3000 level or above course in one of the following media areas, Drawing, Painting or Printmaking. Expendable Materials Fee Required. Junior Standing and instructor's consent required.

**ART GNRL 4001: Topics in Art (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Prerequisite: consent of instructor.

**ART GNRL 4001H: Topics in Art - Honors (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Prerequisite: consent of instructor, honors eligibility required.

**ART GNRL 4005: Topics in Art - Humanities (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Prerequisite: Instructor's consent.

**ART GNRL 4005H: Topics in Art - Humanities Honors (1-3).** Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Prerequisite: Instructor's consent. Honors eligibility required.

**ART GNRL 4030: Video Art and the Moving Image (3).** Video as a fine art form intersection sculpture, performing arts, doc filmmaking, pop culture and the Internet. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Final Cut Pro demonstrating technical ability and aesthetic vision. May be repeated for credit.

**ART GNRL 4975: Senior Seminar in Art (3).** A capstone course for the undergraduate art degree with emphasis on the production of a written statement relating to the students' visual research. Prerequisite: senior standing.

**ART GNRL 4976: Design - Senior Seminar (3).** Capstone for undergraduate art students who are interested in graphic design. Emphasis placed on research and writing about the theory and practice of design. All students will participate in a final, formal portfolio review with outside evaluators. Prerequisite: senior standing.

#### ART-GRAPHIC DESIGN COURSES

**ART GRDN 1400: Beginning Digital Imaging (1).** Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only. Prerequisite: basic understanding of the Macintosh computer.

**ART GRDN 2400: Advanced Digital Imaging (1).** Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only. Prerequisite: Art Graphic Design [ART\_GRDN] 1400, and a basic understanding of the Macintosh computer.

**ART GRDN 2410: Graphic Design I (3).** Emphasis on developing a design language and vocabulary. Projects explore visual images in two-dimensional space, each one focusing on a specific set of relationships. Introduction to methodological and research practices for designers. Payment of expendable materials fee is required. Prerequisite: Art Graphic Design [ART\_GRDN] 1030, 1040 and 1050.

**ART GRDN 2420: Graphic Design II (3).** Introduction to the discipline, function and tradition of typography. Topics include evolution and anatomy of typography, communication, legibility/readability, language sequence and information hierarchy. Course concludes with portfolio review for admission into Graphic Design III. Payment of expendable materials fee is required. Prerequisite: Art Graphic Design [ART\_GRDN] 2410.

**ART GRDN 2430: Introduction to Calligraphy (3).** Technical and historical instruction on five calligraphic alphabets. Application of hand lettering to both two and three-dimensional design projects. Emphasis placed on both technical mastery of letters and creative expression in projects. Prerequisite: Art Graphic Design [ART\_GRDN] 1030 and 1050 or instructor's consent.

**ART GRDN 3410: Graphic Design III (3).** Digital media and motion graphics are explored through the development of interactive presentations and web site design. Students experiment with the computer as a medium for delivery of communication. New, practical and conceptual skills will be discussed in order to develop meaningful, interactive user experiences. Payment of expendable materials fees is required. Prerequisite: Art Graphic Design [ART\_GRDN]

2420 and successful completion of the graphic design portfolio review.

**ART GRDN 3420: Graphic Design IV (3).** Goal directed graphic design problem solving stressing the integration of theory and practical applications while sharpening conceptual, computer, and research skills. Topics include current design theory, advanced typographic study, production methods and design/client interaction. Payment of expendable materials fee is required. Prerequisite: Art Graphic Design [ART\_GRDN] 3410.

**ART GRDN 3430: Advanced Calligraphy (3).** Technical and historical instruction to calligraphic alphabets including Uncial, Fraktur, Copperplate and Neuland. Application of hand lettering in two and three-dimensional design projects. Emphasis placed on both mastery of letters and creative exploration in projects. Prerequisite: Art Graphic Design [ART\_GRDN] 2430.

**ART GRDN 3440: Packaging Design (3).** This course will look at the discipline of packaging design from a three dimensional perspective. By gaining an understanding of the materials and processes that relate to packaging, students will develop a selection of packaging solutions for a variety of different clients. Payment of expendable material fee is required. Prerequisites: Successful completion of the graphic design portfolio review and/or instructor's consent.

**ART GRDN 3441: The History of Graphic Design (3).** Broad overview of the history of graphic design. Topics will range from the history of printing, the beginnings of the profession, major movements and developments to the practice of design. Also looks at how the history of design and printing apply to today's visual communication. Prerequisites: instructor's consent.

**ART GRDN 3442: Design for Corporate Identity and Branding (3).** Planning, strategy and design of the visual components necessary to create a corporate identity. Course will focus on how cohesive design programs function across various mediums and engage specific audiences. Payment of expendable materials fees is required. Prerequisites: successful completion of the graphic design portfolio review and/or instructor's consent.

**ART GRDN 3443: Letterpress (3).** This course is about creating conceptual design solutions using the letterpress printing process. Projects are very broad, conceptual and highly individual with the opportunity to explore letterpress printing processes using several different presses and printing techniques. Each project will require a limited edition print run. Repeatable to 9 hours. Instructor's consent required.

**ART GRDN 4410: Graphic Design V (3).** Directed research, study and critical analysis in graphic design. Emphasis placed on research, writing, problem solving, aesthetic perception, conceptual thinking skills and technical proficiency. Students will focus on portfolio preparation and are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Payment of expendable materials fee is required. Prerequisite: Art Graphic Design [ART\_GRDN] 3420.

**ART GRDN 4485: Problems in Graphic Design (1-3).** Prerequisite: Art Graphic Design [ART\_GRDN] 4410, and departmental consent.

**ART GRDN 4996: Imprint - Design Practicum (3).** Class operates as professional design studio doing work for university, local and regional clients. Focus on client/designer relationships, contracts and teamwork. Students passing with grade in A range will graduate with departmental honors. Prerequisite: Admission based on GPA (3.3 in art courses) and portfolio review; junior standing. May be repeated for credit.

#### ART-PHOTOGRAPHY COURSES

**ART PHOT 2600: Beginning Photography (3).** Basic photography as an art form; camera and darkroom techniques; surveys photographic history and aesthetics. Camera with adjustable aperture and shutter required. Payment of expendable materials

expense is required. Prerequisite: Art General [ART\_GNRL] 1030, 1040, 1050 and instructor's consent required.

**ART PHOT 3600: Intermediate Photography (3).** Continuation of Art-Photography 2600 with emphasis utilizing acquired technical process to facilitate use of the camera as a means of developing awareness of immediate environment and the capabilities of Photography as a communicative, documentary, and expressive medium. Payment of expendable material fee is required. Prerequisite: Art Photography [ART\_PHOT] 2600 or approved equivalent and consent required.

**ART PHOT 4600: Advanced Photography (3).** Exploration of aesthetic concepts, development of personal vision, and instruction in advanced technical process including fine B&W printing, negative and positive color, large format, zone system, and portfolios and book design to facilitate critical observation and personal expression through the medium of Photography. Payment of expendable materials fee is required. Prerequisites: Art Photography [ART\_PHOT] 2600 and 3600 or approved equivalents, and consent required. May repeat to 15 hours maximum.

**ART PHOT 4685: Problems in Photography (1-3).** Supervised research in creative photography. Prerequisite: Art Photography [ART\_PHOT] 4410 and departmental consent.

#### ART-PAINTING COURSES

**ART PNT 2500: Beginning Painting (3).** Introduces primary techniques of painting. Emphasis on conceptualization of visual perception (understanding how we see) and the creative processes (understanding how we create). Sections either in oil or acrylic; contact instructor. Expendable material fee required.

**ART PNT 2510: Beginning Watercolor Painting (3).** Theory, practice of painting in water color from still life, landscape, figure. Prerequisites: Art-Painting [ART\_PNT] 1050. Expendable materials fee required.

**ART PNT 3500: Intermediate Painting (3).** Continuation of Art-Painting [ART\_PNT] 2500 with the addition of portrait painting. Prerequisite: Art-Painting [ART\_PNT] 2500. Expendable materials fee required.

**ART PNT 3510: Intermediate Watercolor Painting (3).** Continuation of Art-Watercolor 2510, Beginning Watercolor, theory and practice of painting in watercolor. Expendable materials fee required. Prerequisite: Art Painting [ART\_PNT] 2510.

**ART PNT 4500: Advanced Painting (3).** Advanced problems in oil and acrylic painting. Prerequisite: Art Painting [ART\_PNT] 3500. May be repeated to 15 hours maximum. Expendable materials fee required.

**ART PNT 4510: Advanced Watercolor Painting (3).** Advanced problems in watercolor. Prerequisite: Art Painting [ART\_PNT] 3510. May repeat to 15 hours maximum. Expendable materials fee required.

**ART PNT 4585: Problems in Painting (1-3).** Prerequisites: Art Painting [ART\_PNT] 4500 and departmental consent.

#### ART-PRINTMAKING COURSES

**ART PRNT 2700: Beginning Printmaking (3).** Introductory Relief, Intaglio and Lithography techniques in color and black and white including woodcut, linocut reduction, etching; aquatint, dry point, photo mechanics and pronto plate lithography. No prerequisites. May be repeated to six hours maximum. Expendable materials fee required.

**ART PRNT 2730: Serigraphy (3).** Introduces methods, materials, and techniques of printmaking with the silk screen. Payment of expendable materials expense is required. Prerequisites: Art General [ART\_GNRL] 1030 and one semester of Drawing. May repeat to 6 hours maximum.

**ART PRNT 3700: Intermediate Printmaking (3).** Continuing work in litho, intaglio, relief or

serigraphy. Expendable materials fee required. Prerequisites: Art Printmaking [ART\_PRNT] 2700 and/or instructor's consent.

**ART PRNT 4700: Advanced Printmaking (3).** Advanced study in relief, intaglio, lithographic and/or serigraphy printmaking with emphasis on individual creative expression. Prerequisites: Art Printmaking [ART\_PRNT] 3700 and/or consent required. May be repeatable to 15 hours. Expendable materials fee required.

**ART PRNT 4785: Problems in Printmaking (1-3).** Prerequisites: departmental consent.

#### ART-SCULPTURE COURSES

**ART SCUL 2800: Beginning Sculpture (3).** Principles of sculptural organization, figure studies, modeling techniques, simple plaster casting. Payment of expendable materials expense is required. Prerequisites: Art General [ART\_GNRL] 1030 or 2200.

**ART SCUL 2810: Experimental Media I (3).** Ordering and structuring materials into compositional forms, using various media, traditional as well as new. Subject matter will vary each semester. Prerequisites: Art General [ART\_GNRL] 2200 or instructor's consent.

**ART SCUL 3800: Intermediate Sculpture (3).** Continuation of Art-Sculpture 2800. Introduction to carving techniques. Payment of expendable materials expense is required. Prerequisite: Art Sculpture [ART\_SCUL] 2800.

**ART SCUL 3810: Experimental Media II (3).** Continuation of Art Sculpture 2810. Prerequisite: Art Sculpture [ART\_SCUL] 2810.

**ART SCUL 4800: Advanced Sculpture (3).** This course will build skills acquired in Art-Sculpture 3800, Intermediate Sculpture including welding, casting, carving and assemblage with emphasis on the development of a personal visual language. Prerequisite: Art Sculpture [ART\_SCUL] 3800, may repeat to 15 hours maximum.

**ART SCUL 4810: Experimental Media III (3).** Continuation of Art Sculpture 3810. Prerequisite: Art Sculpture [ART\_SCUL] 3810. May repeat to 15 hours maximum.

**ART SCUL 4885: Problems in Sculpture (1-3).** Prerequisites: departmental consent.

#### ART HISTORY AND ARCHAEOLOGY COURSES

**AR HA 1005: Undergraduate Topics in Art History and Archaeology- Humanities (1).** Special studies in Art History and Archaeology.

**AR HA 1010: Introduction to Museum of Art History and Archaeology, UMC (1).** This course is a brief introduction to the Museum of Art and Archaeology on Francis Quadrangle. Special attention will be given to the history of the Museum, to its operation and to its collection. Guest lecturers from the from the Museum will provide first hand accounts of their contributions to the day-to-day operations of the Museum and to the academic mission of the University.

**AR HA 1020: Giotto and the Arena Chapel (1).** This course is a brief introduction to one of the major monuments of western art, the Area (or Scrovegni) of Giotto di Bondone. Special attention will be given to stories about him by Renaissance authors.

**AR HA 1030: Early Works of Michelangelo (1).** This course is a brief introduction to the life and work of Michelangelo. Special attention will be given to his early works and to stories about him, especially those by Giorgio Vasari in his Lives of the Artist, Florence, 1568.

**AR HA 1105: Undergraduate Topics in Art History and Archaeology (3).** Special studies in Art History and Archeology.

**AR HA 1110: Ancient and Medieval Art (3).** Introductory survey of the architecture, sculpture and

painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**AR HA 1110H: Ancient & Medieval Art - Honors (3).** Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe. Honors eligibility required.

**AR HA 1120: Renaissance through Modern Art (3).** Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**AR HA 1120H: Renaissance through Modern Art - Honors (3).** Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times. Honors eligibility required.

**AR HA 1230: Introduction to Asian Arts (3).** (same as History [HIST] 1820, Religious Studies [REL\_ST] 1820, South Asian Studies [S\_A\_ST] 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**AR HA 2005: Topics Art History and Archaeology - Humanities (1-3).** Study of special topics in Art History and Archaeology.

**AR HA 2150: The Art of the Book (3).** Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**AR HA 2230: Introduction to the Arts of Islam (3).** Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**AR HA 2410: Ancient Technology (3).** Engineering, architecture, and military technology in the ancient world.

**AR HA 2720: African-American Visual Culture (3).** (Same as Black Studies [BL\_STU] 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**AR HA 2830: American Art and Architecture (3).** Architecture, sculpture, painting of America from 17th century to present day.

**AR HA 2850: Introduction to Visual Culture (3).** Introduction to the problems of understanding, analyzing, and writing about visual culture.

**AR HA 2940: Archaeological Methods (2-6).** Methods of excavating various types of sites; recording, preserving their materials. Prerequisite: instructor's consent.

**AR HA 3005: Topics in Art History and Archaeology- Humanities (1-3).** Selected studies in various facets of art history and archaeology. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110, 1120, 2830 as appropriate.

**AR HA 3120: Art and Gender in Antiquity (3).** Comparative survey of art and archaeology in Egypt, Greece, and Rome to understand how societies constructed gender through material resources and how cultural perceptions of gender affected individual lives and behaviors. Emphasis on research methods and evaluation of sources.

**AR HA 3210: Near Eastern and Egyptian Art and Archaeology (3).** General survey of material culture of the Near East and Egypt from the earliest times to the early Iron Age. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110 or equivalent.

**AR HA 3310: Greek Art and Archaeology (3).** General survey of material culture in Greece from earliest times to the Hellenistic period. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110 or equivalent.

**AR HA 3410: Roman Art and Archaeology (3).** General survey of material culture in the Roman world from earliest times through the 3rd

century. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110 or equivalent.

**AR HA 3510: Byzantine and Islamic Art and Archaeology (3).** General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110 or equivalent.

**AR HA 3520: Early Medieval Art and Archaeology (3).** An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110 or equivalent.

**AR HA 3530: Late Medieval Art (3).** General survey of the art and architecture of Europe from Charlemagne through the 14th century. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110 or equivalent.

**AR HA 3620: Italian Renaissance Art (3).** General survey of the architecture, painting and sculpture of Italy from the 14th through the 16th century. Prerequisite: Art History and Archaeology [AR\_H\_A] 1110 or 1120 or equivalent.

**AR HA 3630: Northern Renaissance Art (3).** General survey of the art and architecture of Northern Europe from the 14th through the 16th century. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or equivalent.

**AR HA 3640: Baroque Art (3).** General survey of 17th century European architecture, painting and sculpture. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or equivalent.

**AR HA 3720: Cities in the Western Imagination (3).** Interdisciplinary introduction to the forms, functions, and meanings of cities in Europe and the Americas from ancient to modern times; plans and predictions for the future also considered. Emphasis is placed on cities as fields for imaginative activity on the part of those who have designed, built, used, and interpreted them.

**AR HA 3730: Eighteenth Century European Art (3).** General survey of 18th-century European painting, sculpture and architecture. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or equivalent.

**AR HA 3740: Nineteenth Century European Art (3).** General survey of 19th-century European painting, sculpture and architecture. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or equivalent.

**AR HA 3750: Modern Art in Europe and America (3).** General survey of international directions in painting, sculpture, and architecture from 1885 to ca. 1940. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or equivalent.

**AR HA 3760: Contemporary Art (3).** General survey of painting, sculpture, and architecture from the Second World War to the present. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or equivalent.

**AR HA 3780: Architecture in Film (3).** (Same as Film Studies [FILM\_S] 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a variety of genres, this course explores how architecture operates within film.

**AR HA 3785: Arts and Artists on Film (3).** (same as Film Studies [FILM\_S] 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**AR HA 3830: American Art and Culture, 1500-1820 (3).** General survey of American visual culture - painting, sculpture, architecture-between 1500 and 1820. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or 2830 or equivalent.

**AR HA 3840: American Art and Culture, 1820-1913 (3).** General survey of American visual culture - painting, sculpture, architecture, photography - between 1820-1913. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or 2830 or equivalent.

**AR HA 3850: American Art and Culture, 1913-Present (3).** General survey of American visual culture - painting, sculpture, architecture, photography, advertising, film, new media - between 1913 and the present. Prerequisite: Art History and Archaeology [AR\_H\_A] 1120 or 2830 or equivalent.

**AR HA 4005: Topics in Art History and Archaeology-Humanities (cr.arr.).** Special studies in art history/archaeology; covers subjects not included in regularly offered courses. Prerequisite: instructor's consent.

**AR HA 4120: Women, Art and Society (3).** (same as Women and Gender Studies [WGST] 4120). Analysis of the careers and works of women artists, and images of women (by female and male artists), in selected eras. Prerequisite: instructor's consent.

**AR HA 4320: Archaeology of the Aegean Bronze Age (3).** Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C. Prerequisite: instructor's consent.

**AR HA 4340: Greek Architecture (3).** Survey of the art of building in the Aegean and Classical world from earliest times to the Hellenistic period. Prerequisite: instructor's consent.

**AR HA 4350: Greek Pottery (3).** Examination of pottery and vase painting with an emphasis on production, iconography, and social context. Prerequisite: instructor's consent.

**AR HA 4360: Greek Sculpture (3).** Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period. Prerequisite: instructor's consent.

**AR HA 4420: Minor Arts of Antiquity (3).** Discussion of selected minor arts and crafts of the Greco-Roman world. Prerequisite: instructor's consent.

**AR HA 4440: Roman Architecture (3).** The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ. Prerequisite: instructor's consent.

**AR HA 4460: Roman Sculpture (3).** The origins and development of sculpture in the Roman Republic and the Roman Empire. Prerequisite: instructor's consent.

**AR HA 4490: Late Antique Art and Archaeology (3).** Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm. Prerequisite: instructor's consent.

**AR HA 4510: Byzantine Art and Archaeology (3).** Historical investigation of Byzantine material culture in the eastern Mediterranean and Russia, from the outbreak of Iconoclasm to the Ottoman conquest. Prerequisite: instructor's consent.

**AR HA 4520: Art of the Dark Ages (3).** Survey of the visual arts of western Europe during the period of migrations, from the fall of Rome to the Carolingian renovation of the 9th century. Prerequisite: instructor's consent.

**AR HA 4530: Romanesque Art and Architecture (3).** Discussion of selected topics in architecture, sculpture and painting and their artistic and cultural relationship from ca. 800 to ca. 1150. Prerequisite: instructor's consent.

**AR HA 4540: Gothic Art and Architecture (3).** Discussion of selected topics in architecture, sculpture and painting and their artistic and cultural relationship from ca. 1150 to ca. 1400. Prerequisite: instructor's consent.

**AR HA 4620: Michelangelo and the High Renaissance (3).** Sculpture, architecture, paintings, and drawing of Michelangelo in the context of his times. Prerequisite: instructor's consent.

**AR HA 4630: The Renaissance Artist (3).** Lectures, readings, discussions and a research paper

related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650. Prerequisite: instructor's consent.

**AR H A 4640: Renaissance and Baroque Architecture (3).** Problems in European architectural history from the 15th through the 18th century. Prerequisite: instructor's consent.

**AR H A 4650: Venetian Painting (3).** Survey of Venetian Painting from the 14th through the 18th century. Prerequisite: instructor's consent.

**AR H A 4660: Renaissance Figural Arts of Northern Europe (3).** Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the fourteenth through the sixteenth century in northern Europe. Prerequisite: instructor's consent.

**AR H A 4670: Baroque Figural Arts (3).** Painting and sculpture of Italy in the 17th century. Prerequisite: instructor's consent.

**AR H A 4710: The Arts of the Rococo (3).** This course explores European Art from approximately 1710 to 1770, focusing on art associated with two different social sectors: The early modern aristocratic court culture whose artistic predilections had formed the European norm, and the increasingly powerful merchant classes whose newfound wealth enabled new artistic genres and styles to proliferate. Our inquiry begins with an exploration of the rococo as an ornamental style; we examine its origins in Italian garden architecture and subsequent transformation into a decoration for both French palatial interiors and German Churches. We then launch a succession of case studies of important artists, media, and objects in order to assess the varied ways that diverse social identities were deflected through the periods' art architecture. Students will pursue a research topic on rococo art for their semester project. Prerequisite: Art History and Archaeology [AR\_H\_A] 3730; consent of instructor

**AR H A 4720: Revolution and Romanticism: Art C. 1800 (3).** This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with the major events of the French Revolution, its aftermath, and its global repercussions. Prerequisite: Art History and Archaeology [AR H A] 3730 or 3740; instructor's consent. May be repeated for credit.

**AR H A 4730: Realism Through Post-Impressionism (3).** Styles and issues in nineteenth-century art. Prerequisite: instructor's consent.

**AR H A 4740: Modern Architecture (3).** Problems in the history of architecture from the late 18th century to the present. Prerequisite: instructor's consent.

**AR H A 4750: Contemporary World Architecture (3).** This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films, and field trips. Prerequisite: Art History and Archaeology [AR H A] 1120; instructor's consent. Graded on A/F basis only.

**AR H A 4760: Modern Sculpture (3).** Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium. Prerequisite: instructor's consent.

**AR H A 4780: Advanced Course in Contemporary Art (3).** Topics in European and American painting and sculpture after 1950. Prerequisite: instructor's consent.

**AR H A 4820: American Material Culture (3).** An exploration of American material culture from a multidisciplinary perspective. Prerequisite: instructor's consent.

**AR H A 4840: American Architecture (3).** An exploration of architecture and urbanism from the colonial period to the present. Prerequisite: instructor's consent.

**AR H A 4960: Special Readings in Art History and Archaeology (1-3).** Independent readings and research selected in consultation with supervisory faculty. Prerequisite: instructor's consent.

**AR H A 4970: Capstone: Art History and Archaeology (1).** Students will write an expanded, guided research paper. The Capstone student will consult on a regular basis with the professor responsible for the course and will make an oral presentation of the paper in the course. Must be taken in conjunction with a 4000-level Art History and Archaeology course. Instructor's consent.

**AR H A 4980: Internship (3).** A one-semester or full summer intensive internship for departmental majors with specific projects and responsibilities to be arranged by the student in cooperation with a faculty member and an appropriate agent of the museum involved. May be taken as an elective only. May be repeated for a maximum of 6 hours credit. Instructor's consent.

**AR H A 4996: Honors Proseminar I (3).** Research methods, bibliography, use and criticism of source material. Prerequisite: instructor's consent.

**AR H A 4999: Honors Reading and Research I (3).** Individual research projects in preparation of senior thesis. Prerequisite: Art History and Archaeology [AR\_H\_A] 4996 and instructor's consent.

## ASTRONOMY COURSES

**ASTRON 1010: Introduction to Astronomy (4).** Survey of methods of astronomy; description of the solar system, stellar astronomy, structure of the galaxy and the universe. Three hours of lecture and one hour of lab per week (scheduled by the instructor). Satisfies physical science laboratory requirement. Laboratory section: Survey of astronomical methods, instruments, observations and measurement techniques. Prerequisite: high school algebra and plane geometry, or Math [MATH] 1100/1120, or equivalent.

**ASTRON 1020: Introduction to Laboratory Astronomy (2).** Laboratory supplement to Astronomy 1010. Satisfies physical science laboratory requirement. Survey of astronomical methods, instruments, observations and measurement techniques. Prerequisite: high school algebra and geometry, Astronomy [ASTRON] 1010

**ASTRON 3010: Introduction to Modern Astrophysics (3).** (same as Physics [PHYSICS] 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies. Prerequisite: Physics [PHYSICS] 2760.

**ASTRON 3020: Astrophysical Techniques (2).** (same as Physics [PHYSICS] 3020). Elements of modern astronomical instruments, observations and analysis. Prerequisite: Physics [PHYSICS] 3010 or concurrently.

**ASTRON 4180: Solar System Science (3).** (same as Physics [PHYSICS] and Geology [GEOL] 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution. Prerequisites: Math [MATH] 1700, Physics [PHYSICS] 1220 or 2760 or instructor's consent.

**ASTRON 4250: Stellar Astrophysics (3).** (same as Physics [PHYSICS] 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation. Prerequisite: Physics [PHYSICS] 3150 or concurrently or instructor's consent.

**ASTRON 4350: Galactic Astronomy (3).** (same as Physics [PHYSICS] 4350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology. Prerequisites: Physics [PHYSICS] 3010, 4140 or instructor's consent.

**ASTRON 4550: Cosmochemistry (3).** (same as Physics [PHYSICS] 4550/7550). Cosmic dust,

stardust, spectra, energy, interstellar medium, meteorites, astromineralogy. Prerequisites: Physics [PHYSICS] 2760 or 1220; instructor's consent.

**ASTRON 4950: Undergraduate Research in Astronomy (cr.arr.).** Special studies in astronomy; covers subjects not included in courses regularly offered. Prerequisite: instructor's consent.

## ATMOSPHERIC SCIENCE COURSES

**ATM SC 1050: Introductory Meteorology (3).** (same as Geography [GEOG] 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

**ATM SC 2100: Introduction to Atmospheric Science (3).** Physical process of the atmospheric and climate system will be related to day-to-day weather changes. Students will be introduced to the laws of motion and thermodynamics that govern motions in geophysical fluid. Graded on A/F basis only. Prerequisite: Math [MATH] 1160 or concurrent enrollment in Math [MATH] 1500.

**ATM SC 2150: Natural Hazards (3).** A survey of natural hazards, including severe thunderstorms, tornadoes, flooding, tropical storms, ocean movements, earthquakes, tsunamis, volcanoes, asteroids, solar weather, managing risk and human impacts. Prerequisites: Atmospheric Science [ATM SC] 1050 or equivalent or instructor's consent. Graded on A-F basis only.

**ATM SC 2720: Weather Briefing (1).** Student participation in daily discussions of current weather patterns and forecasts and their applications to weather sensitive activities including aviation, agriculture and industry. Prerequisites: Atmospheric Science [ATM\_SC] 1050.

**ATM SC 2792: Weather Communication (1).** Methods of surface and upper air weather observation. How such data are distributed to users in the meteorological community is also addressed. Prerequisite: Atmospheric Science [ATM\_SC] 1050; sophomore standing or instructor's consent

**ATM SC 3000: Independent Study in Atmospheric Science (1-3).** Independent study of a topic dealing with meteorological theory or application of meteorological science to the solution of relevant problem. Prerequisites: upper-level standing, Atmospheric Science [ATM\_SC] 1050 or equivalent, and instructor's consent.

**ATM SC 3600: Climates of the World (3).** (same as Geography [GEOG] 3600). A study of the world distribution of climates based on "cause and effect" relationships. Special attention is given to the impacts of climate on humanity. Prerequisites: Atmospheric Science [ATM\_SC] 1050 or equivalent or graduate standing.

**ATM SC 4001: Topics in Atmospheric Science (cr.arr.).** Development of theory and applications for selected topics in atmospheric science. Prerequisites: junior standing and instructor's consent.

**ATM SC 4110: Broadcast Meteorology I (2).** An introduction to broadcast meteorology including the business of media, use of meteorological data to produce a forecast, and television and radio presentation skills. Prerequisites: Atmospheric Science [ATM\_SC] 1110, 2720, or equivalents, and Co-requisite: Atmospheric Science [ATM\_SC] 4710. Restricted to Atmospheric Science majors or instructor's consent. Graded on A/F basis only.

**ATM SC 4310: Atmospheric Thermodynamics (4).** Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics. Prerequisites: Atmospheric Science [ATM\_SC] 1050, Math [MATH] 1700 (C or better), and one physics course.

**ATM SC 4320: Atmospheric Dynamics (4).** Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere. Prerequisite: Atmospheric Science [ATM\_SC] 4310/7310, odd years.

**ATM SC 4350: Mesoscale Meteorology and Dynamics (3).** Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure. Prerequisite: Atmospheric Science [ATM\_SC] 4720/7720 and Math [MATH] 2300.

**ATM SC 4400: Micrometeorology (3).** Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed. Prerequisite: Atmospheric Science [ATM\_SC] 4310 or Physics [PHYSICS] 2760, Math [MATH] 2300.

**ATM SC 4500: Advanced Meteorological Observation and Instrumentation (3).** Automated weather observation and instrumentation used in networks of remote automated weather stations. Emphasis on electronic instrumentation, datalogger programming, data collection and data management, generating dynamic reports on the World Wide Web. Prerequisite: Atmospheric Science [ATM\_SC] 1050. May be repeated for credit.

**ATM SC 4510: Remote Sensing for Meteorology and Natural Resources (3).** Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features. Prerequisites: Atmospheric Science [ATM\_SC] 1110, Mathematics [MATH] 1500, junior standing or instructor's consent.

**ATM SC 4520: Environmental Biophysics (3).** (same as Geography [GEOG] 4520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water and gas. Prerequisites: College Physics and Calculus I.

**ATM SC 4550: Atmospheric Physics (3).** Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing. Prerequisites: 1 year of college Physics and Math [MATH] 1700.

**ATM SC 4590: Radar Meteorology (3).** Course concerns the theory and application of radar in meteorology. Prerequisites: Atmospheric Science [ATM\_SC] 1110, Math [MATH] 1700, Physics [PHYSICS] 2750. May be repeated for credit.

**ATM SC 4650: Long-Range Forecasting (3).** Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice. Prerequisite: Atmospheric Science [ATM\_SC] 4050/7050 or 3600.

**ATM SC 4710: Synoptic Meteorology I (4).** Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns. Prerequisites: Atmospheric Science [ATM\_SC] 1050, Math [MATH] 1700 (C or better), one physics course (pre or corequisite).

**ATM SC 4720: Synoptic Meteorology II (4).** Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research. Prerequisite: Atmospheric Science [ATM\_SC] 4710/7710.

**ATM SC 4730: Advanced Forecasting Laboratory (3).** Advanced principles of weather forecasting will be addressed via online electronic modules and weekly laboratory exercises. Prerequisites: Atmospheric Science [ATM\_SC] 4710/7710, 4720/7720, Math [MATH] 2300. Graded on A/F basis only.

**ATM SC 4800: Numerical Methods in Atmospheric Science and Natural Resources (3).** Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets. Prerequisite: Math through Calculus III or senior standing.

**ATM SC 4949: Internship in Meteorology (1-6).** Practical professional work experience with

professional or scientific meteorologists in off-campus work environment. Prerequisites: junior standing, 12 hours Atmospheric Science.

**ATM SC 4990: Daily Analysis and Forecast Interpretation (3).** A Capstone experience. In depth daily analysis and interpretation by students of the current and forecast states of the atmosphere. Discussions of implications to specific weather sensitive activities. Writing intensive. Prerequisite: senior or graduate Atmospheric Science major.

## BIOCHEMISTRY COURSES

**BIOCHM 1090: Introduction to Biochemistry (3).** Fundamental concepts in biochemistry and molecular biology: structure function relationships, reactivity, thermodynamics, gene expression. Professional skills for biomedical careers. Primarily for freshman and sophomore biochemistry majors. Prerequisite: departmental consent.

**BIOCHM 1094: Introductory Biochemistry Laboratory (2).** Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes, PCR and cloning. Prerequisites: concurrent enrollment in Biochemistry [BIOCHM] 1090 required. Graded on A/F basis only. Departmental Consent Required.

**BIOCHM 2002: Topics in Biochemistry - Biological/Physical/Mathematics (1-4).** Initial offering of a course in Biochemistry designed primarily for undergraduates.

**BIOCHM 2110: The Living World: Molecular Scale (3).** Survey of modern biochemistry and biotechnology. Structure and function of DNA, proteins, lipids and carbohydrates. The role of biopolymers in life processes and everyday living is emphasized.

**BIOCHM 2112: Biotechnology in Society (3).** Biotechnology in a social context covers three areas: introduction to terminology and concepts, specific biotechnological applications to modern problems, and ethical questions.

**BIOCHM 2480: Introduction to Macromolecular Structure and Function (2).** The function of biochemical macromolecules is directly related to their structure. The three-dimensional structures of proteins, nucleic acids, polysaccharides and membranes are each explored in the context of their functions and their microenvironments within living organisms. Prerequisites: Organic Chemistry I or concurrent enrollment. Graded on A/F basis only.

**BIOCHM 2484: Macromolecular Techniques Laboratory (2).** The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Prerequisites: concurrent enrollment in Biochemistry [BIOCHM] 2480; Biochemistry majors only. Graded on A/F basis only.

**BIOCHM 3630: General Biochemistry (3).** Survey of biochemistry; static/dynamic aspects of carbohydrates, lipids, proteins, nucleic acid. Discussion of metabolic pathways, energy production, and metabolic regulatory mechanism. Prerequisites: Chemistry [CHEM] 2050.

**BIOCHM 4001: Topics in Biochemistry (cr.arr.).** Experimental courses; highly specialized topics taught infrequently or courses taught by visiting professors.

**BIOCHM 4270: Biochemistry (3).** First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells. Prerequisites: Chemistry [CHEM] 2110.

**BIOCHM 4272: Biochemistry (3).** Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism. Prerequisite: Biochemistry [BIOCHM]

4270.

**BIOCHM 4300: Physical Chemistry of Biological Systems (3).** To present fundamental principles of physical chemistry in the context of the structure and function of biological macromolecules. Prerequisite: Biochemistry [BIOCHM] 4270 or concurrent enrollment. Graded on A/F basis only.

**BIOCHM 4374: Molecular Biology Laboratory (3).** (same as Biological Sciences [BIO\_SC] 4974). Emphasizes recently developed genetic and biochemical techniques; illustrates how they apply to contemporary problems in biological research. Prerequisites: Biological Sciences [BIO\_SC] 2200, Biochemistry [BIOCHM] 4272 or concurrent registration in Biological Sciences [BIO\_SC] 4976.

**BIOCHM 4376: Computer Assisted Sequence Analysis and Molecular Modeling (3).** Employs the use of computer-based interactive molecular graphics and sequence analysis software to analyze the three dimensional structures of macromolecules. Prerequisites: Chemistry [CHEM] 2110.

**BIOCHM 4385: Problems in Biochemistry (1-3).** Problems in Biochemistry

**BIOCHM 4460: Cancer Biology (3).** (same as Biological Sciences [BIO\_SC] 4460). Cancer, cell biology, genetics, biochemistry. Prerequisites: Biochemistry [BIOCHM] 4272, Biological Sciences [BIO\_SC] 2300 and, Biological Sciences [BIO\_SC] 2200.

**BIOCHM 4950: Undergraduate Research in Biochemistry (2-3).** Individually directed laboratory research for upperclass students under faculty supervision.

**BIOCHM 4970: Senior Seminar in Biochemistry (1).** Discuss journal papers dealing with current topics of research, techniques, status of field, importance of results. Students report on completed undergraduate research projects.

**BIOCHM 4974: Biochemistry Laboratory (5).** Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. Prerequisites: Biochemistry [BIOCHM] 4270.

**BIOCHM 4996H: Honors Research in Biochemistry (2-3).** Laboratory research for upper level honors students in consultation with Biochemistry faculty. Honors eligibility required.

## BIOLOGICAL ENGINEERING COURSES

**BIOL EN 1000: Introduction to Biological Engineering (1-2).** For first semester engineering students. Develop appreciation for professional engineering. Students will participate with senior design students to conceptualize a case-study problem.

**BIOL EN 2000: Professional Development in Engineering (1-2).** A review of professional opportunities, registration, ethics, and societies. Prerequisite: sophomore standing.

**BIOL EN 2080: Introduction to Programming for Engineers (3).** This course teaches how to write scientific programs for analysis of data and simulation of physical phenomena using Matlab. Prerequisites: Mathematics [MATH] 1500. Graded on A/F basis only.

**BIOL EN 2180: Engineering Analysis of Bioprocesses (3).** Material and Energy Balances. Integrating principles of physics, chemistry and mathematics to analyze steady state and transient biological/ biomedical processes. Prerequisites: Mathematics [MATH] 1700, Chemistry [CHEM] 1320, Physics [PHYSICS] 2750. Graded on A/F basis only.

**BIOL EN 3001: Topics in Biological Engineering (3).** Current and new technical developments in biological engineering. Prerequisite: instructor's consent.

**BIOL EN 3050: Environmental Control for Biological Systems (3).** Systems for controlling the physical environments (heat, moisture, light, contaminating organism, chemicals) for plant and animal

systems including livestock, aquacultures, crops and agricultural products. Prerequisites: Engineering [ENGINR] 2300 and Mathematics [MATH] 4100.

**BIOL EN 3070: Biological Fluid Mechanics (3).** Basic principles of fluid mechanics applied to transport processes in biological systems. Prerequisites: Physics [PHYSICS] 2750 and Mathematics [MATH] 1700. Graded on A/F basis only.

**BIOL EN 3170: Biomaterials (3).** Engineering Sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design. Corequisite: Biological Engineering [BIOL\_EN] 2180, Engineering [ENGINR] 2200 or instructor's consent.

**BIOL EN 3180: Heat and Mass Transfer in Biological Systems (3).** Principles of heat and mass transfer and their application to biomedical, bioenvironmental, and bioprocessing areas. Prerequisites: Engineering [ENGINR] 2300 or Chemical Engineering [CH\_ENG] 3261, or concurrently.

**BIOL EN 4001: Topics in Biological Engineering (3).** Current and new technical developments in biological engineering. Prerequisite: instructor's consent.

**BIOL EN 4070: Bioelectricity (3).** Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers. Prerequisites: Physics [PHYSICS] 2760 and Biological Engineering [BIOL\_EN] 3180 or instructor's consent.

**BIOL EN 4080: Engineering Computation (3).** An introduction to numerical methods relevant to biological engineering in the context of scientific computing. Prerequisite: Mathematics [MATH] 4100. Graded on A/F basis only.

**BIOL EN 4085: Problems in Biological Engineering (1-5).** Supervised independent study at the undergraduate level. Prerequisite: instructor's consent.

**BIOL EN 4150: Soil and Water Conservation Engineering (3).** (same as Civil Engineering [CV ENG] 4710). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures. Prerequisites: Biological Engineering [BIOL\_EN] 2180 or Civil Engineering [CV ENG] 3200 or instructor's consent.

**BIOL EN 4160: Food Process Engineering (3).** Study of transport phenomena and unit operations in food processing systems. Emphasis on fluid flow and heat transfer in food processing, preservation processes, refrigeration, freezing, psychrometrics, and dehydration. Prerequisite: Biological Engineering [BIOL\_EN] 3180 or instructor's consent.

**BIOL EN 4170: Biomaterials Interfaces of Implantable Devices (3).** Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface. Prerequisites: Biological Engineering [BIOL\_EN] 3170 or instructor's consent.

**BIOL EN 4231: Transport Phenomena in Materials Processing (3).** (same as Mechanical and Aerospace Engineering [MAE] 4231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3200, 3400, 4300 (or equivalent courses; and Mathematics [MATH] 4100. Graded on A/F basis only.

**BIOL EN 4250: Irrigation and Drainage Engineering (3).** Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage. Prerequisites: Civil Engineering [CV ENG] 3700 or Mechanical and Aerospace Engineering [MAE] 3400 or Biological Engineering [BIOL\_EN] 2180.

**BIOL EN 4260: Food Process Engineering II (3).** Continuing study of transport phenomena and unit operations in food processing systems. Emphasis on fluid food evaporation concentration food dehydration, contact equilibrium processes and mechanical

separation processes. Prerequisite: Biological Engineering [BIOL\_EN] 4160 or instructor's consent.

**BIOL EN 4270: Design of Experiments and Statistical Quality Control for Process Engineers (3).** (same as Chemical Engineering [CH\_ENG] 4270). A practical statistical tool box for experimenters including comparison of process means, effects of variables, design and interpretation of factorial experiments, and statistical quality control. Prerequisite: experience with Excel or instructor's consent.

**BIOL EN 4280: Survey of Bioengineering Techniques (3).** Laboratory techniques to train students in Bioelectricity, Biomechanics, Bioenvironment, Biomaterials, Biophotonics, Bioprocessing. Prerequisites: senior standing. Graded on A/F basis only.

**BIOL EN 4310: Feedback Control Systems (4).** (same as Electrical and Computer Engineering [ECE] 4310). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Prerequisites: Mathematics [MATH] 4100 and junior/senior standing. Graded on A/F basis only. May be repeated for credit.

**BIOL EN 4315: Introduction to Bioprocess Engineering (3).** (same as Chemical Engineering [CH\_ENG] 4315). This general introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models. Prerequisites: Biological Engineering [BIOL\_EN] 2180 (for Biological Engineering students) or Chemical Engineering [CH\_ENG] 2225 (for Chemical Engineering students) or instructor's consent.

**BIOL EN 4316: Biomass Refinery Operations (3).** (same as Chemical Engineering [CH\_ENG] 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery. Prerequisite: Biological Engineering [BIOL\_EN] 2180 or Chemical Engineering [CH\_ENG] 2225 (for Chemical Engineering students) or instructor's consent.

**BIOL EN 4350: Watershed Modeling Using GIS (3).** (same as Civil Engineering [CV ENG] 4720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis. Prerequisites: Biological Engineering [BIOL\_EN] 2180 or Civil Engineering [CV ENG] 3200 or instructor's consent.

**BIOL EN 4370: Orthopaedic Biomechanics (3).** (same as Veterinary Medicine and Surgery [V M S] 4370) Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Prerequisites: Engineering [ENGINR] 1200, Biological Engineering [BIOL\_EN] 3170, instructor's consent required. Graded on A/F basis only.

**BIOL EN 4380: Applied Electronic Instrumentation (4).** Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems. Prerequisite: Physics [PHYSICS] 2760.

**BIOL EN 4470: Biomolecular Engineering and Nanobiotechnology (3).** Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Prerequisites: senior/graduate standing or instructor's consent. Graded on A/F basis only.

**BIOL EN 4480: Physics and Chemistry of Materials (3).** (same as Physics [PHYSICS] 4190 and Chemistry [CHEM] 4490 and Nuclear Engineering [NU ENG] 4319). Physics and Chemistry of Materials is a 3 credit hours undergraduate/graduate level course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory

demonstrations, two mid term and one final exam. Graduate students will submit a term paper. Prerequisite: Physics [PHYSICS] 2760/Chemistry [CHEM] 1320 or equivalent/prior approval by instructor.

**BIOL EN 4550: Design of Livestock Waste Management Systems (3).** Development and application of design criteria to the design of agricultural waste management facilities. Prerequisites: Chemistry [CHEM] 1310 and Civil Engineering [CV\_ENG] 3700, Mechanical and Aerospace Engineering [MAE] 3400 or instructor's consent.

**BIOL EN 4570: Fluorescent Imaging (3).** Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging. Prerequisites: Biological Sciences [BIO\_SC] 1500 and Biological Engineering [BIOL\_EN] 2180 or instructor's consent.

**BIOL EN 4575: Computational Neuroscience (4).** (same as Biological Science [BIO SC] and Electrical and Computer Engineering [ECE] 4580). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral sciences. Prerequisites: Biological Science [BIO SC] 1010, 1500; Mathematics [MATH] 1500. Graded on A/F basis only.

**BIOL EN 4580: Mechanical Systems Engineering (3).** Fundamentals and applications of prime movers and power transmissions for the design of engineering systems. Prerequisites: Thermodynamics course, Fluid Mechanics course. Corequisite: Engineering [ENGINR] 2100 or Biological Engineering [BIOL\_EN] 4380 or instructor's consent.

**BIOL EN 4670: Photonics and Nanotechnologies in Optical Biosensors (3).** Latest applications of photonics and nanotechnologies in optical bio-chemical sensors will be reviewed. Prerequisite: Physics [PHYSICS] 2760. Graded on A/F basis only.

**BIOL EN 4770: Biomedical Optics (3).** Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed. Prerequisite: Physics [PHYSICS] 2760 and Biological Engineering [BIOL\_EN] 3180; or instructor's consent.

**BIOL EN 4870: Molecular and Cell Mechanics (3).** Application of mechanics and engineering principles to biological systems at the cellular and molecular levels. Prerequisite: Engineering [ENGINR] 2200. Graded on A/F basis only.

**BIOL EN 4940: Engineering Internship (2-5).** Problem course following prior approved work experience. Problem selected by internship company representative, faculty problem adviser and student. Supervised by faculty problem advisor and presented in engineering report form. Prerequisite: advisor's consent.

**BIOL EN 4980: Biological Engineering Design (3).** Capstone design course for the Biological Engineering major. Design of biological system devices or processes. Prerequisite: senior standing or instructor's consent.

**BIOL EN 4990: Undergraduate Research in Biological Engineering (1-5).** Supervised independent study at the undergraduate level. Prerequisite: instructor's consent.

**BIOL EN 4995: Undergraduate Honors Research in Biological Engineering (1-5).** Open only to honor students in Biological Engineering. Independent investigation in biological engineering to be presented as a thesis. Prerequisite: advisor's consent.

## BIOLOGICAL SCIENCES COURSES

**BIO SC 1002: Topics in Biological Sciences- Biological/Physical/Mathematics (1-3).** Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A/F or S/U basis only.

**BIO SC 1010: General Principles and Concepts of Biology (3).** Emphasizes connections and applications to society and the human condition, science literacy, and critical thinking skills. A discussion of general principles and fundamental concepts of living things. Prerequisite: MATH 1100/1120 or concurrent enrollment. This course is intended for non-science majors. No more than 5 credits for Biological Science [BIO\_SC] 1010, 1020, and 1030.

**BIO SC 1020: General Biology Laboratory (2).** Laboratory exercises dealing with representative organisms and methods of modern biological sciences. Prerequisite: Biological Sciences [BIO SC] 1010 or 1400 or 1010 concurrently. This course is intended for non-science majors. No more than 5 credits for Biological Science [BIO\_SC] 1010, 1020, and 1030.

**BIO SC 1030: General Principles and Concepts of Biology with Laboratory (5).** Survey of general principles and basic concepts of life science, emphasizing applications to society and the human condition. Lectures address science literacy and critical thinking and laboratory exercises use representative organisms to complement lecture topics. Prerequisite: Mathematics [MATH] 1100/1120 or concurrent enrollment. This course is intended for non-science majors. No more than 5 credits for Biological Science [BIO\_SC] 1010, 1020, and 1030.

**BIO SC 1060: Basic Environmental Studies (3).** Considers the ecosystem, energy and biogeochemical cycles and population dynamics; relation of the environment to agriculture and technology, pollution, power and food production; politico-economic considerations; moral and ethical issues. For non-science majors.

**BIO SC 1100: Introductory Zoology with Laboratory (5).** (same as Fisheries and Wildlife [F W] 1100) Introduces important principles and concepts of zoology. Emphasizes cell biology; evolution; genetics; ecology; structure, function, development of the organism.

**BIO SC 1200: General Botany with Laboratory (5).** Introduction to study of plants. Emphasis on structure, growth, physiology, genetics and reproduction of plants.

**BIO SC 1400: Evolution for Everyone (3).** This course will explore the application of evolutionary theory to modern human affairs. We will study the processes involved in evolution and investigate evolutionary interpretations of human social behavior (e.g., psychology, mate choice, economics, religion, and morality). No credit if student has received credit for Biological Science [BIO SC] 2060, 3100 or 4600.

**BIO SC 1500: Introduction to Biological Systems with Laboratory (5).** Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology. Prerequisites: Mathematics [MATH] 1100/1120 and high school chemistry.

**BIO SC 1500H: Introduction to Biological Systems with Laboratory Honors (5).** Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology. Prerequisites: Mathematics [MATH] 1100/1120 and high school chemistry. Honors eligibility required.

**BIO SC 2002: Topics in Biological Sciences- Biological/Physical/Mathematics (1-3).** Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A/F or S/U basis only. Prerequisite: a course in general biology.

**BIO SC 2010: Undergraduate Seminar in Biological Sciences (1-3).** Discussion and critical evaluation of current topics in biological sciences for intermediate-level students. Some sections may be graded on either A/F or S/U basis only. Prerequisite: sophomore standing.

**BIO SC 2060: Community Biology (3).** Principles of population biology, ecology, and evolution,

including consideration of human impacts on biological communities and ecosystems. Prerequisite: Biological Sciences [BIO SC] 1010 or equivalent. Not open to biology majors.

**BIO SC 2100: Infectious Diseases (3).** An introduction to the basic science of bacterial, viral, protozoan, fungal and helminth infections, including discussions of how illness has influenced or been affected by public policy and culture. Prerequisite: Biological Sciences [BIO SC] 1010. Not open to Biology Majors.

**BIO SC 2200: General Genetics (4).** Principles of inheritance in plants and animals; structure and use of genetic material, transmission of genetic information, linkage, modification of genetic information, regulation of genetic activity, population genetics. Prerequisites: Biological Sciences [BIO SC] 1500 and Chemistry [CHEM] 1320 (or concurrent enrollment).

**BIO SC 2300: Introduction to Cell Biology (4).** Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized. Prerequisites: Biological Sciences [BIO SC] 2200.

**BIO SC 2600: Ornithology (4).** (same as Fisheries and Wildlife [F W] 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab. Prerequisites: 5 hours biology or instructor's consent.

**BIO SC 2700: Ichthyology (4).** (same as Fisheries and Wildlife [F W] 2700). A broad introduction to the biology and ecology of fishes. Emphasis will be placed on understanding the adaptations fishes exhibit to aspects of their environment. Includes lab. Prerequisites: 8 hours biology or equivalent.

**BIO SC 2940: Internship in Biological Science (1-3).** Work experience in a non-profit, for profit, or governmental organization relevant to the biological sciences. Intended for students doing internships in which independent research is less than 50% of the experience. Prerequisites: junior standing, instructor's consent, 12 hours of biological science. Graded on S/U basis only.

**BIO SC 2960: Readings in Biological Science (1-3).** Supervised reading in biological literature. May be repeated up to six hours total credit. Selected sections of this course may be graded either on A/F or S/U basis only. May not be used in partial fulfillment of Arts and Science foundation requirement. Prerequisites: instructor's consent.

**BIO SC 2965H: Honors Readings in Biological Literature (1-3).** Selected readings in biological literature for Honors, in consultation with instructor. Prerequisite: overall 3.3 GPA; instructor's consent. May not be used in partial fulfillment of Arts and Science foundation requirement. Honors eligibility required.

**BIO SC 3002: Topics in Biological Sciences- Biological/Physical/Mathematics (1-3).** Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A/F or S/U basis only. Prerequisite: instructor's consent.

**BIO SC 3010: Professional Skills (1).** This course will focus on application and interview skills for students interested in medical school. Prerequisites: junior standing; 3.4 GPA; instructor's consent. Restricted to biology majors. Graded on S/U basis only.

**BIO SC 3050: Genetics and Society (3).** Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course. Prerequisite: a college science course or equivalent (advanced high school biology).

**BIO SC 3210: Plant Systematics (4).** Principles of classification of plants; survey of diversity in flowering plant families; identification of local flora; use of keys. Includes lab. Prerequisite: 8 hours of Biological Sciences.

**BIO SC 3250: Parasitology (4).** (same as Biomedical Sciences [BIOMED] 3250). Parasitism is considered

as a fundamental type of interspecies interaction. Principles of parasitism as they apply to animals are presented with emphasis on parasite morphology, biology and host parasite relationships. Includes lab. Prerequisite: 8 hours of biology.

**BIO SC 3260: Invertebrate Zoology (4).** Structure, ecology and phylogeny of the invertebrate phyla. Includes lab. Prerequisites: Biological Sciences [BIO SC] 1100 or 1500.

**BIO SC 3360: Herpetology (4).** The biology, ecology, taxonomy, and distribution of amphibians and reptiles. Some Saturday field trips. Prerequisite: 8 hours Biological Sciences or equivalent.

**BIO SC 3400: Evolution and Ecology (3).** Introduction to principles of evolution and ecology. Topics include natural selection, adaptation, phylogenetic analysis, human evolution, population growth and regulation, population interactions, ecosystem ecology, and human impacts on ecological processes. Prerequisites: Biological Sciences [BIO SC] 2200.

**BIO SC 3510: Biology of Fungi (3).** (same as Plant Science [PLNT S] 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers. Includes lab. Prerequisite: Biological Science [BIO SC] 1100, 1200, or 1500.

**BIO SC 3650: General Ecology (5).** Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed Biological Sciences [BIO SC] 3100: 2 hours credit. Prerequisites: 10 hours in biology and junior standing.

**BIO SC 3655: Tropical Ecology: Methods and Applications (3).** Field study of tropical community; additional fee for transportation and accommodations required. Prerequisite: Biological Sciences [BIO SC] 3100, 3650, 4600 or 4660.

**BIO SC 3660: Mammalogy (4).** (same as Fisheries and Wildlife [F W] 3660). Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States. Includes lab. Prerequisites: 8 hours of biology or instructor's consent.

**BIO SC 3700: Animal Physiology (5).** Introduces concepts of vertebrate organ function and homeostatic control emphasizing mammalian physiology. Some comparisons to function in other vertebrates and strategies for coping with environmental stresses introduced. Includes lab. Prerequisite: Biological Sciences [BIO SC] 2300.

**BIO SC 3710: Introductory Entomology (3).** (same as Plant Science [PLNT S] 3710). Holistic biology of insects, including anatomy, physiology, behavior, ecology, and management. Prerequisites: Biological Sciences [BIO SC] 1100, 1200, or 1500 or equivalent.

**BIO SC 3715: Insect Diversity (2).** (same as Plant Science [PLNT S] 3715). Laboratory emphasizing external insect anatomy, classification, and identification to the family level. Insect collection is required. Prerequisite: concurrent enrollment or previous satisfactory completion of Plant Science [PLNT S] 3710/Biological Sciences [BIO SC] 3710.

**BIO SC 3750: General Microbiology (4).** Principles of microbiology. Includes lab. Prerequisite: Biological Sciences [BIO SC] 2200 and 2300 completed with C range grades.

**BIO SC 3780: Genetics Laboratory (2).** Experimental genetic studies of *Drosophila*, corn and microorganisms. Prerequisite: C range grade or better in Biological Sciences [BIO SC] 2200 or instructor's consent.

**BIO SC 3790: Developmental Biology Laboratory (2).** Laboratory studies of development in sea urchin, chicken and roundworm. Prerequisites: Biological Sciences [BIO SC] 4972 or co-enrollment in 4972.

**BIO SC 3800: Developmental Biology (3).** Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes

in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms. Prerequisites: Biological Sciences [BIO SC] 2200, 2300, Chemistry [CHEM] 2100.

**BIO SC 4002: Topics in Biological Science - Biological/Physical/Mathematics (1-3).** Selected topics not in regularly offered courses. Prerequisite: instructor's consent and senior standing. May be repeated up to 2 times for credit.

**BIO SC 4085: Problems in Biological Sciences (1-3).** Individual supervised work to supplement regularly organized courses in biology; introduction to research. Selected sections of this course may be graded either on A/F or S/U basis only. Prerequisites: junior standing and instructor's consent.

**BIO SC 4100: Limnology (3-4).** (same as Fisheries and Wildlife [F W] 4100). (Lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity. Prerequisites: senior standing or Biological Sciences [BIO SC] 3650.

**BIO SC 4300: Analysis of Biological Macromolecules (3).** Theory/application of techniques used for characterization of proteins, nucleic acids; topics: sedimentation velocity; equilibrium; sucrose density gradients; electrophoresis; spectrophotometry. Prerequisites: Biological Sciences [BIO SC] 2300 or Biochemistry [BIOCHM] 4270; Mathematics [MATH] 1500 and one year Physics.

**BIO SC 4310: Physics in Cell and Developmental Biology (3).** (same as Physics [PHYSICS] 4310). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions. Prerequisite: instructor's consent or Physics [PHYSICS] 1220 or 2760 and Biological Sciences [BIO SC] 2300.

**BIO SC 4320: Plant Physiology (3-5).** (same as Plant Science [PLNT S] 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory. Prerequisites: Biological Sciences [BIO SC] 1200 or 1500 and 5 hours Chemistry.

**BIO SC 4328: Introductory Radiation Biology (3).** (same as Nuclear Engineering [NU ENG] 4328, Radiology [RADIOL] 4328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man. Prerequisite: junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent.

**BIO SC 4400: Plant Anatomy (4).** (same as Plant Science [PLNT S] 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissues, tissue systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Prerequisites: Biological Sciences [BIO SC] 1200 or 1500.

**BIO SC 4500: Neurobiology (3).** Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuroanatomy, neuroethology and developmental neurobiology. Prerequisites: Biological Sciences [BIO SC] 2300 or 3700 or instructor's consent.

**BIO SC 4560: Sensory Physiology and Behavior (3).** Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development. Prerequisite: Biological Sciences [BIO SC] 4500. Graded on A/F basis only.

**BIO SC 4580: Computational Neuroscience (4).** (same as Electrical and Computer Engineering [ECE] 4580 and Biological Engineering [BIOL EN] 4575). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral science and an introduction to experimental methods for students from quantitative sciences. Prerequisites: Biological Sciences [BIO SC] 1010 or 1500; Mathematics [MATH] 1500.

**BIO SC 4600: Evolution (3).** Surveys various processes in organic evolution and underlying genetic mechanisms. Prerequisite: Biological Sciences [BIO SC] 2200.

**BIO SC 4640: Behavioral Biology (3-4).** Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla. May be taken with Laboratory for 4 credits. Prerequisites: Biological Sciences [BIO SC] 1500 and one additional upper-level course in Biological Sciences or Psychology.

**BIO SC 4642: Animal Communication (3).** Physical properties of sensory stimuli, receptor mechanisms, functional significance of communication behavior, and multidisciplinary and experimental approaches to current research in animal communication. Prerequisites: Biological Sciences [BIO SC] 2300 and Physics [PHYSICS] 1220 or equivalent.

**BIO SC 4660: Plant Population Biology (4).** Covers the ecological and evolutionary processes that influence the distribution and abundance of plant species. Topics include evolution of life history schedules, gender evolution, population growth and demography, competition, herbivory, plant-pollinator interactions, clonal growth, and plant community structure. Includes lab. Prerequisites: 2 courses in Biological Sciences.

**BIO SC 4670: Avian Ecology (3).** Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution. Prerequisites: Biological Sciences [BIO SC] 3100 or 3650; 2600.

**BIO SC 4950: Undergraduate Research in Biology (1-3).** Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. Prerequisites: Overall GPA 2.75; 20 hours of Biological Sciences and/or Chemistry; instructor's consent. May be repeated to a maximum of 6 hours.

**BIO SC 4950H: Honors Research in Biology (1-3).** Individually directed field or laboratory research for upper-level Honors students, in consultation with a faculty member. Project must be arranged by student and faculty member prior to registration. May be repeated for credit. Prerequisite: overall GPA 3.3; instructor's consent; biology or microbiology major. Honors eligibility required. Graded on A/F basis only.

**BIO SC 4952: Undergraduate Research in Biology (1-3).** Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. Prerequisites: Biological Sciences [BIO SC] 4950; overall GPA 2.75; instructor's consent. May be repeated to a maximum of 6 hours.

**BIO SC 4952H: Honors Research in Biology (1-3).** Continuation of research program. Successful completion requires public presentation and leads to degree with Honors in biological sciences. May be repeated for credit for maximum of 6 hours. Prerequisites: Biological Sciences [BIO SC] 4950H; overall GPA 3.3; instructor's consent. Honors eligibility required. Graded on A/F basis only.

**BIO SC 4960: Special Readings in Biological Sciences (1-3).** Independent readings and discussions of topics in biology selected in consultation with supervising faculty member. Selected sections of this course may be graded either on A/F or S/U basis only. Prerequisites: senior standing in Biological Sciences and instructor's consent.

**BIO SC 4970: Neurobiology Laboratory (3).** Laboratory experience with experimental neurobiology, with emphasis on neural networks, motor systems, and developmental neurobiology. Prerequisites: Biological Sciences [BIO SC] 3700 or 4500 or instructor's consent.

**BIO SC 4974: Molecular Biology Laboratory (3).** (same as Biochemistry [BIOCHM] 4374). Emphasizes recently developed genetic and biochemical techniques; illustrates how they apply to contemporary

problems in biological research. Prerequisites: Biological Sciences [BIO SC] 2200, Biochemistry [BIOCHM] 4272 or concurrent registration in Biological Sciences [BIO SC] 4976.

**BIO SC 4976: Molecular Biology (3).** Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering. Prerequisites: Biological Sciences [BIO SC] 2200 and 2300.

**BIO SC 4978: Cancer Biology (3).** (same as Biochemistry [BIOCHM] 4978). The cellular and molecular basis of cancer, with emphasis on the application of genomics, proteomics, and genetic manipulations in model organisms to the study of cancer biology. Prerequisites: Biological Sciences [BIO SC] 2200, 2300.

**BIO SC 4980: Cellular Interactions in Health and Disease (3).** The cell as a functional unit. Prerequisites: 10 hours Biological Sciences and 5 hours Physics and 5 hours Organic Chemistry; some background in Biochemistry and/or Molecular Biology is strongly recommended.

**BIO SC 4982: Human Inherited Diseases (3).** Analysis of the molecular and cellular mechanisms underlying inherited diseases in humans. Topics include genetics of sex determination, metabolic disorders, cancer, blood groups, transplantation, AIDS. Prerequisites: Biological Sciences [BIO SC] 2200 and 2300.

**BIO SC 4983: Molecular Ecology (4).** Application of molecular genetic techniques to topics in ecology and population biology such as sex ratios, dispersal, mating systems, biogeography and conservation genetics. Prerequisites: Biological Sciences [BIO SC] 2200 or equivalent and Biological Sciences [BIO SC] 3650.

**BIO SC 4984: Mammalian Reproductive Biology (3).** Adult reproductive anatomy, physiology and behavior; gametogenesis and fertilization; placentation; sexual differentiation; parturition; maternal behavior and lactation; puberty; reproductive aging; reproductive ecology. Prerequisites: junior standing and 15 hours of Biological Sciences.

**BIO SC 4986: Neurology of Motor Systems (3).** Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements. Prerequisites: Biological Sciences [BIO SC] 3700 or instructor's consent.

**BIO SC 4988: Nerve Cells and Behavior (3).** The cellular basis of behavior. Molecular and cellular properties of nerve cells, as related to behavior, will be represented and discussed. Prerequisite: Biological Sciences [BIO SC] 3700 or instructor's consent.

**BIO SC 4990: Vertebrate Histology and Microscopic Anatomy (5).** Microscopic anatomy of vertebrate tissues and organs. Includes lab. Prerequisites: junior standing; Biological Sciences [BIO SC] 2300 and 3700, or equivalent are recommended.

**BIO SC 4994: Senior Seminar (1-3).** Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized interdisciplinary emphasis. Prerequisites: Biological Sciences major, senior standing.

## BIOMEDICAL SCIENCES COURSES

**BIOMED 1010: Biomedical Career Explorations (1).** An introduction to the variety of career possibilities within the growing field of biomedical sciences. Graded on S/U basis only.

**BIOMED 2001: Topics in Veterinary Biomedical Science (cr.arr.).** May be repeated 2 times for credit. Prerequisite: instructor's consent. Graded on A/F basis only.

**BIOMED 2085: Problems in Biomedical Research (cr.arr.).** Assignment of special Topics for Research training in biomedical research. Prerequisite: instructor's consent.

**BIOMED 2110: Biomedical Terminology (3).** Life science etymology (Greek for "true meaning, means

the study of word derivation) taught by classroom presentation and discussion. The course organization is based primarily on common themes of Greek and Latin terms along with historical reasons for current usage. The application of these terms is for all biomedical sciences and life sciences. Graded on A/F basis only.

**BIOMED 2111: Veterinary Medical Terminology (1).** Veterinary Medical Terminology is an extension of Biomedical Sciences [BIOMED] 2110, Biomedical Terminology. The course organization is lecture, based primarily on domestic species and common themes of Greek and Latin terms. In addition, major veterinary medical eponyms, acronyms, and medical and surgical instruments are included. Prerequisites: Biomedical Sciences [BIOMED] 2110 or instructor's consent. Graded on A/F basis only.

**BIOMED 2120: Animal Handling and Physical Restraint (2).** Fundamentals of handling and physical restraint of domestic large and small animals, laboratory animals, and common non-domestic pets. Graded on A/F basis only.

**BIOMED 2140: Companion Animals (3).** (same as Animal Science [AN\_SCI] 2140). Focus on companion dog, cat, horse owners concerns re: health, zoonoses, legal responsibilities, inbreeding, choice of breeds, behavioral problems and loss of companion animals.

**BIOMED 2210: Microbiology for the Health Sciences (5).** Introductory course for students in the applied health curricula. Presents biomolecules of life, enzyme interaction, physiology and structure of representative organisms. Emphasizes bacteria, viruses, fungi and protozoa of health significance. Prerequisite: Chemistry [CHEM] 1100 or equivalent and instructor's consent. Graded on A/F basis only.

**BIOMED 2230: Animal Sanitation and Disease Prevention (3).** Preventative measures for diseases and parasites of farm animals.

**BIOMED 2235: Domestic Animal Behavior (3).** An examination of the effects of domestication on the behavior of companion and food animal species. Comparisons to similar animals in feral or wild conditions will be made. The causes, development and potential treatments of abnormal behavior will also be examined. Graded on A/F basis only.

**BIOMED 2420: Biology of Healthy Living (2).** (same as Physical Therapy [PH\_THR] 2420 and Nutritional Sciences [NUTR\_S] 2420). Biology of inactivity as a causal factor in chronic disease.

**BIOMED 2940: Internship in Biomedical Sciences (1-6).** Supervised work experience to develop technical skills and enhance student knowledge in an area of biomedical science. Not intended for more than 50% independent research. Graded on S/U basis only. Prerequisites: sophomore standing and instructor's consent.

**BIOMED 3000: Specialty Careers for Veterinary Technicians (1).** Specialty careers for veterinary technicians are jobs which required knowledge and skills beyond those needed in primary care clinical veterinary practice. This course will explore veterinary technician specialties, the education required, and the advantages of advanced academic training. AAS degree in veterinary technology or instructor's consent required. Course graded on A/F basis only.

**BIOMED 3001: Topics in Biomedical Sciences (cr.arr.).** Topics in Biomedical Sciences.

**BIOMED 3085: Problems in Biomedical Science (cr.arr.).** Assignment of special topics for research training in biomedical research. Prerequisite: DVM degree and instructor's consent.

**BIOMED 3100: Biomedical Pathophysiology (3).** Pathophysiology is the study of changes in the body resulting from disease. This course requires knowledge of normal anatomy and physiology. A comparative approach is used involving both domestic animal and human examples. Prerequisites: Animal Science [AN\_SCI] 3254 or Biological Sciences [BIO\_SC] 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent. Course graded on A/F basis only.

**BIOMED 3200: Comparative Hematology (3).** Hematology is the study of blood cells in health and disease. Emphasis in this course is placed on the changes associated with disease. Transfusion medicine and coagulation disorders will also be included. Prerequisites: Animal Science [AN\_SCI] 3254 or Biological Sciences [BIO\_SC] 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent. Course graded on A/F basis only.

**BIOMED 3219: Elements of Comparative Anatomy (3).** This course is designed to give students an introduction to and appreciation for comparative anatomy of various species encountered in animal science, veterinary technology and veterinary medicine. Detailed and labeled photos of dissected specimens are used to aid instruction. Prerequisites: five hours of biological science or zoology or equivalent or instructor's consent or an AAS degree in veterinary technology. Graded on A/F basis only.

**BIOMED 3250: Parasitology (3).** (same as Biological Sciences [BIO\_SC] 3250) Parasitism is considered as a fundamental type of interspecies interaction. Identifying characteristics, life cycle, and resulting disease caused by the common parasites of domestic animals, common laboratory animals, selected wildlife, and humans are described. Special emphasis is given to parasites that can be transmitted from animals to man. Prerequisite: 8 hours of biology or instructor's consent.

**BIOMED 3300: Animal Welfare and Ethics (3).** An introductory examination of contemporary ethical issues related to biomedical science including animal welfare, agriculture, and cloning. Topics related to animal law issues will also be discussed. Prerequisite: junior standing.

**BIOMED 3310: Equine Health Topics (3).** An in-depth examination of equine disease and health topics that are pertinent to today's horse owner and veterinarian. The course will integrate horse management practices with disease recognition, control and prevention. Students will learn how to recognize problems and when to call a veterinarian. Emerging disease problems such as West Nile Virus will be examined as well as topics of continuing concern. Prerequisites: Animal Sciences [AN\_SCI] 4977 or equivalent or instructor's consent. Graded on A/F basis only.

**BIOMED 3320: Comparative Microscopic Anatomy (3).** The course will provide students with a background in the structure of body organs at the microscopic level. The material will emphasize structure-function relationship of cells and organs using material from diverse animal species, including human, that exemplify unique adaptations to environmental or physiological requirements. Prerequisites: Biological Sciences [BIO\_SC] 1500 or equivalent.

**BIOMED 3326: Comparative Pharmacology (3).** An introduction to terminology used in pharmacology. Mechanisms of drug administration, absorption, distribution, metabolism, and excretion are described. Treatment modalities in animals and humans are compared. Basics of drug actions and the medicolegal aspects of pharmacology are discussed. Prerequisite: an AAS degree in veterinary technology or Animal Science [AN\_SCI] 3254 or Biological Sciences [BIO\_SC] 3700, or equivalent, or instructor's consent.

**BIOMED 4001: Topics in Biomedical Sciences (cr.arr.).** Topics in Biomedical Sciences.

**BIOMED 4010: Life Sciences Research: Models and Methods (3).** A review of basic laboratory animal and non-animal research models and procedures commonly used in the life sciences area in academia and drug/chemical industry. Prerequisite: Biology or Cell Biology; junior standing required. Graded on A/F basis only.

**BIOMED 4200: Veterinary Public Health and Community Practice (3).** Veterinary Public Health is the field of veterinary medicine that deals with food production and safety; zoonosis (animal to human) disease control, prevent and control of environmental contamination, and the role of animals in society. Prerequisites: Animal Science [AN\_SCI] 3254 or Biological Sciences [BIO\_SC] 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or

instructors consent. Graded on A/F basis only.

**BIOMED 4300: Clinical Veterinary Neurology (3).** Clinical veterinary neurology will review the neurologic examination, common neurologic diseases and techniques to properly care for the neurologic patient. The course organization is based primarily on neuroanatomic localization of disease. Prerequisites: AAS in Veterinary Technology or Biomedical Sciences [BIOMED] 3219 and 3100 or instructor's consent; junior or senior standing. Graded on A/F basis only.

**BIOMED 4333: Veterinary Cell Biology (4).** (same as Veterinary Biomedical Science [V\_BSCI] 5506). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease. Prerequisite: Biological Science [BIO\_SC] 1500, or equivalent, 1 course in biochemistry or 4 credit hours in chemistry; or instructor's consent.

**BIOMED 4500: Equine Critical Care and Nursing (3).** This course provides advanced information for veterinary technicians, veterinary assistants, and pre-veterinary students wishing to enhance and focus their understanding of equine critical care and nursing concepts. Prerequisites: Animal Science [AN\_SCI] 2095 and 3254 or Biological Sciences [BIO\_SC] 3700 or equivalents, AAS or equivalent degree from AVMA-accredited program or instructor's consent. Course graded on A/F basis only.

**BIOMED 4993: Internship in Veterinary Medical Technical Specialties (1-6).** Supervised work experience in the MU Veterinary Medical Teaching Hospital of affiliated veterinary medical specialty practices or in MU laboratory animal facilities to develop technical skills and knowledge relevant to becoming a specialist in veterinary medical technology. A written report and oral presentation are required. Graded on S/U basis only. Prerequisites: junior standing, an AAS degree from an AVMA accredited veterinary technical program or its equivalent, and instructor's consent.

## BLACK STUDIES COURSES

**BL STU 1100: Introduction to Swahili and African Culture (3).** Introduction to Swahili and African Culture is a three credit hour course, which serves as a survey of an indigenous African language and the culture of East Africa. There are no prior requirements.

**BL STU 1250: World Theatre Workshop (2).** (same as Theatre [THEATR] 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**BL STU 1332: Social Perspectives on Gender, Race and Class (3).** (same as Women's and Gender Studies [WGST] 1332) Examines the impact of the construction of "female" on different categories of women. Reviews women's multilayered relationships. Stresses both the roles of creator and "victim" within social structures and value systems. No credit for students who have taken Women's and Gender Studies [WGST] 1334.

**BL STU 1410: African American History (3).** (same as History [HIST] 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**BL STU 1500: The Black Woman in America (3).** (same as Women's and Gender Studies [WGST] 1500). Review and critiques of a variety of materials about Black women from slavery to present. The course allows students to generate their own view about psychological, social and philosophical impact of the Black women's struggle on all women. Prerequisite: sophomore standing.

**BL STU 1720: African-American Theatre History (3).** (same as Theatre [THEATR] 1720). A historical and critical analysis of the evolution of African

American cultural performance in the American theatre and entertainment industry.

**BL STU 1800: History of Modern Africa (3).** (same as History [HIST] 1800). Provides a general survey of Sub-Saharan Africa, from 1800 to the present. Topics include: state formation, the slave trade, colonialism, nation liberation and the problems of independent Africa. Prerequisite: sophomore standing or instructor's consent.

**BL STU 1810: History of South Africa (3).** (same as History [HIST] 1810). South African Society from the 16th century to the present with an emphasis on the last two centuries and the consolidation of the apartheid state. Prerequisite: sophomore standing or instructor's consent.

**BL STU 2000: Black Studies (3).** An interdisciplinary introduction to the basic concepts and literature in the disciplines covered by African-American studies. The role of historical, political, social, and economic forces in shaping cultural expression will be stressed.

**BL STU 2001: Undergraduate Topics in Black Studies-General (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. Prerequisite: program consent for repetition.

**BL STU 2005: Topics in Black Studies - Humanities (3).** Organized study of selected topics focusing on Black history and culture. Specific content may vary from semester to semester and will be announced in advance.

**BL STU 2150: African-American Cinema (3).** (same as Theatre [THEATR] 2150). Study of the impact of cinema and the entertainment industry on the social perceptions of African-Americans and on African-American culture.

**BL STU 2200: Social Inequalities (3).** (Same as Sociology [SOCIO] 2200.) Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequality are structured. Prerequisite: sophomore standing or instructor's consent.

**BL STU 2210: The Black Americans (3).** (same as Sociology [SOCIO] 2210.) Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, style of life, patterns of work and intergroup relations. Prerequisites: Sociology [SOCIO] 1000 or equivalent or instructor's consent.

**BL STU 2310: Literature of the African Diaspora (3).** (Same as Romance Languages [RM\_LAN] 2310) A postcolonial analysis of selected literary texts interpreting the African diaspora in the Americas.

**BL STU 2400: Introduction to African Diaspora Literature (3).** (same as English [ENGLSH] 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. Prerequisite: English [ENGLSH] 1000. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**BL STU 2407: Introduction to African Diaspora Literature, 1603-17 (3).** (same as English [ENGLSH] 2407). See Black Studies [BL\_STU] 2400 for course description.

**BL STU 2408: Introduction to African Diaspora Literature, 1789-1890 (3).** (same as English [ENGLSH] 2408). See Black Studies [BL\_STU] 2400 for course description.

**BL STU 2409: Introduction to African Diaspora Literature, 1890-Present (3).** (same as English [ENGLSH] 2409). See Black Studies [BL\_STU] 2400 for course description.

**BL STU 2410: African American Women in History (3).** (same as History [HIST] and Women's and Gender Studies [WGST] 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**BL STU 2450: Themes in the Geography of Africa South of the Sahara (3).** (same as Geography [GEOG] 2450). Major concepts of African geography in current and historical perspective. Case studies of major African countries. Prerequisites: sophomore standing or one introductory Geography course.

**BL STU 2500: Special Problems in Black Studies (cr.arr.).** Research apprenticeship with faculty member, assisting a faculty member in the development and execution of a research project. May be repeated for a maximum of six hours. Prerequisite: sophomore standing, instructor's consent.

**BL STU 2501: Undergraduate Topics in Black Studies (1-3).** Organized study of selected topics. Subjects and credit may vary from semester to semester. Prerequisite: program consent for repetition; sophomore standing.

**BL STU 2570: Black Religion (3).** A history of religion approach to the study of black religion which takes into consideration the unique past experiences of the African American community as it underwent the terror of forced migration, slavery, segregation, and discrimination. Prerequisite: sophomore standing.

**BL STU 2610: Islam and Black America (3).** A historical survey of the origins, development and impact of the Black Islamic tradition.

**BL STU 2720: African-American Visual Culture (3).** (Same as Art History and Archaeology [AR\_H\_A] 2720) This course introduces students to African-American art history, visual culture, and material culture in their cultural, political, and historical contexts. Specific focuses may include the Harlem Renaissance, the Black Arts Movement, and other topics.

**BL STU 2977: Black Studies Theoretical Traditions (3).** This course provides a broad understanding of the diverse theoretical traditions within the field of Black Studies, through a comparative examination of concepts, developments, and debates in History, Society, and Culture. Requirements: 3 short essays and 1 formal presentation. Course graded on A/F basis only.

**BL STU 3001: Undergraduate Topics in Black Studies - General (3).** Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent. Prerequisite: Junior standing and/or Black Studies [BL\_STU] 2000.

**BL STU 3003: Undergraduate Topics in Black Studies - Behavioral Sciences (1-3).** Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent. Prerequisites: Junior standing and/or Black Studies [BL\_STU] 2000.

**BL STU 3004: Undergraduate Topics in Black Studies - Social Science (1-3).** Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent. Prerequisites: Junior standing and/or Black Studies [BL\_STU] 2000.

**BL STU 3005: Undergraduate Topics in Black Studies - Humanities (3).** Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to six credit hours with program consent. Prerequisites: Junior Standing and/or Black Studies [BL\_STU] 2000.

**BL STU 3100: African American Psychology (3).** (same as Educational, School and Counseling Psychology [ESC\_PS] 3100 and Psychology [PSYCH] 3880). The research, theories, and paradigms developed to understand the attitudes, behaviors, and psychosocial realities of African-Americans are discussed. Prerequisite: Psychology [PSYCH] 1000.

**BL STU 3200: Black Freedom Movement, 1955-1973 (3).** (same as History [HIST] 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement

was converted into a struggle for Black Power.

**BL STU 3230: Studies in Black Sexual Politics (3).** (same as Women's and Gender Studies [WGST] 3230) Course explores Black transnational politics of sex/sexuality and examines the theoretical, historical, and socio-cultural context that race, gender, and sexuality are used as analytical concepts. Students learn a transdisciplinary approach and apply this newly acquired information to analyze shifts in the field of Black sexuality studies. Sophomore standing required. May be repeated for credit.

**BL STU 3400: Survey of African American Literature, Beginnings to 1900 (3).** (same as English [ENGLSH] 3400). A survey of major authors and movements in African American literature from its beginnings to 1900. Prerequisite: English [ENGLSH] 1000.

**BL STU 3410: Survey of African American Literature, 1900-Present (3).** (same as English [ENGLSH] 3410). A survey of major authors and movements in African American literature from 1900 to the present. Prerequisite: English [ENGLSH] 1000.

**BL STU 3420: Periods and Genres in African Diaspora Literature (3).** (same as English [ENGLSH] 3420). Topic (e.g. Harlem Renaissance, African Diaspora Poetry) Announced at time of registration. Prerequisite: English [ENGLSH] 1000. No more than 6 hours may be taken in the Periods and Genres in African Diaspora Literature series.

**BL STU 3427: Periods and Genres in African Diaspora Literature, 1603-1789 (3).** (same as English [ENGLSH] 3427). See Black Studies [BL\_STU] 3420 for course description.

**BL STU 3428: Periods and Genres in African Diaspora Literature, 1789-1890 (3).** (same as English [ENGLSH] 3428). See Black Studies [BL\_STU] 3420 for course description.

**BL STU 3429: Periods and Genres in African Diaspora Literature, 1890-Present (3).** (same as English [ENGLSH] 3429). See Black Studies [BL\_STU] 3420 for course description.

**BL STU 3590: Religious Biography: Black Religion (3).** (same as History [HIST] 3400). Studies black American religion through the biographies of representative and influential figures of the nineteenth and twentieth centuries, including Nat Turner, W.E.B Dubois, Marcus Garvey, M.L. King, and Malcolm X.

**BL STU 3670: History of Black Nationalism in the United States (3).** (same as History [HIST] 3410). Examines the struggle of African Americans to construct autonomous institutions, to build all Black communities or to acquire an independent nation-state. We will study the ideology, structure, strategy and tactics. Prerequisites: History [HIST] 1410 or Sociology [SOCIO] 2210.

**BL STU 3800: Women in African History (3).** (same as History [HIST] 3800). Focuses on the varied and changing roles of women in sub-Saharan Africa from pre-colonial times to the present. Prerequisite: sophomore standing or instructor's consent.

**BL STU 3850: Gender, Hip Hop, and the Politics of Representation (3).** (Same as Women's and Gender Studies [WGST] 3850) This class will examine gender in hip hop while exploring the intra- and interracial politics of representation among those of the hip hop generation.

**BL STU 3977: Black Studies Methodologies (3).** Advanced research, writing, and application of knowledge and critical paradigms in Black Studies, through study of such topics as slavery, colonialism, urbanization and migration, environment, gender, race, identity, intellectual movements, cultural studies and popular culture. Prerequisites: Black Studies [BL STU] 2977. Graded on A/F basis only.

**BL STU 4000: Special Problems in Black Studies (cr.arr.).** Independent investigation leading to a paper or a project. Prerequisite: junior standing, instructor's consent.

**BL STU 4001: Undergraduate Topics in Black Studies-General (1-3).** Organized study of selected topics. Subjects and credit may vary from semester to semester. Prerequisite: program consent for repetition. Prerequisite: junior standing.

**BL STU 4130: African-American Politics (3).** (same as Political Science [POL\_SC] 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government. Prerequisites: Political Science [POL\_SC] 1100 and junior standing.

**BL STU 4181: Themes in Literature by Women (3).** (same as Women's and Gender Studies [WGST] and English [ENGLISH] 4181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent. Prerequisite: junior standing.

**BL STU 4210: African-American Religion (3).** (same as Religious Studies [REL\_ST] 4210). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities. Prerequisite: junior standing or instructor's consent.

**BL STU 4220: Religion in Afro-American Literature (3).** (same as Religious Studies [REL\_ST] 4220). Examination of Afro-American fiction, poetry and drama which present significant racial attitudes toward the Christian religion. Prerequisites: sophomore standing.

**BL STU 4230: Women, Development, and Globalization (3).** (same as Sociology [SOCIO] 4230 and Women's and Gender Studies [WGST] 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities. Prerequisites: Sociology [SOCIO] 2200, Women's and Gender Studies [WGST] 1332, Black Studies [BL\_STU] 2110, or Women's and Gender Studies [WGST] 4420.

**BL STU 4270: African-Americans in the Twentieth Century (3).** (same as History [HIST] 4270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**BL STU 4300: The Black Family: Past, Present & Future (3).** (same as Human Development and Family Studies [H\_D\_FS] 4300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family. Prerequisite: junior standing.

**BL STU 4360: Working with Minority Youth (3).** (same as Social Work [SOC\_WK] 4360). Develops awareness and understanding of social/psychological/cognitive realities influencing the behavior of black youth. Content draws upon theories, research, and practice skills relevant to understanding black youth. Minority groups included. Prerequisite: junior standing or instructor's consent.

**BL STU 4380: Social Work Practice With Minorities: African-American Emphasis (3).** (same as Social Work [SOC\_WK] 4380). Provides students with an appreciation of the black experience in the United States on a knowledge and feeling level.

**BL STU 4400: Studies in African Diaspora Literature (3).** (same as English [ENGLISH] 4400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series. Prerequisite: junior standing.

**BL STU 4407: Studies in African Diaspora Literature, 1603 to 1789 (3).** (same as English [ENGLISH] 4407). See Black Studies [BL\_STU] 4400 for course description.

**BL STU 4408: Studies in African Diaspora Literature, 1789 to 1890 (3).** (same as English [ENGLISH] 4408). See Black Studies [BL\_STU] 4400 for course description.

**BL STU 4409: Studies in African Diaspora Literature, 1890 to Present (3).** (same as English [ENGLISH] 4409). See Black Studies [BL\_STU] 4400 for course description.

**BL STU 4410: Major Africana Diaspora Writers (3).** (same as English [ENGLISH] 4410). An intensive study of selected writers of African Diaspora literature focusing on texts original in English. No more than six hours may be taken in the Major African Diaspora Writers series. Prerequisite: junior standing or instructor's consent.

**BL STU 4415: African Americans and American Justice (3).** (same as History [HIST] 4415) This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws. Prerequisite: senior standing required.

**BL STU 4417: Major African Diaspora Writers, 1603 to 1789 (3).** (same as English [ENGLISH] 4417). See Black Studies [BL\_STU] 4410 for course description.

**BL STU 4418: Major African Diaspora Writers, 1789 to 1890 (3).** (same as English [ENGLISH] 4418). See Black Studies [BL\_STU] 4410 for course description.

**BL STU 4419: Major African Diaspora Writers, 1890-Present (3).** (same as English [ENGLISH] 4419). See Black Studies [BL\_STU] 4410 for course description.

**BL STU 4420: Africana Womanism (3).** (same as English [ENGLISH] 4420). An intensive study of Africana Womanism, focusing on selected Africana women writers. Prerequisites: junior standing or instructor's consent. May be repeated to six hours with departmental consent.

**BL STU 4460: Economic Characteristics of the African American Experience (1).** (same as History [HIST] 4460). Examines how economic considerations have influenced African American history from the transAtlantic slave trade to the present. Prerequisite: junior standing or instructor's consent.

**BL STU 4480: Major African Diaspora Women Writers (3).** (same as Women's and Gender Studies [WGST] 4480 and English [ENGLISH] 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for Black Studies [BL\_STU] 4180 and 4480.

**BL STU 4487: Major African Diaspora Women Writers, 1603 to 1789 (3).** (same as Women's and Gender Studies [WGST] 4487 and English [ENGLISH] 4487). See Black Studies [BL\_STU] 4480 for course description.

**BL STU 4488: Major African Diaspora Women Writers, 1789 to 1890 (3).** (same as Women's and Gender Studies [WGST] 4488 and English [ENGLISH] 4488). See Black Studies [BL\_STU] 4480 for course description.

**BL STU 4489: Major African Diaspora Women Writers, 1890 to Present (3).** (same as Women's and Gender Studies [WGST] 4489 and English [ENGLISH] 4489). See Black Studies [BL\_STU] 4480 for course description.

**BL STU 4500: Special Problems in Black Studies (cr.arr.).** Independent project or paper, not leading to dissertation. Prerequisite: program's approval.

**BL STU 4530: Caribbean Women Writers (3).** Examines representative works by female authors from the Caribbean; primarily the English speaking islands. The depiction of Caribbean women will be a major consideration, as well as the unique qualities of Caribbean literature. Prerequisite: sophomore standing or instructor's consent.

**BL STU 4640: African Politics (3).** (same as Political Science [POL\_SC] 4640). A general comparative

course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives. Prerequisite: Political Science [POL\_SC] 1100 and junior standing.

**BL STU 4700: Race, Gender and Ethnicity in Higher Education (3).** Historical relationships of race, gender, and ethnic issues in United States higher education. Issues include: theory and research of curriculum and teaching, diversity within the academy, and leadership, governance, and policy.

**BL STU 4710: Themes in African Diaspora Folklore (3).** (same as Anthropology [ANTHRO] 4160 and English [ENGLISH] 4710.) Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. 4710 may be repeated for a maximum of six hours with instructor's consent. Prerequisite: junior standing.

**BL STU 4720: Third World Politics (3).** (same as Political Science [POL\_SC] 4720). Comparative, interdisciplinary analysis of the politics of selected states in Southeast Asia, Africa, and Latin America. Special attention given to the problems of political and socioeconomic development. Prerequisites: junior standing or instructor's consent.

**BL STU 4877: Black Studies Abroad (3).** This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture and augment their "global competencies" and course of study across the three Black Studies tracks-History, Culture and Society-as well as support their study and/or career development. Graded A-F basis only.

**BL STU 4972: Undergrad. Seminar in Black Studies: History of Race in the U.S. (3).** Readings on problems in American history with reports and discussion on selected topics. Prerequisite: junior standing, fifteen hours or instructor's consent. Departmental consent for repetition up to a maximum of 6 hours.

**BL STU 4977: Black Studies Capstone (3).** This course is designed to permit students to integrate general and specialized knowledge within the three Black Studies tracks (History, Society, Culture) using an interdisciplinary approach. Topics vary according to instructor and core discipline. Prerequisite: Black Studies [BL\_STU] 2977 and 3977; instructor's consent. Graded on A/F basis only.

## BUSINESS ADMINISTRATION

**BUS AD 3500: Professional Development in Business (3).** Provides an introduction to professional competencies important for success as a business professional. Includes the assessment, communication and development of competencies valued by employers. Prerequisite: Upper level in the TCob

**BUS AD 4500: Professional Development Program - Practicum (3).** This course is designed to help students practice professional core competencies in the workplace. Students will secure a professional-level work experience and apply classroom knowledge and interpersonal skills. This course is a graduation requirement for students seeking the BSBA degree. Prerequisite: Business Administration [BUS AD] 3500. Graded on S/U basis only.

## CARDIOPULMONARY AND DIAGNOSTIC SCIENCE COURSES

**CPD 2190: Medical Terminology (3).** Medical terminology based on a word building system. This course is intended for students majoring in health professions, nursing and other helping professions, pre-med and biology. Prerequisite: sophomore standing.

**CPD 3460: Cardiovascular and Pulmonary Diagnostic Applications I (3).** (same as Radiologic Sciences [RA\_SCI] 3460). Interdisciplinary small group, case-based study of common cardiovascular, pulmonary and other diseases. Pathophysiology,

diagnosis and treatment from the perspective of allied health professionals. Emphasis on critical thinking, teamwork skills.

**CPD 4440: Organization and Administration (3).** (same as Radiologic Science [RA\_SCI] 4440 and Respiratory Therapy [RS\_THR] 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**CPD 4460: Cardiovascular and Pulmonary Diagnostic Applications II (3).** (same as Radiologic Sciences [RA\_SCI] 4460). Interdisciplinary study of cardiac dysrhythmias, MI, stroke. Application of current American Heart Association Advanced Cardiac Life Support (AHA ACLS) algorithms. Successful completion of this course fulfills AHA ACLS Provider requirements.

**CPD 4480: Clinical Ethics (3).** (same as Health Professions [HTH\_PR] 4480) Analysis of clinical situations per ethical principles and decision-making models. Examination of fundamental doctrines and principles for legal and ethical clinical practice and policy. Prerequisites: instructor's consent.

**CPD 4500: Bioterrorism in Healthcare (1).** This course will provide the student with an orientation the principles of disaster management in the community (both state and federal levels) and the acute care facility. Topics include biological agents, allocation of resources and ethical considerations.

**CPD 4840: Asthma Education (2).** This course will provide the student with a multi-faceted approach to caring for the patient with asthma. Topics include pathophysiology, pharmacology, patient/family education, patient assessment and management. Assists students to take the Asthma Educator Credentialing Exam. Restricted to Respiratory Therapy Students.

**CPD 4955: Introduction to Research (3).** (same as Respiratory Therapy [RS\_THR] 4955). An interdisciplinary course designed to promote undergraduate allied health research. Includes identifying and designing research problems through formulating relevant questions, learning to systematically search for answers, and methods for searching the literature.

**CPD 4985: Healthcare Organization and Leadership (3).** (same as Health Professions [HTH\_PR] 4985). In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A/F basis only. Prerequisite: Health Professions [HTH\_PR] 2100.

## CHEMICAL ENGINEERING COURSES

**CH ENG 1000: Introduction to Chemical Engineering (2).** Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations. Prerequisites: Mathematics [MATH] 1500, Chemistry [CHEM] 1320, or concurrently.

**CH ENG 1000H: Introduction to Chemical Engineering - Honors (2).** Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations. Prerequisites: Mathematics [MATH] 1500, Chemistry [CHEM] 1320, or concurrently. Honors eligibility required.

**CH ENG 1320: Chemistry and Chemical Technology I (3).** Covers fundamental principals of chemistry, gases, engineering materials, electrochemistry, and applications with instruction including numerical modeling. May be repeated for credit. Prerequisite: Mathematics [MATH] 1500 or concurrent enrollment. Graded on A/F basis only.

**CH ENG 1330: Chemistry and Chemical Technology II (3).** Covers fundamentals principals of chemistry, gases, engineering materials, electrochemistry, and applications with instruction including numerical modeling. May be repeated for credit. Prerequisite: Chemical Engineering [CH ENG]

1320 or Chemistry [CHEM] 1320 and Mathematics [MATH] 1500. Corequisite: Mathematics [MATH] 1500. Graded on A/F basis only

**CH ENG 2118: Introduction to Energy Technology and Sustainability (3).** An introductory course on energy technology and those resources and practices that allow for sustainable commercialization. Prerequisite: sophomore standing in engineering. Graded on A/F basis only.

**CH ENG 2225: Mass and Energy Balance (3).** Industrial stoichiometry, material and energy balances, thermophysics, thermochemistry; related topics. Prerequisites: Physics [PHYSICS] 2750, Chemistry [CHEM] 2100, or concurrently.

**CH ENG 2226: Engineering Process Computations and Laboratory (3).** Engineering applications of ordinary and partial differential equations, spreadsheets, Matlab, discipline-specific software (Aspen), process simulation, data collection, data regression, and modeling of multiple experimental systems. Pre or Co - requisite: Mathematics [MATH] 1700.

**CH ENG 3234: Principles of Chemical Engineering I (3).** Fluid flow, heat transfer. Prerequisites: grade of C or better in Chemical Engineering [CH\_ENG] 2225.

**CH ENG 3235: Principles of Chemical Engineering II (3).** Mass transfer. Prerequisite: Chemical Engineering [CH\_ENG] 3234.

**CH ENG 3243: Chemical Engineering Laboratory I (3).** Laboratory study of some principal unit operations of chemical engineering. Prerequisite or Co-Requisite: Chemical Engineering [CH\_ENG] 2226 and 3235.

**CH ENG 3261: Chemical Engineering Thermodynamics I (3).** Study of thermodynamics, with particular reference to chemical engineering applications. Prerequisites: grade of C or better in Chemical Engineering [CH\_ENG] 2225.

**CH ENG 3262: Chemical Engineering Thermodynamics II (3).** Prerequisite: Chemical Engineering [CH\_ENG] 3261.

**CH ENG 3307: Chemical Process Safety and Professional Ethics (3).** A course focused on important technical fundamentals of chemical process safety and their application including professional ethics considerations. Prerequisite: Chemical Engineering [CH ENG] 3234, 3261 or instructor's consent. Graded on A/F basis only.

**CH ENG 4001: Topics in Chemical Engineering (3).** Current and new technical developments in chemical engineering. Prerequisite: instructor's consent.

**CH ENG 4085: Problems in Chemical Engineering (2-4).** Directed study of chemical engineering problems. Prerequisite: instructor's consent.

**CH ENG 4220: Hazardous Waste Management (3).** (same as Civil Engineering [CV\_ENG] 4220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous waste, waste minimization, legislation on hazardous wastes and groundwater contamination. Prerequisite: junior standing.

**CH ENG 4226: Engineering Research Calculations and Reporting (3).** Application and analysis of engineering calculations in MS Excel, Matlab, and project-specific software including applications of calculus, experiential learning, and supervised research. Prerequisites: Mathematics [MATH] 4100, must have research advisor define at least one experiment and review at least one report. Graded on A-F basis only.

**CH ENG 4270: Design of Experiments and Statistical Quality Control for Process Engineers (3).** (same as Biological Engineering [BIOL\_EN] 4270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control. Prerequisite: experience with Excel or instructor's consent.

**CH ENG 4306: Advanced Engineering Math (3).** (same as Nuclear Engineering [NU\_ENG] 4306). Applies ordinary and partial differential equations to

engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques. Prerequisite: Mathematics [MATH] 4100.

**CH ENG 4311: Chemodynamics (3).** Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems. Prerequisites: Chemical Engineering [CH\_ENG] 3234 or instructor's consent.

**CH ENG 4312: Air Pollution Control (3).** Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects. Prerequisites: Chemical Engineering [CH\_ENG] 3234 or instructor's consent.

**CH ENG 4315: Introduction to Bioprocess Engineering (3).** (same as Biological Engineering [BIOL\_EN] 4315). This general introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models. Prerequisites: Biological Engineering [BIOL\_EN] 2180 (for Biological Engineering students) or Chemical Engineering [CH\_ENG] 2225 (for Chemical Engineering students) or instructor's consent.

**CH ENG 4316: Biomass Refinery Operations (3).** (same as Biological Engineering [BIOL\_EN] 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery. Prerequisite: Biological Engineering [BIOL\_EN] 2180 or Chemical Engineering [CH\_ENG] 2225 (for Chemical Engineering students) or instructor's consent.

**CH ENG 4317: Chemical Processing in Semiconductor Device (3).** This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed. Mathematics [MATH] 4100/7100.

**CH ENG 4318: Energy Technology and Sustainability (3).** An introductory course on energy technology, resources, practices, and common calculations used for energy analysis. Prerequisite: at least one engineering thermodynamics course or a Physical Chemistry course or instructor's consent. May be repeated for credit.

**CH ENG 4319: Introduction to Polymer Materials (3).** An introduction to the structure and properties of polymers. Solution properties, molecular weight determination and rheological behavior are studied. Manufacturing and processing techniques are considered. Prerequisites: Chemical Engineering [CH\_ENG] 3262 and Chemistry [CHEM] 2110.

**CH ENG 4321: Introduction to Ceramics (3).** Introductory course in ceramics materials, crystal structure, processes and properties. The course content and level of presentation would allow an entry level engineering to be conversant with the terminology and concepts of ceramic science and engineering. Prerequisite: Chemistry and Physics.

**CH ENG 4335: Transport Phenomena (3).** Integrated study of momentum, heat and mass transport. Prerequisites: Chemical Engineering [CH\_ENG] 3235, and Mathematics [MATH] 4100/7100.

**CH ENG 4345: Special Reading in Chemical Engineering (2-5).** Individually supervised special reading leading to an engineering report. Prerequisite: senior standing.

**CH ENG 4363: Chemical Reaction Engineering and Technology (3).** Reactor design and optimization; rate equations; thermal effects in reactor. Prerequisites: Chemical Engineering [CH\_ENG] 2226, 3262, or instructor's consent.

**CH ENG 4370: Process Control Methods and Laboratory (3).** Stat-space modeling, simulation, and

experimental validation; stability analysis; feedback design and experimental studies; methods for disturbance rejection. Prerequisites: Chemical Engineering [CH ENG] 2226.

**CH ENG 4385: Chemical Engineering Design I (3).** The course presents optimum design methods, cost estimation, material selection and other relevant areas for the design of chemical plants. In addition, chemical safety and risk assessment will be covered. Prerequisite: Chemical Engineering [CH ENG] 2226, 3235, 3262, Physics [PHYSICS] 2760, Chemistry [CHEM] 2110.

**CH ENG 4464: Electrochemical Reaction Engineering Science (3).** Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Prerequisite: A course in thermodynamics or physical chemistry; Chemical Engineering [CH ENG] 3261 or Mechanical and Aerospace Engineering [MAE] 2300 or Chemistry [CHEM] 3310 or instructor's consent. Graded on A/F basis only.

**CH ENG 4980: Process Synthesis and Design (3).** Continuation of Chemical Engineering [CH ENG] 4385: application of chemical analysis and modeling to a capstone design project. Prerequisite: Chemical Engineering [CH ENG] 4385.

**CH ENG 4990: Undergraduate Research in Chemical Engineering (2-4).** Directed study of chemical engineering problems. Prerequisite: instructor's consent.

**CH ENG 4995: Undergraduate Research in Chemical Engineering - Honors (3-6).** Individual research for a senior thesis; research is supervised by the chemical engineering faculty. The thesis is to be defended before the departmental Honors committee. Prerequisite: senior standing.

## CHEMISTRY COURSES

**CHEM 1100: Atoms and Molecules with Lab (3).** One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after Chemistry [CHEM] 1310.

**CHEM 1310: General Chemistry I (2).** Introductory course for students with little or no high school background in chemistry. Covers fundamental principles, stoichiometry, solutions, basic atomic structure, gases. No credit if taken after Chemistry [CHEM] 1100. Prerequisites: Mathematics [MATH] 1100/1120 concurrently.

**CHEM 1320: General Chemistry II with Lab (3).** Covers thermochemistry, periodic properties, bonding, liquids, solids. Satisfies laboratory science requirement. Students with good high school backgrounds in chemistry should start with this course. Prerequisites: advanced placement or grade of C- or better in Chemistry [CHEM] 1310; Mathematics [MATH] 1100/1120 or equivalent. Math Reasoning Proficiency Course.

**CHEM 1320H: General Chemistry II with Lab - Honors (4).** Covers thermochemistry, atomic and molecular structures, bonding, intermolecular forces, phases. Satisfies laboratory science requirement. Students with good high school backgrounds in chemistry should start with this course. Prerequisites: advanced placement or grade of C- or better in Chemistry [CHEM] 1310; Mathematics [MATH] 1100 or equivalent. Honors eligibility required. Math Reasoning Proficiency Course.

**CHEM 1330: General Chemistry III with Lab (3).** Continuation of 1320. Covers equilibria, kinetics, electrochemistry, nuclear chemistry. Satisfies requirement for a laboratory science. May be taken concurrently with Chemistry [CHEM] 2100. Prerequisite: grade of C- or better in Chemistry [CHEM] 1320.

**CHEM 1330H: General Chemistry III with Lab - Honors (4).** Continuation of 1320H. Covers equilibria, kinetics, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with Chemistry

[CHEM] 2030 or 2100. Prerequisite: grade of C- or better in Chemistry [CHEM] 1320/1320H. Honors eligibility required.

**CHEM 1500H: Honors Intensive General Chemistry with Lab - Honors (5).** A one-semester, intensive introduction to chemistry for honors-eligible students that takes the place of Chemistry [CHEM] 1320, 1330. Four lectures and one 3-hour lab period per week. Prerequisites: honors eligibility, college algebra and one year of high school chemistry or instructor's consent. Math Reasoning Proficiency Course.

**CHEM 2030: Survey of Organic Chemistry (3).** One-semester introduction to structure and bonding, functional group chemistry, principles of reactivity, reaction mechanisms, the molecules of life. Prerequisite: Grade of C or better in Chemistry [CHEM] 1320 or 1320H or equivalent; CHEM 1330, or 1330 concurrently, strongly recommended.

**CHEM 2100: Organic Chemistry I (3).** First course of a two-semester sequence. Structure and bonding; chemistry of hydrocarbons, alkyl halides, alcohols and ethers; reaction mechanisms; principles of reactivity and synthesis; IR and NMR spectroscopy. Only 1 hour credit if taken after 2030 or equivalent. Prerequisite: grade of C or better in Chemistry [CHEM] 1320 or equivalent; CHEM 1330, or 1330 concurrently, strongly recommended.

**CHEM 2110: Organic Chemistry II (3).** Continuation of Chemistry [CHEM] 2100. Aromatic hydrocarbons, carbonyls, amines; chemistry of carbanions; reactions of polar double bonds; nucleic acids, proteins, carbohydrates and fats. Prerequisite: grade of C or better in Chemistry [CHEM] 2100 or equivalent, or departmental consent.

**CHEM 2130: Organic Laboratory I (2).** Basic lab techniques, functional group manipulations, and short syntheses. Pre-lab and post-lab writing assignments. 1 hour recitation, 3 hours lab per week. Concurrent enrollment in Chemistry [CHEM] 2110 or 2030 highly recommended. No credit for students who have previous organic laboratory credit.

**CHEM 2140: Organic Laboratory II (2).** Continuation of Chemistry [CHEM] 2130. Preparation and identification of organic compounds; application of instrumental techniques. 2 lab sessions, 1 recitation session per week. Prerequisite: grade of C or better in Chemistry [CHEM] 2110 and 2130 or equivalent.

**CHEM 2160H: Honors Organic Chemistry I - Honors (4).** First course of a two-semester sequence. Similar to Chemistry [CHEM] 2100 but with increased depth and breadth; emphasis on preparing science students for research and professional careers. 3 lectures, 1 discussion session per week. Prerequisite: honors eligibility, grade of B or better in Chemistry [CHEM] 1320 or equivalent.

**CHEM 2170H: Honors Organic Chemistry II with Lab - Honors (5).** Continuation of Chemistry [CHEM] 2160H; includes laboratory. Content and structure similar to Chemistry [CHEM] 2120, but with increased depth and breadth. Prerequisites: honors eligibility, grade of B or better in Chemistry [CHEM] 2160H or instructor's permission.

**CHEM 2190H: Honors Organic Chemistry Laboratory - Honors (2).** Preparation and identification of organic compounds; multistep syntheses; application of instrumental techniques, including NMR, FTIR, MS and HPLC. 2 lab sessions, 1 discussion session per week. Prerequisites: honors eligibility, grade of C or better in Chemistry [CHEM] 2170H or equivalent.

**CHEM 2400: Fundamentals of Inorganic Chemistry with Lab (3).** A systematic introduction with laboratory to inorganic and organometallic compounds, reactions, and periodic properties. Prerequisite: grade of C or better in Chemistry [CHEM] 1330.

**CHEM 2950: Undergraduate Research in Chemistry (1-3).** A laboratory research project and/or preparation of compounds with a written final report. Cannot be substituted for other chemistry courses required for a B.S. or B.A. degree. No more than 6 hrs. total credit. Prerequisites: sophomore standing,

2.75 GPA and/or instructor's consent.

**CHEM 3200: Quantitative Methods of Analysis with Lab (4).** Principles and practice of quantitative analysis, including the basic principles of modern instrumental methods. Prerequisite: Chemistry [CHEM] 1330 or 1500H.

**CHEM 3300: Fundamentals of Physical Chemistry (3).** Survey of physical chemistry. Satisfies physical chemistry prerequisite for Biochemistry [BIOCHM] 8430. Prerequisite: Mathematics [MATH] 1700, a course in organic chemistry; Physics [PHYSICS] 1210 and 1220 or Physics [PHYSICS] 2175, or 2176 concurrently.

**CHEM 3310: Physical Chemistry I (3).** Lecture only. Topics include the kinetic theory of gases, chemical kinetics, thermodynamics and chemical equilibrium. Prerequisites: one semester organic chemistry and Physics [PHYSICS] 2175, 2176 and Mathematics [MATH] 2300, or Mathematics [MATH] 2300 concurrently.

**CHEM 3330: Physical Chemistry II (3).** Continuation of Chemistry [CHEM] 3310. Lecture only. Covers wave mechanics, bonding, molecular spectroscopy and statistical mechanics.

**CHEM 3340: Physical Chemistry Laboratory (3).** Prerequisites: Grade of C or better in Chemistry [CHEM] 3200; 3330 or 3330 concurrently.

**CHEM 3700: Undergraduate Seminar in Chemistry (3).** Methods for locating and presenting chemical information, data analysis techniques, professional issues. Prerequisites: Chemistry [CHEM] 1330 or 1500H; Chemistry [CHEM] 2100 or 2160H.

**CHEM 3800: Internship in Chemistry (1-6).** Cannot be substituted for other chemistry courses required for B.S. or B.A. degree. Prerequisites: departmental consent.

**CHEM 3940: Service-Learning in Chemistry (2).** A service-learning community outreach program affording chemistry students with an opportunity to enhance their problem-solving skills. May be repeated once for credit. Satisfies no specific chemistry degree requirements, nor Arts and Science general education requirements. Graded on a S/U basis only. Prerequisites: departmental consent.

**CHEM 4001: Topics in Chemistry- General (cr. arr.).** Organized study designed to broaden the knowledge base of students. Subjects on analytical, inorganic, organic and physical chemistry covered. Prerequisite: departmental consent.

**CHEM 4003: Topics in Chemistry- Natural Science (cr.arr.).** Organized study designed to broaden the knowledge base of students. Subjects on analytical, inorganic, organic and physical chemistry covered. Prerequisite: departmental consent.

**CHEM 4010: Advanced Chemistry Laboratory (3).** Advanced methods for the synthesis and characterization of organic, inorganic, and organometallic compounds. Prerequisite: Chemistry [CHEM] 2400, 2140, or 2190H, 3200, 3330 (or 3330 corequisite).

**CHEM 4050: Problems in Chemistry (cr.arr.).** Individual study under the direction of a faculty member that supplements regular course work. Prerequisite: instructor's consent.

**CHEM 4160: Intermediate Organic Chemistry (3).** Stresses synthetic organic chemistry at an intermediate level. Prerequisite: at least one year organic chemistry.

**CHEM 4170: Medicinal Chemistry (3).** Chemical mechanisms of drug action. Topics include drug metabolism and action, chemical toxicology and medicines, enzyme activity, and specific drug case studies. Prerequisite: Chemistry [CHEM] 2110, or 2170H, 3300 or 3310 or instructor's consent.

**CHEM 4200: Instrumental Methods of Analysis with Lab (3).** Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques. Prerequisites: Chemistry [CHEM] 3200, a semester of physical chemistry.

**CHEM 4280: Environmental Chemistry (3).** Surveys the chemistry of air and water environments;

discusses the chemistry of waste treatment. Prerequisite: 8 hours chemistry including organic and analytical.

**CHEM 4290: Environmental-Toxicological Chemistry (3).** In-depth study of the chemical aspects of current issues dealing with environmental pollutants and toxic chemical substances. Prerequisite: Chemistry [CHEM] 4280 or equivalent.

**CHEM 4400: Inorganic Chemistry (3).** Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases. Prerequisite: one semester Physical Chemistry, second semester concurrently.

**CHEM 4490: Physics and Chemistry of Materials (3).** (same as Nuclear Engineering [NU\_ENG] 4319 and Physics [PHYSICS] 4190 Biological Engineering [BIOL\_EN] 4480). Undergraduate/graduate level course offered every winter semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper. Prerequisite: Physics [PHYSICS] 2760 and Chemistry [CHEM] 1320 or equivalent and instructor's consent.

**CHEM 4600: Introduction to Radiochemistry with Lab (3).** (same as Nuclear Engineering [NU\_ENG] 4391). Introduces application of radio-tracer techniques to chemical research. Prerequisite: Chemistry [CHEM] 1330 or 1500H; and one semester of physical chemistry, or instructor's consent.

**CHEM 4800: Chemistry Teaching Practicum (3).** Provides practical experience teaching introductory chemistry in discussion and laboratory settings. For students pursuing dual degrees in chemistry and secondary education. Prerequisite: senior standing; departmental consent required. For students pursuing simultaneous dual degrees in chemistry and secondary education. Graded on S/U basis only.

**CHEM 4950: Senior Research (3).** A laboratory research project with approved written goals and a final written report. It may be taken twice. Prerequisites: a 2.75 GPA, departmental consent.

**CHEM 4990H: Senior Honors Research I (3).** A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination. Prerequisites: a 3.33 GPA, departmental consent, and approval of project outline. Honors eligibility required.

**CHEM 4991H: Senior Honors Research II (3).** A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination. Prerequisites: a 3.33 GPA, departmental consent, approval of project outline. Honors eligibility required.

## CHINESE COURSES

**CHINSE 1100: Elementary Chinese I (6).** Five hours of classroom instruction, with one hour lab work weekly.

**CHINSE 1200: Elementary Chinese II (6).** Five hours of classroom instruction, with one hour lab work weekly. Prerequisite: C- or better in Chinese [CHINSE] 1100 or equivalent.

**CHINSE 2001: Undergraduate Topics in Chinese-General (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester.

**CHINSE 2005: Undergraduate Topics in Chinese - Humanities (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. No knowledge of Chinese required. No language credit.

**CHINSE 2100: Everyday Spoken Chinese Level I (3).** Reinforces and extends ability to use Chinese language for spoken communication. Studies situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on MU campus. Prerequisite: Chinese

[CHINSE] 1200. Restricted to students enrolled in MU China Study Abroad.

**CHINSE 2160: Intermediate Chinese I Conversation and Composition (3).** Prerequisite: C- or better in Chinese [CHINSE] 1200 or equivalent.

**CHINSE 2310: Chinese Civilization I (3).** Survey of Chinese culture and arts. No knowledge of Chinese is required. No foreign language credit.

**CHINSE 2330: Chinese Language and Culture (3).** Presents information about the development of Chinese language over time, the variety of dialects spoken in China, and around the world. Explores relationship between Chinese language and culture. Considers different genres of Chinese literature. Visits to sites significant to development of Chinese language and literature. Introduction to calligraphy and basic daily Chinese. Must be enrolled in MU China Study Abroad. Sophomore standing required.

**CHINSE 3005: Topics in Chinese - Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing and instructor's consent.

**CHINSE 3085: Problems in Chinese (1-3).** Supervised study in Chinese language and/or culture. Prerequisite: instructor's consent.

**CHINSE 3160: Intermediate Chinese II Conversation and Composition (3).** Continuation of Chinese [CHINSE] 2160. Introduces more complex grammatical constructions and extends ability to use those constructions for written and oral communication. Successful completion of course will enable students to communicate in Mandarin Chinese regarding everyday topics, with a vocabulary of just over 1900 words, and about 380 sentence patterns. Prerequisites: C- or higher in Chinese [CHINSE] 2160, or instructor's consent.

**CHINSE 3170: Everyday Spoken Chinese Level II (3).** For students who have completed 18 credits college-level Chinese. Reinforces and extends ability to use Chinese language for Spoken communication. Class-time spent studying situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on UMC campus. Prerequisite: Chinese [CHINSE] 3160 or consent of instructor. Restricted to students enrolled in the MU China Study Abroad.

**CHINSE 3180: Advanced Chinese I (3).** Improves vocabulary, listening, spoken and written Chinese Skills. Discusses basic cultural ideas. Prerequisite: C- or higher in Chinese [CHINSE] 3160, or equivalent. Graded on A/F basis only.

**CHINSE 3300: Chinese Traditions and Global Integration (3).** Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people. Must be enrolled in MU China Study Abroad. Sophomore standing required.

**CHINSE 3320: Modern and Contemporary Chinese Fiction (in translation) (3).** Studies Chinese fiction from 1920s to 1990s. Preceded by a brief historical survey of Chinese literature. Analyzes works by authors like Lu Xun, Ba Jin, Lao She, Wang Meng and many others of the younger generation. Readings and lectures in English.

**CHINSE 3400: Negotiating Chinese Culture (3).** As political, business, religious, and personal encounters between Chinese and Americans increase, so also does the need for competence in negotiating these cross-cultural interactions. Whether hosting Chinese guests, visiting China for business or as a scholar, or simply trying to understand current events, a clear understanding of cultural differences and similarities can be quite valuable. Students will be introduced to multiple perspective on American and Chinese cultural differences along with narratives of cross-cultural experiences. Course address issues related to American and Chinese cross-cultural communication in five spheres of interaction: political,

religious, business, interpersonal, education. Through related readings, discussions, and structured conversations with Chinese, students will explore how this information and a deeper understanding of Chinese and American culture can be applied to more fruitful and positive cross-cultural interactions in multiple contexts. Prerequisite: sophomore standing or instructor's consent.

**CHINSE 3880: Contemporary Chinese Film (3).** (same as Film Studies [FILM\_S] 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required. Prerequisite: sophomore standing.

## CIVIL ENGINEERING COURSES

**CV ENG 1000: Introduction to Civil Engineering (1).** Introduces various aspects of Civil Engineering practice. May be repeated one time for credit.

**CV ENG 1001: Experimental Course (cr.arr.).** For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

**CV ENG 2001: Experimental Course (cr.arr.).** For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**CV ENG 2080: Introduction to Dynamics (3).** Basic fundamentals of particle and rigid body dynamics; energy and momentum methods. Prerequisite: Engineering [ENGINR] 1200.

**CV ENG 3001: Fundamental Topics in Civil Engineering (1-3).** Special engineering topics for undergraduate students. Prerequisite: instructor's consent.

**CV ENG 3010: Decision Methods for Civil Engineering Design (3).** Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations. Prerequisite: grade of C- or better in English [ENGLSH] 1000. Co-requisite: Engineering [ENGINR] 1200.

**CV ENG 3100: Fundamentals of Transportation Engineering (4).** Covers fundamentals of transportation engineering including geometric design, traffic engineering, pavements, and planning. Prerequisite: grade of C- or better in Engineering [ENGINR] 1100. Corequisite: Civil Engineering [CV\_ENG] 3010.

**CV ENG 3200: Fundamentals of Environmental Engineering (4).** Fundamentals of water quality engineering and water resources, water and wastewater treatment, solid and hazardous and radioactive waste management, air pollution, environmental regulation, and environmental ethics. Prerequisite: grade of C- or better in Chemistry [CHEM] 1320 or equivalent; co-requisite: Civil Engineering [CV\_ENG] 3010.

**CV ENG 3300: Structural Analysis I (4).** Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis. Prerequisites: grade of C- or better in Engineering [ENGINR] 1200 and ENGINR 2200.

**CV ENG 3312: Reinforced Concrete Design (3).** Basic principles of reinforced concrete design. Design of beams for flexure and shear; design of short and slender columns. Prerequisite: Civil Engineering [CV\_ENG] 3300; Corequisite: Civil Engineering [CV\_ENG] 3600.

**CV ENG 3313: Structural Steel Design (3).** Basic principles of structural steel design. Design of beams, axially loaded members, columns, and bolted and welded connections. Corequisites: Civil Engineering [CV\_ENG] 3300 and 3600.

**CV ENG 3400: Fundamentals of Geotechnical**

**Engineering (4).** Detailed study of physical and mechanical properties of soil governing its behavior as an engineering material. Prerequisite: grade of C- or better in Engineering [ENGINR] 2200 and Geology [GEOL] 1150.

**CV ENG 3600: Civil Engineering Materials (4).** Introduces composition, structure, properties, behavior, and selection of civil engineering materials. Prerequisites: grade of C- or better in Engineering [ENGINR] 2200 or instructor's consent; co-requisite: Civil Engineering [CV\_ENG] 3010.

**CV ENG 3700: Fluid Mechanics (3).** Statics and dynamics of fluids, principles of continuity, momentum and energy, pipe flow. Prerequisite: grade of C- or better Physics [PHYSICS] 2750.

**CV ENG 3702: Hydrology (4).** Fundamental concepts of hydrology in engineering; quantitative estimation of stream-flow magnitude and frequency; and open channel flow considerations from stream-flow. Fluid Mechanics lab with lab reports. Prerequisites: grade of C- or better Mathematics [MATH] 2300 and Civil Engineering [CV\_ENG] 3200 and 3700.

**CV ENG 4001: Topics in Civil Engineering (1-3).** Study of current and new technical developments in civil engineering. Prerequisite: instructor's consent.

**CV ENG 4006: Digital Computer Applications in Engineering (3).** Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation, and differential equations. Prerequisites: Mathematical [MATH] 2300

**CV ENG 4008: Risk and Reliability for Civil Engineers (3).** This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems. Prerequisites: grade of C- or better in Civil Engineering [CV\_ENG] 3010 or other introductory probability/statistics course.

**CV ENG 4080: Advanced Surveying (3).** Celestial observations for determination of position; state coordinate systems, precise surveys, introduction to geodetic surveys, principles of photogrammetry. Theory of optical surveying instruments. Prerequisites: Mathematics [MATH] 1500.

**CV ENG 4085: Problems in Civil and Environmental Engineering (2-4).** Directed investigation of civil engineering. Prerequisite: instructor's consent.

**CV ENG 4100: Traffic Engineering (3).** Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination. Prerequisites: grade of C- or better in Civil Engineering [CV\_ENG] 3100.

**CV ENG 4102: Infrastructure Management (3).** Civil infrastructure condition assessment, performance modeling, deterioration processes and models, maintenance and rehabilitation strategies, management techniques, data analysis, management systems, financing, case studies, emerging technologies. Prerequisites: grade of C- or better in Civil Engineering [CV\_ENG] 3100.

**CV ENG 4103: Planning and Geometric Design of Highways (3).** Techniques of highway planning in rural and urban areas. Design of the visible elements of highways. Prerequisites: grade of C- or better in Civil Engineering [CV\_ENG] 3100.

**CV ENG 4104: Pavement Materials and Design (3).** Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements. Prerequisites: grade of C- or better in Engineering [ENGINR] 2200.

**CV ENG 4106: Intelligent Transportation Systems (3).** This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the theory of transportation networks and systems optimization, current implementations of ITS, and practical issues and implications of ITS. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3100.

**CV ENG 4108: Bicycle and Pedestrian**

**Transportation (3).** This course teaches how to integrate pedestrian and bicyclist accommodations into the planning and design of transportation facilities. Topics include bicyclist safety, accommodation at intersections, traffic calming techniques and facility design. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3100.

**CV ENG 4110: Transportation Simulation (3).** Theory and application of simulation in transportation engineering. Prerequisites: grade of C- or better in Civil Engineering [CV\_ENG] 3100.

**CV ENG 4120: Airport Engineering (3).** Airport systems planning, design, and management. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3010.

**CV ENG 4125: Transportation Legal Issues (3).** This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers. Prerequisites: Civil Engineering [CV\_ENG] 3010.

**CV ENG 4130: Transportation Safety (3).** This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems. Prerequisite: Civil Engineering [CV\_ENG] 3010.

**CV ENG 4145: Civil and Environmental Engineering Legal Issues (3).** Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics. Prerequisite: Civil Engineering [CV\_ENG] 3010.

**CV ENG 4155: Transportation Geography (3).** (same as Geography [GEOG] 4850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**CV ENG 4165: Geographic Information Systems I (3).** (same as Geography [GEOG] 4840) Introduces concepts of computer analysis of geographic data and emphasizes the techniques for handling geographic data. Application of computer-based GIS systems in coursework. Prerequisite: Geography [GEOG] 2840 and instructor's consent.

**CV ENG 4175: The Geospatial Science in National Security (3).** (Same as Geography [GEOG] 4130). This course explores the critical contribution of the geospatial sciences in the collection processing, visualization and analysis of geospatial information related to national security. Prerequisite: junior standing or above required; instructor's consent. May be repeated for credit.

**CV ENG 4185: Location Analysis/Site Selection (3).** (same as Geography [GEOG] 4740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. Maybe be repeated for credit.

**CV ENG 4200: Remote Sensing of the Environment (3).** Principles, characteristics and applications of remote sensing in engineering, geosciences, agriculture and environmental projects. Topics: basic concepts, photographic, thermal multispectral and microwave systems, satellite remote sensing and digital image processing. Prerequisites: junior standing.

**CV ENG 4210: Solid Waste Management (3).** Engineering principles involved in generation, handling, collection, transport, processing, and disposal of solid wastes, resource recovery and reuse, legislation on solid wastes and groundwater contamination problems. Prerequisite: junior standing.

**CV ENG 4220: Hazardous Waste Management (3).** (same as Chemical Engineering [CH\_ENG] 4220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**CV ENG 4230: Introduction to Water Quality**

**(3).** Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater. Prerequisite: junior standing.

**CV ENG 4232: Water and Wastewater Treatment Facilities (3).** Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities. Prerequisites: Civil Engineering [CV\_ENG] 4230/7230 or instructor's consent.

**CV ENG 4240: Water Quality Analysis (3).** Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 4230 or instructor's consent.

**CV ENG 4250: Environmental Regulatory Compliance (3).** Systems of water law; provisions of major federal environmental laws and regulations; development of regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**CV ENG 4260: Environmental Public Policy (3).** Engineering and economic aspects of environmental policy. Basic understanding of environmental statutes and case law.

**CV ENG 4270: Environmental Engineering Microbiology (3).** Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers. Prerequisite: senior standing or instructor's consent.

**CV ENG 4285: Pollution Prevention: Applied Engineering for Sustainable Business Practices (3).** Identify, analyze and solve energy, water and raw materials inefficiencies common to industrial processes and facilities. Restricted to Juniors and Seniors. Prerequisites: Physics [PHYSICS] 2760, Mathematics [MATH] 2300, Chemistry [CHEM] 1320, Engineering [ENGINR] 2300 or equivalent. Graded on A-F only basis.

**CV ENG 4290: Hazardous Waste and Aquatic Chemistry (3).** Redox, carbonate chemistry, sorption topics. Innovative processes for hazardous waste treatment.

**CV ENG 4300: Advanced Structural Steel Design (3).** Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3313.

**CV ENG 4302: Prestressed/Advanced Reinforced Concrete (3).** Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. footings. Co-requisite: Civil Engineering [CV\_ENG] 3312.

**CV ENG 4310: Structural Design and Analysis (3).** Design and analysis of building frames and bridges in steel and concrete using case studies. Economic selection of structural type and material. Basic methods of analysis for statically indeterminate structures. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 4300.

**CV ENG 4320: Energy Methods in Mechanics (3).** Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods, approximate solutions methods such as the finite element and finite difference, and eigenvalue problems. Prerequisites: senior or graduate standing required.

**CV ENG 4330: Structural System Design (3).** Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3312 and 3313.

**CV ENG 4350: Matrix Methods of Structural Analysis (3).** An introduction to the fundamentals of

stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDEL and NASTRAN programs to three dimensional structures. Prerequisite: senior standing; grade of C- or better in Civil Engineering [CV\_ENG] 3300.

**CV ENG 4360: Bridge Engineering (3).** Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and Shear and Moment Envelopes. Design of Medium- and Short-Span Girder Bridges based on AASHTO LRFD specs. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3312 and 3313.

**CV ENG 4404: Geotechnical Earthquake Engineering (3).** This course provides an introduction to geotechnical aspects of earthquake engineering. Topics include: basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil liquefaction. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3400 or instructor's consent.

**CV ENG 4406: Geotechnics of Landfill Design (3).** This course will focus on geotechnical and construction aspects in the analysis, design and construction of waste containment facilities (landfills) including expansions of existing facilities. Prerequisite: instructor's consent.

**CV ENG 4410: Foundation Engineering (3).** Subsurface exploration. Design of basic foundation structures, shallow foundations, retaining walls, deep foundations. Prerequisites: grade of C- or better in Civil Engineering [CV\_ENG] 3400.

**CV ENG 4412: Earthwork Engineering and Design (3).** Study of concepts, theories, and design procedures for modern earthwork engineering including: compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3400.

**CV ENG 4500: Introduction to Construction Management (3).** Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques. Prerequisite: junior standing.

**CV ENG 4600: Advanced Mechanics of Materials (3).** (same as Mechanical and Aerospace Engineering [MAE] 4600). Analysis of more complicated problems in stresses, strains. Prerequisite: grade of C- or better in Engineering [ENGINR] 2200.

**CV ENG 4610: Sensors and Experimental Stress Analysis (3).** Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, basic digital signal processing. Electronics and instrumentation circuits. Prerequisite: grade of C- or better in Engineering [ENGINR] 2200 and Physics [PHYSICS] 2760.

**CV ENG 4660: Vibration Analysis (3).** (same as Mechanical and Aerospace Engineering [MAE] 4660). Vibration theory with application to mechanical systems. Prerequisites: grade of C- or better in Civil Engineering [CV\_ENG] 2080 and Mathematics [MATH] 4100.

**CV ENG 4692: Introduction to Structural Dynamics (3).** Theory of structural response to dynamic loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3300.

**CV ENG 4700: Hydraulics of Open Channels (3).** Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves. Prerequisite: grade of C- or better in Civil Engineering [CV\_ENG] 3700.

**CV ENG 4703: Applied Hydrology (3).** Modern methods of applied hydrologic analysis and synthesis of hydrologic records. Prerequisites: grade of C- or better in Civil Engineering [CV\_ENG] 3700 and 3702 or instructor's consent.

**CV ENG 4710: Soil and Water Conservation Engineering (3).** (same as Biological Engineering [BIOL EN] 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures. Prerequisites: Biological Engineering [BIOL EN] 2180 or Civil Engineering [CV\_ENG] 3200 or instructor's consent.

**CV ENG 4720: Watershed Modeling Using GIS (3).** (same as Biological Engineering [BIOL EN] 4350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis. Prerequisites: Biological Engineering [BIOL EN] 2180 or Civil Engineering [CV\_ENG] 3200 or instructor's consent.

**CV ENG 4792: Analysis of Water-Resource Systems (3).** Applies hydrology, hydraulic and sanitary engineering, and economics to water-resource design problems considering man and his environment. Uses methods of systems analysis. Prerequisite: instructor's consent.

**CV ENG 4980: Civil Engineering Systems Design (3).** Design of civil engineering systems. Prerequisite: senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman.

**CV ENG 4990: Undergraduate Research in Civil and Environmental Engineering (1-4).** Independent investigation or project in Civil Engineering. Prerequisites: senior standing in Civil and Environmental Engineering and instructor's consent. May be repeated to 6 hours.

**CV ENG 4995: Research in Civil & Environmental Engineering-Undergraduate Honors (1-3).** Independent project, supervised by the honors advisor, to be presented as a formal written report. Prerequisite: participation in the Civil and Environmental Engineering Departmental Honors Program.

## CLASSICAL HUMANITIES COURSES

**CL HUM 1050: Greek and Latin in English Usage (3).** Influence of Latin and Greek on English vocabulary.

**CL HUM 1060: Classical Mythology (3).** Myths of Greece and Rome in literature and art.

**CL HUM 1060H: Classical Mythology - Honors (3).** Myths of Greece and Rome in literature and art. Honors eligibility required.

**CL HUM 2005: Topics in Classical Humanities (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**CL HUM 2100: Greek Culture (3).** Survey of Greek life and thought. Principal developments in literature, the arts, politics, religion and philosophy, and their influence on Western civilization.

**CL HUM 2100H: Greek Culture - Honors (3).** Survey of Greek life and thought. Principal developments in literature, the arts, politics, religion and philosophy, and their influence on Western civilization. Honors eligibility required.

**CL HUM 2200: Roman Culture (3).** Survey of Roman life and thought. Principal developments in literature, the arts, politics, religion, philosophy, and private life, and their influence on Western Civilization.

**CL HUM 2300: Greek Classics in Translation (3).** Reading in translation and critical study of the most important literary works of the ancient Greek World.

**CL HUM 2300H: Greek Classics in Translation (3).** Reading in translation and critical study of the most important literary works of the ancient Greek world. Honors eligibility required.

**CL HUM 2400: Roman Classics in Translation (3).** Reading in translation and critical study of the most important literary works of the ancient Roman world.

**CL HUM 2940: Service Learning in Classical Studies (1).** Students provide enrichment

programming on the Ancient World at various Columbia Public School sites. Participants must be Classical Studies majors or minors. Graded on A/F basis only. Does not meet Arts and Science general education requirements. Prerequisites: instructor's consent required.

**CL HUM 3000: Foreigners and Dangerous Women in Greek and Latin Literature (3).** (same as Peace Studies [PEA\_ST] 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**CL HUM 3000H: Foreigners and Dangerous Women in Greek and Latin Literature - Honors (3).** (same as Peace Studies [PEA\_ST] 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices. Honors eligibility required.

**CL HUM 3005: Topics in Classical Humanities (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: Classical Humanities [CL\_HUM] 1060, any Classical Humanities [CL\_HUM] 2000 course, or instructor's consent.

**CL HUM 3005H: Topics in Classical Humanities - Honors (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: Classical Humanities [CL\_HUM] 1060, any Classical Humanities [CL\_HUM] 2000 course, or instructor's consent. Honors eligibility required.

**CL HUM 3050: Philosophy Before Socrates (3).** A study of the origin of philosophical thinking in the Ancient Greek world. Topics to be explored include the nature of reality and our knowledge of it, the structure and constituents of the cosmos, human excellence and its relation to morality, political power, and happiness. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any CL\_HUM 2000 level course or instructor's consent.

**CL HUM 3050H: Philosophy Before Socrates - Honors (3).** A study of the origin of philosophical thinking in the Ancient Greek world. Topics to be explored include the nature of reality and our knowledge of it, the structure and constituents of the cosmos, human excellence and its relation to morality, political power, and happiness. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any CL\_HUM 2000 level course or instructor's consent. Honors eligibility required.

**CL HUM 3100: The Age of Pericles (3).** A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities [CL\_HUM] 2000 level course, or instructor's consent.

**CL HUM 3100H: The Age of Pericles - Honors (3).** A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities [CL\_HUM] 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3150: The Age of Augustus (3).** Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities [CL\_HUM] 2000 level course, or instructor's consent.

**CL HUM 3150H: The Age of Augustus - Honors (3).** Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities [CL\_HUM] 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3200: Power and Oratory in Ancient Greece (3).** Concentrates on the rise of oratory in Greece and how oratory was exploited for political

ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities [CL\_HUM] 2000 level course.

**CL HUM 3200H: Power and Oratory in Ancient Greece - Honors (3).** Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities [CL\_HUM] 2000 level course. Honors eligibility required.

**CL HUM 3225: Roman Comedy, Wit and Humor (3).** Study of works illustrating the comedy, wit and humor of the Romans: readings in comedies of Plautus and Terence, Catullus, Ovid's *Metamorphoses*, Petronius' *Satyricon*, Martial, Juvenal and Macrobius. Prerequisites: Classical Humanities [CL\_HUM] 1060, any Classical Humanities 2000 level course or instructor's permission

**CL HUM 3250: Greek and Roman Epic (3).** A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3250H: Greek and Roman Epic - Honors (3).** A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3300: Greek Drama (3).** Reading and interpretation of Greek tragedies and comedies in translation. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3300H: Greek Drama - Honors (3).** Reading and interpretation of Greek tragedies and comedies in translation. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3350: Advanced Mythology (3).** Interpretation of selected classical myths and their influence on later literature and art. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3350H: Advanced Mythology - Honors (3).** Interpretation of selected classical myths and their influence on later literature and art. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3400: Murder and Mayhem: Images of Justice in Classical Antiquity (3).** Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3400H: Murder & Mayhem: Images of Justice in Classical Antiquity - Honors (3).** Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3450: Greek and Roman Characters and Ideals (3).** Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3450H: Greek and Roman Characters and Ideals - Honors (3).** Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3550: War and Democracy in Late 5th c. BCE Athens (3).** (same as Peace Studies [PEA\_ST] 3550). Explores the discourse on war and peace in Athenian texts and art that survives from the last quarter of the 5th century B.C.E. This was a period of relentless warfare: the Athenians were fighting the Spartans, Sparta's allies, unaligned cities and several of their own subject states. Prerequisite: any 2000 level Classical Humanities [CL\_HUM] course.

**CL HUM 3600: The Ancient Novel (3).** Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3600H: The Ancient Novel - Honors (3).** Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background. Prerequisite: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3650: Paganism and Christianity (3).** A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3650H: Paganism and Christianity - Honors (3).** A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3700 Women in the Ancient World (3).** Using classical literary texts as the central focus this course examines the role of women: the conflict inherent in their obligations and their identity in the context of these obligations. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3700H: Women in the Ancient World - Honors (3).** Using classical literary texts as the central focus this course examines the role of women: the conflict inherent in their obligations and their identity in the context of these obligations. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3750: Classics in a Cross-Cultural Context (3).** The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 3750H: Classics in a Cross-Cultural Context - Honors (3).** The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures. Prerequisites: Classical Humanities [CL\_HUM] 1060 or any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 3800: Sports and Spectacles in Greco-Roman Antiquity (3).** Investigates athletic display in ancient Greek and Roman culture, from its earliest representations in Greek literature to the massive spectacles of the Roman empire, with an emphasis on the intersections between sport and spectacle and other areas of ancient cultural life. Prerequisites: Classical Humanities [CL\_HUM] 1060 and 2100 or 2200. Instructor's consent required.

**CL HUM 4005: Topics in Classical Humanities (cr.arr.).** Subjects and earnable credit may vary from semester to semester. Prerequisites: Any Classical Humanities 2000 level course or instructor's consent.

**CL HUM 4100: Greece: From the Bronze Age to the Byzantine Empire (6).** Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Application required. Prerequisite: Any 2000 level or higher course in the Department of Classical Studies (courses on similar subjects in other departments accepted as equivalent); 2.75 overall GPA, Instructor Consent, and Application through MU International Center required. Participants chosen by instructor. Graded on A/F basis only.

**CL HUM 4500: Greek and Roman Religion (3).** (same as Religious Studies [REL\_ST] 4500). Survey of religious development among the Greeks and Romans. Prerequisite: Classical Humanities [CL\_HUM] 1060 or Art History and Archaeology [AR\_H\_A] 1110 or History [HIST] 1520; sophomore standing.

**CL HUM 4500H: Greek and Roman Religion - Honors (3).** (same as Religious Studies [REL\_ST] 4500). Survey of religious development among the Greeks and Romans. Prerequisite: Classical Humanities [CL\_HUM] 1060 or Art History and Archaeology [AR\_H\_A] 1110 or History [HIST] 1520; sophomore standing. Honors eligibility required.

**CL HUM 4550: Literature and Culture of the Hellenistic Age (3).** A survey of the literature and culture of the Hellenistic Age. Prerequisites: any Classical Humanities 2000 level course, or instructor's consent.

**CL HUM 4550H: Literature and Culture of the Hellenistic Age - Honors (3).** A survey of the literature and culture of the Hellenistic Age. Prerequisites: any Classical Humanities 2000 level course, or instructor's consent. Honors eligibility required.

**CL HUM 4600: The Classical Tradition (3).** Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times. Prerequisite: any Classical Humanities 2000 level course or instructor's consent.

**CL HUM 4600H: The Classical Tradition - Honors (3).** Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times. Prerequisite: any Classical Humanities 2000 level course or instructor's consent. Honors eligibility required.

**CL HUM 4650: The World of Late Antiquity (3).** A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage. Prerequisites: any Classical Humanities 2000 level or instructor's consent.

**CL HUM 4650H: The World of Late Antiquity - Honors (3).** A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage. Prerequisites: any Classical Humanities 2000 level or instructor's consent. Honors eligibility required.

**CL HUM 4770: Oral Tradition (3).** (same as English [ENGLSH] 4770). Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the *Iliad* and *Odyssey*, and *Beowulf*). Prerequisite: junior standing and instructor's consent.

**CL HUM 4770H: Oral Tradition - Honors (3).** (same as English [ENGLSH] 4770). Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the *Iliad* and *Odyssey*, and *Beowulf*). Prerequisite: junior standing and instructor's consent. Honors eligibility required.

**CL HUM 4970: Capstone in Classical Humanities (3).** Culminating course in the study of Greek and

Roman literature and Classical Culture. Required for Classical Humanities majors in first term of senior year. Recommended for Classical Humanities double-majors. Prerequisite: instructor's consent.

**CL HUM 4970H: Capstone in Classical Humanities-Honors (3).** Culminating course in the study of Greek and Roman literature and Classical Culture. Required for Classical Humanities majors in first term of senior year. Recommended for Classical Humanities double-majors. Prerequisite: instructor's consent; Honors eligibility required.

#### CLASSICS COURSES

**CLASS 4100: History of the Greek and Latin Languages (3).** (same as Linguistics [LINGST] 4130). Evolution of classical languages and their relationship to each other.

**CLASS 4205: Topics in Classical Studies (cr. arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: departmental consent for repetition.

**CLASS 4300: Introduction to Text Criticism and Paleography (3).** Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library. Prerequisite: 2 years of Greek or Latin or equivalent.

**CLASS 4400: Ancient Pastoral (3).** Reading and interpretation of pastoral poetry and prose in Greek and Latin; emphasis on Theocritus, Virgil, and Longus. Prerequisite: 2 years each of Greek and Latin.

**CLASS 4700: Advanced Study in the Teaching of the Classics (3).** Prerequisites: classroom teaching experience or chairman's consent.

**CLASS 4960: Special Readings in Classical Studies (1-3).** Readings in authors and texts not covered in other courses. Prerequisite: departmental consent.

**CLASS 4970: Capstone in Classical Languages (3).** Culminating course in the study of Greek and Roman literature and Classical culture. Required for Greek, Latin, and Classical Languages majors in first term of senior year. Recommended for double-majors. Prerequisites: 2 years classical Greek, or Latin, or equivalent; junior standing: departmental consent.

**CLASS 4970H: Capstone in Classical Languages (3).** Culminating course in the study of Greek and Roman literature and Classical culture. Required for Greek, Latin, and Classical Languages majors in first term of senior year. Recommended for double-majors. Prerequisites: 2 years classical Greek, or Latin, or equivalent; junior standing: departmental consent. Honors eligibility required.

**CLASS 4995H: Honors Proseminar in Classical Studies (3-6).** Limited to Honors undergraduates. To be taken in senior year. Integrated exploration of classical civilization. May repeat to 6 hours maximum. Prerequisite: limited to Honors undergraduates, to be taken in senior year. Honors eligibility required.

#### CLINICAL LABORATORY SCIENCES COURSES

**CL L S 1000: Orientation to Clinical Laboratory Science (1).** The class is designed to give prospective Clinical Laboratory Science students clinical experience in the field of Clinical Laboratory Science. Prerequisite: Health Professions [HTH\_PR] 1000. Graded on S/U basis only.

**CL L S 4412: Clinical Laboratory Science Theory, Application and Correlation (5).** Application, evaluation and correlation of laboratory procedures used in the diagnosis and treatment of common disease states. Opportunities for building critical thinking, problem solving, and leadership skills are provided in small group clinical case discussions. Prerequisites: departmental approval, accepted into the Medical Technology Program. Course may be repeated for credit. Graded on A/F basis only.

**CL L S 4414: Chemistry I (1-4).** Introduction to theory, practical application, technical performance and evaluation of clinical chemistry laboratory

procedures. Prerequisites: departmental consent, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4415: Chemistry II (3).** Advanced theory, practical application, technical performance and evaluation of clinical chemistry laboratory procedures. Prerequisites: departmental consent, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4416: Clinical Hematology I (1-4).** Introduction to the theory, practical application, technical performance and evaluation of hematological and coagulation procedures. Emphasis on correlations of clinical laboratory data with the diagnosis and treatment of anemia, leukemia, and bleeding/clotting disorders. Prerequisites: departmental consent, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4417: Clinical Hematology II (3).** Advanced theory, practical application, technical performance and evaluation of hematological and coagulation procedures. Emphasis on the correlation of clinical laboratory data with the diagnosis and treatment of anemia, leukemia, and bleeding/clotting disorders. Prerequisites: departmental consent, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4418: Clinical Microbiology I (1-4).** Introduction to the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans. Prerequisites: departmental approval, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4419: Clinical Microbiology II (3).** Advanced theory, practical application, technical performance and evaluation procedures for isolation, identification and susceptibility testing of infectious disease in humans; bacteriology, mycology, parasitology, virology and serology and correlation of data with diagnosis and treatment. Prerequisites: departmental approval, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4420: Clinical Immunology (1).** Theory, practical application, and evaluation of immunological components; principles and methods used to assess immunologically-related disorders, including hypersensitivity reactions, autoimmune, immunoproliferative and immunodeficiency disorders, tumors and transplantations. Prerequisites: departmental approval, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4422: Immunohematology I (1-4).** Introduction to the theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components. Prerequisites: departmental approval, accepted into the Medical Terminology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4423: Immunohematology II (2).** Advanced theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components. Prerequisites: departmental approval, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4424: Phlebotomy (1).** Theory, practical application, technical performance and evaluation of procedures used in collecting, handling and processing blood specimens. Prerequisites: departmental approval, accepted into the Medical Technology Program. May be repeated for credit. Graded on S/U basis only.

**CL L S 4426: Body Fluid Analysis (1).** Theory, practical application, technical performance and evaluation of procedures used in the analysis of urine and other body fluids, including cerebrospinal, synovial, serous, seminal, amniotic and feces.

Prerequisites: departmental consent, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4970: Clinical Laboratory Management I (2).** Theory, practical application and evaluation of laboratory management principles and associated models in communication, educational methodology, healthcare systems and financial resources. Opportunities for building critical thinking, problem-solving, and management/professional leadership skills are provided. Prerequisite: departmental approval, accepted into the Medical Technology Program. May be repeated for credit. Graded on A/F basis only.

**CL L S 4980: Clinical Lab Management II (3).** Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Prerequisite: Clinical Laboratory Sciences [CL\_L\_S] 4970 or departmental consent; accepted into the Medical Technology Program. Graded on A/F basis only.

#### COMMUNICATION COURSES

**COMMUN 1200: Public Speaking (3).** Principles, process of speech communication in small group and public speaking situations. Three lab/lecture meetings per week.

**COMMUN 1200H: Public Speaking - Honors (3).** Principles, process of speech communication in small group and public speaking situations. Three lab/lecture meetings per week. Honors eligibility required.

**COMMUN 2100: Media Communication in Society (3).** An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society. Prerequisite: freshman, sophomore or junior standing only.

**COMMUN 2100H: Media Communication in Society - Honors (3).** An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society. Prerequisite: freshman, sophomore or junior standing only. Honors eligibility required.

**COMMUN 2315: Basic Audio Production and Performance (3).** Radio speaking in varied types of programs; console operations, tape editing, microphone techniques. May be restricted to Communication majors only during early registration.

**COMMUN 2701: Topics in Communication - General (3).** Topics in Communication - General. May be restricted to Communication majors only during early registration.

**COMMUN 2703: Topics in Communication - Behavioral Science (3).** Topics in Communication - Behavioral Science. May be restricted to Communication majors only during early registration.

**COMMUN 2705: Topics in Communication - Humanities/Fine Arts (3).** Topics in Communication - Humanities/Fine Arts. May be restricted to Communication majors only during early registration.

**COMMUN 3050: Survey of Communication Studies (3).** A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication. May be restricted to Communications majors through early registration.

**COMMUN 3100: Controversies in Communication (3).** Analysis of controversial issues in communication like ethics, culture, and new technologies as they apply to different communication contexts (e.g., small groups, public forums, media). Prerequisite: English [ENGLISH] 1000. May be restricted to Communication majors only during early registration.

**COMMUN 3310: Message Design and Writing for the Media (3).** Styles and functions of various script formats for radio, television productions. Prerequisites: Communication [COMMUN] 2100. May be restricted to Communication majors only during early registration.

**COMMUN 3315: Advanced Audio Production (3).** The study and application of techniques applicable to radio, television, and multimedia production with an emphasis on digital audio workstation systems. Prerequisite: Communication [COMMUN] 2315. May be restricted to Communication majors only during early registration.

**COMMUN 3390: Television Studio Production (3).** Operation of television studio production equipment; processes and procedures of producing and directing. Prerequisites: sophomore standing and Communication [COMMUN] 2100. May be restricted to Communication majors only during early registration.

**COMMUN 3395: Television Field Production (3).** Field production from concept to finished product for TV and web based video. Focus on visual and aural aesthetics, camera operation, non-linear editing, lighting, and directing in the field. Prerequisites: Communications [COMMUN] 3390 and junior standing. May be restricted to Communication majors only during early registration.

**COMMUN 3422: Communication Research Methods (3).** Focuses on writing and administering surveys, conducting field research, and designing experimental studies. Prerequisites: sophomore standing and Communication [COMMUN] 1200. May be restricted to Communication majors only during early registration.

**COMMUN 3441: Nonverbal Communication (3).** Analysis of form and content of nonverbal communication. Emphasis on role of nonverbal cues in interpersonal communication. Prerequisite: sophomore standing and Communication [COMMUN] 1200. May be restricted to Communication majors only during early registration.

**COMMUN 3460: Organizational Advocacy (3).** Theory and analysis of communication to promote organizational culture and image. Prerequisite: sophomore standing. May be restricted to Communication majors during early registration.

**COMMUN 3470: Culture as Communication (3).** (same as Anthropology [ANTHRO] 3470, Linguistics [LINGST] 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction. Prerequisites: sophomore standing. May be restricted to Communication majors only during early registration.

**COMMUN 3490: Mass Media Theory (3).** Survey of the theories of mass communication. Prerequisites: Communication [COMMUN] 2100 or senior status. May be restricted to Communication majors only during early registration.

**COMMUN 3525: Conflict and Communication (3).** Theory and analysis of communication in conflict situations across a variety of contexts. Prerequisite: sophomore standing required. May be restricted to Communication majors only during early registration.

**COMMUN 3561: Relational Communication (3).** Analysis of communication influences on relational identities and development. Prerequisite: sophomore standing and Communication [COMMUN] 1200. May be restricted to Communication majors only during early registration.

**COMMUN 3570: Performance of Literature (3).** (same as English [ENGLSH] 3570 and Theatre [THEATR] 3200). Analysis and oral interpretation of literary works. Graded on A/F basis only. Prerequisite: sophomore standing.

**COMMUN 3571: Group Decision Making Processes (3).** (same as Peace Studies [PEA\_ST] 3521). Procedures and techniques for interpersonal communication and decision making in small groups. Prerequisite: sophomore standing. May be restricted to Communication majors only during

early registration.

**COMMUN 3572: Argument and Advocacy (3).** Critical analysis and production of argument emphasizing evidence, reasoning, and refutation. Prerequisite: Communication [COMMUN] 1200. May be restricted to Communication majors only during early registration.

**COMMUN 3575: Business and Professional Communication (3).** Principles and practice of speech communication in business and professional settings. Emphasis on interviews, group conferences and personal presentations. Prerequisite: sophomore standing and Communication [COMMUN] 1200. May be restricted to Communication majors only during early registration.

**COMMUN 3580: Crisis Communication (3).** The theory and practice of corporate and political communication responses to crisis situations. Prerequisite: sophomore standing. May be restricted to Communication majors only during early registration.

**COMMUN 3636: Contemporary Issues in Mass Communication (3).** Introduction to current issues and trends and relationship among the new technologies, policies, and potential impact on society. Prerequisites: sophomore standing and Communication [COMMUN] 2100. May be restricted to Communication majors only during early registration.

**COMMUN 3701: Topics in Communication-General (3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: Communication [COMMUN] 1200, 2100, departmental consent for repetition. May be restricted to Communication majors only during early registration.

**COMMUN 3703: Topics in Communication-Behavioral Sciences (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition. May be restricted to Communication majors only during early registration.

**COMMUN 3705: Topics in Communication-Humanities (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition. May be restricted to Communication majors only during early registration.

**COMMUN 4395: Professional Seminar in Television Production (3).** Application of principles to advanced television production, direction. Prerequisites: Communication [COMMUN] 3390 and instructor's consent. May be restricted to Communication majors only during early registration.

**COMMUN 4412: Gender, Language, and Communication (3).** (same as Linguistics [LINGST] 4412 and Anthropology [ANTHRO] 4412). Relationship among gender, language, nonverbal communication, and culture. Prerequisite: junior standing or departmental consent. May be restricted to Communication majors only during early registration.

**COMMUN 4415: Language and Discourse (3).** (same as Linguistics [LINGST] 4415). Analysis of the rules of social interaction and the functions of language in discourse. Prerequisites: junior standing and departmental consent. May be restricted to Communication majors only during early registration.

**COMMUN 4440: Ethical Issues in Communication (3).** (same as Peace Studies [PEA\_ST] 4400). Exploration and analysis of ethical dimensions intrinsic to human communication. Prerequisite: junior standing or departmental consent. May be restricted to Communication majors only during early registration.

**COMMUN 4473: Political Communication (3).** Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and praxis. Prerequisite: junior standing or departmental consent. May be restricted to Communication majors only during early registration.

**COMMUN 4474: Theory and Research in Persuasion (3).** Studies the persuasive process, attitude formation, modification. Prerequisites: junior standing and Communication [COMMUN] 1200. May be restricted to Communication majors only during early registration.

**COMMUN 4476: Organizational Communication (3).** Theories of communication systems and processes in organizational structures; study of communication behavior in formal and informal organizational settings. Prerequisites: junior standing and Communication [COMMUN] 1200. May be restricted to Communication majors only during early registration.

**COMMUN 4481: Principles of Rhetoric (3).** Development of rhetoric from time of Corax with emphasis on Aristotle; derivation, application of standards for judging effectiveness in communication. Prerequisites: Communication [COMMUN] 1200, junior standing and departmental consent. May be restricted to Communication majors only during early registration.

**COMMUN 4520: Family Communication (3).** (same as Human Development and Family Studies [H\_DF] 4680). Analysis of the functions and processes of communication within families. Prerequisite: junior standing or departmental consent. May be restricted to Communication majors only during early registration.

**COMMUN 4618: Television Program Analysis and Criticism (3).** Development of critical viewing skills including analysis of program conventions, genres, and television aesthetics. Prerequisites: junior standing. May be restricted to Communication Majors only during early registration.

**COMMUN 4628: Children, Adolescents and the Media (3).** Focus on social scientific research concerning the mass media in the lives of children and adolescents. The course centers on media effects literature and controversies relevant to child and adolescent media users. Course involves readings, lectures, discussions of theories, concepts, methods, and finding. We will also consider social implication and personal choices in media use. Junior Standing Required. Graded on A-F basis only.

**COMMUN 4638: New Technologies and Communication (3).** Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge. Prerequisite: junior standing or instructor's consent. May be restricted to Communication Majors only during early registration.

**COMMUN 4701: Topics in Communication-General (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition. May be restricted to Communication majors only during early registration.

**COMMUN 4703: Topics in Communication-Behavioral Science (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition. May be restricted to Communication majors only during early registration.

**COMMUN 4705: Topics in Communication-Humanities (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition. May be restricted to Communication majors only during early registration.

**COMMUN 4940: Internship (cr.arr.).** Directed professional experience within and outside the University in communication-related fields or organizations. Graded on S/U basis only. Prerequisites: Admission to department, junior standing, instructor's consent, 2.5 GPA.

**COMMUN 4960: Directed Reading (cr.arr.).** Independent reading, reports. Prerequisites: junior standing or instructor's consent.

**COMMUN 4974: Senior Project (3).** Integration and adaptation of communication theories to an applied communication problem. Required for all majors. Prerequisite: admission to department, senior standing, and departmental consent.

**COMMUN 4975: Visual Literacy (3).** Integration of theory and practice. The theoretical component of the class is grounded in the study of visual literacy and the practice component will focus on documentary filmmaking. Prerequisite: Communication [COMMUN] 3390, senior standing. May not be taken by graduate students. It is a capstone course for undergraduate students only. Prerequisite: Admission to the department.

**COMMUN 4996H: Honors in Communication (1-2).** Special work for Honors candidates in communication. Consent of instructor required.

**COMMUN 4997: Honors in Communication (2).** Special work for Honors candidates in communication.

**COMMUN 4997H: Honors in Communication (1-2).** Special work for Honors candidates in communication. Consent of Instructor Required.

#### COMMUNICATION SCIENCE/DISORDER COURSES

**C S D 1000: Introduction to Communication Science and Disorders (1).** Nature of communication and its development; types of speech, language and hearing disorders; professional preparation, settings, and work of speech-language pathologists and audiologists. Course graded on S/U basis only.

**C S D 1060: Human Language (3).** (same as Anthropology [ANTHRO] 1060, Linguistics [LINGST] 1060 and English [ENGLISH] 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**C S D 1100: American Sign Language I (5).** Introduction to American Sign Language (ASL). Development of basic expressive and receptive skills in ASL, the manual alphabet, numbers, and signed vocabulary. Includes an overview of ASL syntax and grammar. Course graded on A/F basis only.

**C S D 1110: Manual Communication I (3).** Introduction to the English-based sign system, Signed English, a system that has been developed to bridge the gap between English and American Sign Language. Offered on a S/U basis only.

**C S D 2120: Survey of Communication Disorders (3).** Systematic survey of the disorders of speech, language and hearing.

**C S D 3010: American Phonetics (3).** (Same as Linguistics [LINGST] 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**C S D 3020: Normal Language Development (3).** (same as Psychology [PSYCH] 3810). Language development in children and changes in language processing during normal aging. Cognition and language; language learning processes; language sample analysis; relationship between spoken and written language. Prerequisites: Psychology [PSYCH] 2410 or 3140, or Linguistics [LINGST] 4600.

**C S D 3210: Anatomy and Physiology of the Speech Mechanism (2).** (same as Linguistics [LINGST] 3210). Introduction to anatomical and functional aspects of the speech mechanism. Prerequisite: must be taken concurrently with Communication Science and Disorders [C\_S\_D] 3220; CSD majors only or instructor's consent.

**C S D 3220: Speech Acoustics (2).** (same as Linguistics [LINGST] 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems. Prerequisites: Must be taken concurrently with Communication Science and Disorders [C\_S\_D] 3210; CSD majors only or instructor's consent.

**C S D 3230: Hearing Science (3).** Introduction to the nature of sound and its measurement; anatomy and physiology of the auditory and vestibular systems; psychoacoustic methods and phenomena.

**C S D 4001: Topics in Communication Science and Disorders (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with program consent. Prerequisites: junior standing and instructor's consent.

**C S D 4020: Language Disorders in Children (3).** Overview of language disorders from early childhood through adolescence. Includes language disorders as primary disability and as secondary to other disabilities. Introduction to assessment and intervention. Prerequisites: Communication Science and Disorders [C\_S\_D] 2120, 3020, Linguistics [LINGST] 4600. Communication Science and Disorder majors only.

**C S D 4030: Language Disorders of Adults (2).** Introduction to acquired adult language disorders. Review of neuroanatomy/physiology, etiology and symptomatology, with introduction to assessment and treatment procedures. Prerequisites: Communication Science and Disorders [C\_S\_D] 2120, 3020, 4430, and Linguistics [LINGST] 4600 or instructor's consent.

**C S D 4200: Professional Voice (2).** Voice production, common voice problems and their causes; healthy vocal habits and techniques to achieve optimal voice. Communication Science and Disorders students may not take for graduate credit.

**C S D 4210: Fluency Disorders (2).** Introduction to the nature, assessment, and treatment of fluency disorders. Emphasis on developmental stuttering. Prerequisite: Communication Science and Disorders [C\_S\_D] 2120, 3210.

**C S D 4220: Voice Disorders (1).** Introduction to voice disorders in children and adults. Includes overview of perceptual and instrumental assessment procedures and selected treatment approaches. Prerequisites: Communication Science and Disorders [C\_S\_D] 2120, 3010, 3210, 4430.

**C S D 4320: Disorders of Phonology and Articulation (3).** Overview of disorders of use and production of speech sounds with an emphasis on developmental disorders. Introduction to assessment and treatment. Prerequisites: Communication Science and Disorders [C\_S\_D] 2120, 3010, 3020, 3210. Communication Science and Disorders majors only.

**C S D 4330: Introduction to Audiology (3).** Principles and techniques of audiological testing; etiologies of hearing impairment; current technologies in rehabilitation. Prerequisites: Communication Science and Disorders [C\_S\_D] 3230; CSD majors only or instructor's consent.

**C S D 4340: Aural Rehabilitation (3).** Identification, evaluation, and management of problems associated with hearing impairment in both children and adults. Includes issues related to speech/language development, communication, education, and social factors. Prerequisites: Communication Science and Disorders [C\_S\_D] 3230 and 4330.

**C S D 4430: Neurophysiology for Speech, Language, and Hearing (3).** Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system. Prerequisites: CSD majors only or instructor's consent.

**C S D 4810: Psycholinguistics (3).** (same as Linguistics [LINGST] 4810). Examination of the knowledge and processes that underlie the human ability to produce and understand language. Prerequisite: instructor's consent.

**C S D 4820: Speech Perception (3).** (same as Linguistics [LINGST] 4820). Selected topics in the perceptual processing of speech sounds and spoken language. Prerequisite: instructor's consent.

**C S D 4830: Individual Differences in Language Processing (2).** Examination of the normal variations exhibited across individuals in the acquisition, use, and representation of language. Also considered are individual differences seen in second language learning, the aging process, and language disorders.

Prerequisite: instructor's consent.

**C S D 4840: Language and Development in Infancy (3).** Overview of theory and research on the foundations and development of language in infancy (0 to 2 years), with an emphasis on relevant, inter-related areas of development, individual differences, early recognition of delay, and assessment. Senior Standing Required. Instructor's consent required.

**C S D 4900: Clinical Observation in Communication Disorders (1).** Directed clinical observations designed to prepare the student for clinical practicum. Repeated for a total of 2 credit hours Graded on a S/U basis only. Prerequisite: senior standing and departmental consent. Communication Science and Disorders [C\_S\_D] majors only.

**C S D 4945: Clinical Apprenticeship in Communication Disorders (1-3).** Supervised observation and clinical experience in speech-language pathology for undergraduates. Communication Science and Disorders majors only. Prerequisite: senior standing and departmental consent.

**C S D 4950: Research Apprenticeship (cr.arr.).** Research apprenticeship with a faculty member, assisting in the development and execution of research in communication processes and disorders. May be repeated to 6 hrs. maximum. Prerequisite: instructor's consent.

**C S D 4960: Directed Reading in Communication Science and Disorders (1-3).** Independent reading; reports. Prerequisite: instructor's consent.

#### COMPUTER SCIENCE COURSES

**CMP SC 1000: Introduction to Computer Science (1).** This course introduces the Computer Science field, including the history of computers, career opportunities, and ethical/social issues. There will be lectures given by MU Computer Science faculty to discuss exciting fields as well as career advisement given by Computer Science industry representatives. Restricted to freshman/sophomore Computer Science [CMP\_SC]/ Information Technology [INFOTC] majors.

**CMP SC 1001: Topics in Computer Science (cr.arr.).** Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**CMP SC 1040: Introduction to Problem Solving and Programming (3).** An introduction to problem solving methods and programming concepts, providing experience in designing, developing, implementing, and testing programs. Cannot be taken for credit after Computer Science [CMP\_SC] 1050.

**CMP SC 1050: Algorithm Design and Programming I (3).** This course provides experience in developing algorithms, designing, implementing programs. Topics include syntax/semantics, flow control, loops, recursion, I/O, arrays, strings and pointers. Prerequisites: Mathematics [MATH] 1100 and Computer Science [CMP\_SC] 1040 (C- or better) or passing entrance exam. Math Reasoning Proficiency Course.

**CMP SC 2001: Topics in Computer Science (cr.arr.).** Topic and credit may vary from semester to semester. May be repeated upon consent of department. Prerequisite: departmental consent.

**CMP SC 2050: Algorithm Design and Programming II (3).** A study of fundamental techniques and algorithms for representing and manipulating data structures. Topics include data abstraction, recursion, stacks, queues, linked lists, trees, efficient methods of sorting and searching, and Big-O analysis. Prerequisite: Computer Science [CMP\_SC] 1050.

**CMP SC 2111: Production Languages (1-3).** The study of the syntax, semantics, and applications of one programming language suitable for large scale scientific or commercial projects, such as FORTRAN, COBOL, PL/1, C, or ADA. May be taken more than once for credit. Prerequisite: Computer Science [CMP\_SC] 2050.

**CMP SC 2830: Introduction to the Internet, WWW and Multimedia Systems (3).** This course will attempt to provide a comprehensive

understanding of the evolution, the technologies, and the tools of the Internet. In particular, issues pertaining to the World Wide Web and Multimedia (HTML, CGI, Web based applications) will be discussed in detail. Prerequisites: Computer Science [CMP\_SC] 2050.

**CMP SC 3001: Topics in Computer Science (cr. arr.).** Current and new technical developments in computer science. For juniors and seniors. Prerequisite: departmental consent. May be repeated for 6 hours credit.

**CMP SC 3050: Advanced Algorithm Design (3).** This class surveys fundamental algorithms and data structures that have wide practical applicability, including search trees and graph algorithms. Emphasis is placed on techniques for efficient implementation and good software development methodologies. Prerequisites: Computer Science [CMP\_SC] 2050.

**CMP SC 3270: Introduction to Digital Logic (3).** Basic tools, methods and procedures to design combinational and sequential digital circuits and systems, including number systems, boolean algebra, logic minimization, adder design, memory elements, and finite state machine design. Prerequisites: Computer Science [CMP\_SC] 2050.

**CMP SC 3280: Assembly Language and Computer Organization (3).** Introduces microcontroller-based systems, programming concepts, subroutines, bus control, input-output transfers, and interrupts. Prerequisite: Computer Science [CMP\_SC] 3270. Graded on A/F basis only.

**CMP SC 3330: Object Oriented Programming (3).** This course focuses on object-oriented programming concepts: abstraction, polymorphism, encapsulation, inheritance, interfaces, abstract classes, files, streams, and object serialization. Topics such as GUI and event-driven programming are also tackled. Prerequisite: Computer Science [CMP\_SC] 2050.

**CMP SC 3380: Database Applications and Information Systems (3).** Covers fundamental topics of database management systems (DBMS) and database-enabled applications. Topics include a brief history of secondary storage and databases, data modeling, introductory SQL, an overview of current database trends, and current popular database systems. Prerequisite: Computer Science [CMP\_SC] 2050. Graded on A/F basis only.

**CMP SC 3530: UNIX Operating System (3).** Introduction to the UNIX operating system and its interfaces including the file system, shell, editors, pipes and filters, input/output system, shell programming, program development including C, and document preparation. Prerequisite: Advanced C programming experience.

**CMP SC 3940: Internship in Computer Science (1-3).** Computer-related experience in business or industry jointly supervised by faculty and computer professionals. Students should apply one semester in advance for consent of the supervising professor. Prerequisite: Computer Science [CMP\_SC] 2050. Graded on a S/U basis only.

**CMP SC 4001: Topics in Computer Science (cr. arr.).** Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**CMP SC 4050: Design and Analysis of Algorithms I (3).** This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied. Prerequisite: Computer Science [CMP\_SC] 3050 and Mathematics [MATH] 2320.

**CMP SC 4060: String Algorithms (3).** This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms. Prerequisite: Computer Science [CMP\_SC] 4050. Graded on A/F basis only.

**CMP SC 4070: Numerical Methods for Science and Engineering (3).** Introduces basic numerical

methods widely used by computer scientists/engineers. Students will use the MATLAB platform to computationally solve problems, such as finding roots of nonlinear equations, solving systems of equations, fitting curves, solving ODEs, finding eigenvalues, etc. Prerequisites: Computer Science [CMP\_SC] 2050, junior standing or instructor's consent. Graded on A/F basis only.

**CMP SC 4085: Problems in Computer Science (1-6).** Independent investigation or project in Computer Science. Prerequisite: senior standing in Computer Science. May be repeated to up 6 hours.

**CMP SC 4270: Computer Architecture I (3).** Architectural features of high-performance computer systems including hierarchical and virtual memory, pipelining, vector processing and an introduction to multiple-processor systems. Prerequisites: Computer Science [CMP\_SC] 3270.

**CMP SC 4320: Software Engineering I (3).** Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition. Prerequisite: Computer Science [CMP\_SC] 2050. Co-requisite: Computer Science [CMP\_SC] 3380.

**CMP SC 4330: Object Oriented Design I (3).** Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and information hiding. Students will apply techniques using a modern object-oriented implementation language. Enrollment limited to undergraduate students only. Prerequisite: Computer Science [CMP\_SC] 2050.

**CMP SC 4380: Database Management Systems I (3).** Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL. Prerequisite: Computer Science [CMP\_SC] 3380.

**CMP SC 4410: Theory of Computation I (3).** An introductory study of computation and formal languages by means of automata and related grammars. The theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward Computer Science MS/PHD. Prerequisite: Mathematics [MATH] 2320.

**CMP SC 4430: Compilers I (3).** Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for block structured languages, and run-time storage organization. May not be counted toward Computer Science MS/PHD. Prerequisite: Mathematics [MATH] 2320.

**CMP SC 4450: Principles of Programming Languages (3).** An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward Computer Science MS/PHD. Prerequisite: Computer Science [CMP\_SC] 2050.

**CMP SC 4520: Operating Systems I (3).** Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file systems, I/O systems, security and protection, and distributed operating systems. Prerequisites: Computer Science [CMP\_SC] 3050 and Mathematics [MATH] 1700.

**CMP SC 4610: Computer Graphics I (3).** Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms. Prerequisites: Computer Science [CMP\_SC] 3050 and Mathematics [MATH] 1500 or 1300 and 1400.

**CMP SC 4620: Physically Based Modeling and Animation (3).** This course introduces students to physically based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students. Graded on A/F basis only. Prerequisites: Computer Science [CMP\_SC] 4610, good knowledge of C or C++ programming, no physics background necessary.

**CMP SC 4650: Digital Image Processing (3).** (same as Electrical and Computer Engineering [ECE] 4850). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation. Prerequisites: Computer Science [CMP\_SC] 2050, Statistics [STAT] 4710 or instructor's consent.

**CMP SC 4670: Digital Image Compression (3).** (same as Electrical and Computer Engineering [ECE] 4675) Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding. Prerequisite: Computer Science [CMP\_SC] 2050.

**CMP SC 4720: Introduction to Machine Learning and Pattern Recognition (3).** (Same as Electrical Engineering [ECE] 4720) This course provides foundations and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Prerequisite: Computer Science [CMP\_SC] 2050 and Statistics [STAT] 4710 or instructor consent. Graded on A/F basis only.

**CMP SC 4730: Building Intelligent Robots (4).** (same as Electrical and Computer Engineering [ECE] 4340). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Prerequisites: junior standing and programming experience in one of the following programming languages: Basic, C, C++, or Java.

**CMP SC 4750: Artificial Intelligence I (3).** Introduction to the concepts and theories of intelligent systems. Various approaches to creating intelligent systems, including symbolic and computational approaches, insight into the philosophical debates important to understanding AI. Prerequisite: Computer Science [CMP\_SC] 3050 and junior standing.

**CMP SC 4770: Introduction to Computational Intelligence (3).** (same as Electrical and Computer Engineering [ECE] 4870). Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**CMP SC 4830: Science and Engineering of the World Wide Web (3).** This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies. Prerequisites: Computer Science [CMP\_SC] 2830.

**CMP SC 4850: Computer Networks I (3).** Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks. Prerequisite: Computer Science [CMP\_SC] 3270 and Mathematics [MATH] 2320.

**CMP SC 4860: Network Security (3).** Principles and practice of cryptography, network security, and computer system security. It includes symmetric and asymmetric cryptography, authentication, security

applications such as secure email, IP security, Web security, and system security issues such as intruders, viruses, worms, Trojan horses, and firewalls. Graded on A/F basis only. Prerequisite: Computer Science [CMP\_SC] 4850.

**CMP SC 4870: Wireless and Mobile Networks (3).** Concepts and techniques in wireless and mobile networks: cellular concepts, wireless physical layer, wireless MAC protocol, mobility management, power management, wireless network security, wireless telecommunication system, wireless LAN, wireless ad hoc networking, wireless personal area network. Prerequisite: Computer Science [CMP\_SC] 4850. Graded on A/F basis only.

**CMP SC 4970: Senior Capstone Design I (3).** Design projects emphasizing team work, communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports. Prerequisites: Computer Science [CMP\_SC] 4320 and senior standing.

**CMP SC 4980: Senior Capstone Design II (2).** Course entails completion of Computer Science [CMP\_SC] 4970 design project. Design prototyping, testing, evaluation, presentation, and preparation of documentation. Prerequisite: Computer Science [CMP\_SC] 4970.

**CMP SC 4990: Undergraduate Research in Computer Science (0-6).** Independent investigation or project in Computer Science. Prerequisite: senior standing in Computer Science. May be repeated to 6 hours.

**CMP SC 4995: Undergraduate Research in Computer Science - Honors (1-6).** Independent investigation to be presented as an undergraduate honors thesis. Prerequisite: honors student in Computer Science.

## DIAGNOSTIC MEDICAL ULTRASOUND COURSES

**DMU 1000: Introduction to Diagnostic Medical Ultrasound (1).** Introduction to the profession of diagnostic medical ultrasound. Imaging characteristics, educational requirements, professional trends. Observation opportunities. Graded on S/U basis only.

**DMU 4001: Topics in Diagnostic Medical Ultrasound (cr.arr.).** Organized study of selected topics in medical ultrasound. Topics may vary. Graded on A/F basis only. May be repeated for credit. Prerequisites: restricted to Diagnostic Medical Ultrasound undergraduate students; program director's consent.

**DMU 4085: Problems in Diagnostic Medical Ultrasound (cr.arr.).** Independent study leading to a special project or paper. Graded on A/F basis only. May be repeated for credit. Prerequisites: restricted to Diagnostic Medical Ultrasound undergraduate students only; program director's consent.

**DMU 4200: Principles of Diagnostic Medical Ultrasound (3).** Principles and history of ultrasound, ultrasound equipment, sonographic techniques, aspects of patient care. Prerequisites: departmental consent.

**DMU 4234: Clinical Pathophysiology (3).** Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**DMU 4309: Normal Ultrasound Clinical (5).** Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4312, 4313 and 4315; instructor's consent.

**DMU 4311: Pathological Images of Ultrasound (3).** Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4200, 4312 and 4315; instructor's consent.

**DMU 4312: Sectional Anatomy (3).** (same as Radiological Science [RA\_SCI] 4110). A study of human

anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Prerequisite: instructor's consent.

**DMU 4313: Ultrasound Physics (3).** Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics. Prerequisites: Mathematics [MATH] 1100, Chemistry [CHEM] 1100 or 1320, Physics [PHYSICS] 1210, and departmental consent.

**DMU 4314: Abdominal Ultrasound (5).** Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4312, 4309 and 4311; instructor's consent.

**DMU 4315: Ultrasound Instrumentation (3).** Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety. Prerequisite: Diagnostic Medical Ultrasound [DMU] 4200; instructor's consent.

**DMU 4318: Gynecology Ultrasound (3).** Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4312, 4309 and 4311.

**DMU 4320: Obstetrics Ultrasound (3).** Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4312, 4309 and 4311; instructor's consent.

**DMU 4322: Superficial Organs Ultrasound (3).** Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4312, 4309 and 4311; instructor's consent.

**DMU 4325: Ultrasound Clinical Pharmacology and Contrast Agents (3).** Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in Diagnostic Medical Ultrasound and their pharmacodynamics.

**DMU 4326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics (3).** Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4313 and 4315; instructor's consent.

**DMU 4330: Vascular Ultrasound Lab (3).** Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting. Prerequisite: Diagnostic Medical Ultrasound [DMU] 4312, and 4326; instructor's consent.

**DMU 4332: Vascular Ultrasound (4).** Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4312, 4311, 4322, and 4326 or instructor's consent.

**DMU 4338: Cardiac Ultrasound, Principles and Hemodynamics (3).** Study of cardiac ultrasound fundamentals including: wave characteristics, principles of 2-D/3-D/4-D imaging, M-mode, and Doppler, cardiac anatomy and physiology, embryology, evaluation methods and hemodynamics. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4313, 4315, instructor's consent. Graded on A/F basis only.

**DMU 4342: Adult Cardiac Ultrasound (5).** Provides principles of diagnostic adult cardiac ultrasound in relation to pathology, further presenting the practical aspects of scanning techniques, exam critique, patient care in relation to cardiac US exams. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4313, 4315 and 4338. Instructor's permission required. Graded A-F only.

**DMU 4941: Ultrasound Clinical I (7).** Application of medical ultrasound in supervised clinical settings.

Decisions regarding diagnosis, patient handling and imaging. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4312, 4309 and 4311 and instructor's consent.

**DMU 4943: Ultrasound Clinical III (6).** Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies. Prerequisite: Diagnostic Medical Ultrasound [DMU] 4993 and instructor's consent.

**DMU 4944: Vascular Ultrasound Clinical IV (7).** Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing. Prerequisite: Diagnostic Medical Ultrasound [DMU] 4326 and instructor's consent.

**DMU 4945: Cardiac Ultrasound Clinical V (6).** Application of ultrasonography in real clinical settings for learning, practicing and decision making regarding, patient handling and imaging process with students supervised in a clinical setting. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4313, 4315, 4944. Instructor and Departmental permission required. Graded A-F only.

**DMU 4946: Cardiac Ultrasound Clinical VI (6).** Further application of ultrasonography for continuation of learning, practicing and decision making, patient handling and imaging process with students supervised in a clinical setting. Prerequisites: Diagnostic Medical Ultrasound [DMU] 4313, 4315, 4338 and 4945. Instructor and Departmental permission required. Graded A-F only.

**DMU 4993: Ultrasound Clinical II (8).** Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing. Prerequisite: Diagnostic Medical Ultrasound [DMU] 4941; instructor's consent.

## ECONOMICS COURSES

**ECONOM 1014: Principles of Microeconomics (3).** A basic examination of the economy at the individual consumer, firm and market level. Simple economic models used to analyze the workings of the economy. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, the importance of free trade, the markets response to economic shocks and the effect of government intervention. Not open to students who have completed Economics [ECONOM] 1024, 1051, or Agricultural Economics [AG\_EC] 1041.

**ECONOM 1015: Principles of Macroeconomics (3).** Macroeconomics generally refers to a collection of questions about how scarcity affects a collection of people interacting with one another. In this course, our focus is on understanding how scarcity affects welfare of a nation. Topics include Gross Domestic Product, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, and exchange rates. Not open to students who have completed Economics [ECONOM] 1051 or Agricultural Economics [AG\_EC] 1042. Prerequisites: Economics [ECONOM] 1014 or 1024.

**ECONOM 1024: Fundamentals of Microeconomics (3).** This course uses mathematical reasoning to provide an elementary quantitative introduction to fundamental concepts in microeconomics. It uses college algebra and simple geometric concepts to describe the behavior of economic units, such as consumers, firms and resource owners, and to depict their interaction through production and exchange in perfect and imperfect markets. Not open to students who have completed Economics [ECONOM] 1014, 1051, or Agricultural Economics [AG\_EC] 1041. Prerequisite: Mathematics [MATH] 1100/1120 or equivalent with grade of C or better. Math Reasoning Proficiency Course.

**ECONOM 1051: General Economics (5).** One semester course covering same material as covered in Economics [ECONOM] 1014 and 1015. Topics

include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Includes applications for Journalism students. Not open to students who have completed Economics [ECONOM] 1014 or 1024 and, 1015 or Agricultural Economics [AG EC] 1041 and 1042. Open only to pre-Journalism and Journalism Majors. Prerequisite: departmental consent required. Graded on A/F basis only.

**ECONOM 1051H: General Economics - Honors (5).** One semester course covering same material as covered in Economics [ECONOM] 1014 and 1015. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Not open to students who have completed Economics [ECONOM] 1014 or 1024 and, 1015. Honors eligibility required. Math Reasoning Proficiency Course.

**ECONOM 2004: Undergraduate Topics in Economics - Social Science (1-3).** Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses. Prerequisite: instructor's consent.

**ECONOM 3004: Topics in Economics - Social Science (1-3).** Study in applied or theoretical economics; covers subjects not included in regularly offered courses. Prerequisite: instructor's consent.

**ECONOM 3224: Introduction to International Economics (3).** A topical course which emphasizes the application of basic economic analysis to real and current international economic issues. Topics include free trade, protectionism, free trade areas, multi-lateral trade negotiations, trade and development, exchange rates, the International Monetary System, and economic integration. Prerequisite: Economics [ECONOM] 1014 or 1024 or 1051.

**ECONOM 3229: Money, Banking and Financial Markets (3).** Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets. Prerequisites: Economics [ECONOM] 1014 or 1024 and 1015, or 1051.

**ECONOM 3229H: Money, Banking and Financial Markets - Honors (3).** Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets. Prerequisites: Economics [ECONOM] 1014 or 1024 and 1015, or 1051. Honors eligibility required.

**ECONOM 3251: Theory of the Firm (3).** Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Topics include the economics of the firm in the context of partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition as well as game theory. No credit for students who have completed Economics [ECONOM] 4351. Prerequisites: Economics [ECONOM] 1014 or 1024 or 1051, and Mathematics [MATH] 1400, or equivalent. Not open to economics majors.

**ECONOM 3323: Capitalism, Democracy and Society (1).** This is a one-credit seminar course for students interested in careers involving social science research and analysis; topics covered will be a selection of classic and contemporary debates in the social sciences. Prerequisites: Economics [ECONOM] 1014 and 1015, or 1051.

**ECONOM 4004: Topics in Economics- Social Science (1-3).** Study in applied or theoretical economics; covers subjects not included in regularly offered courses. Prerequisite: instructor's consent.

**ECONOM 4311: Labor Economics (3).** Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

Prerequisite: Economics [ECONOM] 3251 or 4351.

**ECONOM 4315: Public Economics (3).** Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy. Prerequisite: Economics [ECONOM] 3251 or 4351.

**ECONOM 4320: History of Economic Thought (3).** Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought. Prerequisites: Economics [ECONOM] 1014 or 1024 and 1015, or 1051.

**ECONOM 4322: Economics of Regulation and Antitrust (3).** Economic issues concerning the role of government regulation. The course examines the rationale for and effects of regulatory policies in public utilities, transportation, and communications industries. Prerequisite: Economics [ECONOM] 3251 or 4351.

**ECONOM 4325: The International Monetary System (3).** Study of macroeconomic and monetary relationships between the U.S. and the world. Topics include balance of payments, foreign exchange rates, history of the international monetary system. Prerequisite: Economics [ECONOM] 3229.

**ECONOM 4326: Economics of International Trade (3).** The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with less developed countries and the trade effects of economic growth. Prerequisite: Economics [ECONOM] 3251 or 4351.

**ECONOM 4329: The Banking System and the Money Market (3).** Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation. Prerequisite: Economics [ECONOM] 1015 or 1051.

**ECONOM 4340: Game Theory (3).** An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments, etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications. Prerequisite: Economics [ECONOM] 3251 or 4351.

**ECONOM 4345: Economics of Education (3).** Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access. Prerequisite: Economics [ECONOM] 1014 or 1024, or 1051, and Statistics [STAT] 2500, or equivalent.

**ECONOM 4351: Intermediate Microeconomics (3).** Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed Economics [ECONOM] 3251. Prerequisites: Economics [ECONOM] 1014 or 1024 or 1051, and Mathematics [MATH] 1400, or equivalent.

**ECONOM 4351H: Intermediate Microeconomics - Honors (3).** Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251. Prerequisites: Economics [ECONOM] 1014 or 1024 or 1051, and Mathematics [MATH] 1400, or equivalent. Honors eligibility required.

**ECONOM 4353: Intermediate Macroeconomics (3).** The study of the structure and performance of national economics. Topics include: long-term

economic growth, aggregate economic fluctuations, unemployment, and inflation; consequences for national economies of being part of the global economic system; government policies and macroeconomic performance. Prerequisites: Economics [ECONOM] 1015 or 1051, and Mathematics [MATH] 1400, or equivalent.

**ECONOM 4355: Industrial Organization and Competitive Strategy (3).** Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit. Prerequisites: Economics [ECONOM] 3251 or 4351.

**ECONOM 4357: Health Economics (3).** Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine and health care reform. Prerequisite: Economics [ECONOM] 3251 or 4351 and Statistics [STAT] 2500, or equivalent.

**ECONOM 4360: Economic Development (3).** (same as Peace Studies [PEA ST] 4360). The study of less-developed countries including problems of measuring economic growth, analysis of sources of economic growth, causes of changes in economic and structure, development and trade policies. The consequences of goals and assumptions for development policy are analyzed. Prerequisite: Economics [ECONOM] 3229, and 3251 or 4351.

**ECONOM 4361: Comparative Economic Systems (3).** Study of capitalism, market socialism, and central planning. Prerequisites: Economics [ECONOM] 3229, and 3251 or 4351.

**ECONOM 4367: Law and Economics (3).** This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomic, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary. Prerequisite: Economics [ECONOM] 3251 or 4351, and Statistics [STAT] 2500, or equivalent.

**ECONOM 4370: Quantitative Economics (3).** The aim of this course is to provide an introduction to the mathematical language of economic theory. Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization. Prerequisite: Mathematics [MATH] 1500 or equivalent.

**ECONOM 4371: Introductory Econometrics (3).** Study methods for quantitative analysis of economic data. Estimating techniques, tests of significance, prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models. Prerequisites: Economics [ECONOM] 3251 or 4351, and Statistics [STAT] 2500, or equivalent.

**ECONOM 4384: Structural Change in Economic History (3).** Explores changes in the structure of the American economy from its earliest colonial beginnings. Structural change, an integral part of growth, is related to technical change, population growth and to the content and form of economic theory. Prerequisite: Economics [ECONOM] 1014 or 1024 and 1015, or 1051.

**ECONOM 4385: Problems in Economics (1-3).** Development of a carefully considered research project under close supervision of a faculty member. Credit arranged by instructor. Prerequisites: Economics [ECONOM] 4351, 4371, and instructor's consent. Not open to non-majors.

**ECONOM 4940: Internship in Economics (3).** Internship experience for Economics majors. 120 hours of supervised internship work with approval of Director of Undergraduate Studies and academic advisor. Prerequisites: Economics [ECONOM] 4351 and 4371; Declared economics majors who have a

minimum overall MU GPA of 2.75 and have junior or senior standing. Students must have completed at least 15 credit hours at MU. Graded on S/U basis only

**ECONOM 4965: Independent Study in Economics (1-3).** Individual work, with conferences adjusted to needs of student. Prerequisite: instructor's consent.

**ECONOM 4970: Senior Seminar in Economics (3).** Seminar for graduating seniors who are majoring in economics. Multiple writing assignments will emphasize synthesis of theoretical, empirical, and institutional economics. Not open to non-majors.

**ECONOM 4971: Supplemental Senior Seminar in Economics (1).** Content description is the same as Economics [ECONOM] 4970. Required for Economics honors students and double majors in Economics who take a capstone course in another major. No credit for students who have completed Economics [ECONOM] 4970. Not open to non-majors. Graded on A/F basis only.

**ECONOM 4995: Honors Proseminar (3).** Seminar for graduating seniors. This capstone course integrates previous economics courses by applying economic theories to problems. Students acquire an understanding of what research in economics can produce and how to produce those results. Course requirements are to produce a list of distinctive activities that count as research and produce a research paper. Multiple writing assignments will emphasize synthesis of theoretical, empirical and institutional economics. No credit for students who have completed Economics [ECONOM] 4970. Not open to non-majors. Capstone course required for Economics honors students

## EDUCATION - HONORS

**EDUC H 3050H: Special Readings in Education Honors (1-4).** Directed study of literature and research reports in education. Prerequisites: instructor's consent and Honors program director.

**EDUC H 3060H: Honors Seminar in Education Honors (1-2).** Prerequisites: instructor's consent and Honors program director.

**EDUC H 3070H: Special Practicum in Education Honors (1-4).** Directed practicum experience with students in educational settings. Prerequisites: instructor's consent and Honors program director.

**EDUC H 3080H: Honors Research in Education Honors (1-4).** Joint research in education with a member of the education faculty. Prerequisites: instructor's consent and Honors program director.

**EDUC H 4996H: Undergraduate Reading Honors (3).** This course is designed to introduce students to a variety of readings from a broad array of research, historical, contemporary and philosophical documents and writings. Selection of topics and additional readings are determined by the faculty instructor for the course. Graded on A/F basis only. Prerequisites: instructor's consent; GPA of 3.5 or higher.

**EDUC H 4997H: Honors Undergraduate Seminar I (1).** This class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The culminating assignment for the class is a proposal for a research poster or presentation to be presented at the undergraduate research fair held each year in May. Graded on A/F basis only. Prerequisites: instructor's consent; GPA of 3.5 or higher.

**EDUC H 4998H: Honors Undergraduate Seminar II (1).** The class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The culminating assignment for the class is the production of a research poster or presentation at the undergraduate research fair held each year in May. Graded on A/F basis only. Prerequisites: instructor's consent; GPA of 3.5 or higher.

**EDUC H 4999H: Honors Undergraduate Research Seminar (1-2).** This class will be offered over 2 academic semesters and will consist of a 1-2 credit hour lab each semester with a College of Education faculty member working on an undergraduate research project. This course is designed as part of the Honors sequence and is designed to be taken concurrently with Teacher Development Program [TDP] 4997H and 4998H. Graded on A/F only. Prerequisite: instructor's consent; GPA of 3.5 or higher.

## EDUCATION, LEADERSHIP AND POLICY ANALYSIS COURSES

**ED LPA 3100: Foundations of Education (1-3).** Focus on developing a theoretical and conceptual knowledge of leadership. In addition, skill building-exercises will take place through group case studies and role playing exercises allowing each student to identify and achieve methods for personal development.

**ED LPA 4060: Inquiring into Schools, Community and Society II (3).** Required 3 hour course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts. Prerequisites: Learning, Teaching and Curriculum [LTC] 2040/7040.

## EDUCATION, SCHOOL AND COUNSELING PSYCHOLOGY COURSES

**ESC PS 1010: Introduction to Psychology in Education (3).** This course is a survey of the study of human behavior as applied to educational settings from the perspective of educational counselors and other human service professionals. Topics include personality theories, the self, stress, coping, interpersonal communication and relationships, diversity issues, development learning, sexuality, health and well-being, counseling and assessment.

**ESC PS 1100: American Sign Language I (5).** ASL 1 is designed to provide an introduction to American Sign Language (ASL). Students will develop basic expressive and receptive skills in ASL, the manual alphabet, numbers, signed vocabulary, and an overview of syntax and grammar. Graded on A/F basis only.

**ESC PS 1200: American Sign Language II (5).** ASL 2 is designed to increase students understanding of American Sign Language. Students will increase their expressive and receptive skills, the manual alphabet, numbers, signed vocabulary, and understanding of syntax and grammar. Prerequisites: Educational School, and Counseling Psychology [ESC\_PS] 1100 and instructor consent. Graded on A/F basis only.

**ESC PS 1901: Topics in Educational School, and Counseling Psychology - General (1-3).** Topics place holder for lower division courses.

**ESC PS 2000: Experiencing Cultural Diversity in the United States (3).** The purpose of this course is to examine cultural diversity in U.S. Society, to increase self-awareness related to worldviews and beliefs about diversity issues, and to increase understanding of the intersections of multiple group identities. Graded on A/F basis only.

**ESC PS 2010: Inquiry Into Learning I (3).** This course is designed to focus students on the central themes of learning and teaching. Emphasis will be placed on the interaction of theory, philosophy and practice as related to the field of education. Required for Phase II of the certification program.

**ESC PS 2014: Inquiry into Learning I - Field Experience (1).** This field experience course supports the Inquiry into Learning I, component of Phase I. Prerequisite: department consent. Graded on S/U basis only.

**ESC PS 2100: Career Explorations (1-3).** Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center.

**ESC PS 2150: American Sign Language III (3).** ASL 3 is designed to build upon signing skills and concepts exposed to in ASL 2. Advanced grammatical constructions and vocabulary are introduced. Exams test both expressive and receptive skills. Class conducted in sign language. Prerequisite: Education and Counseling Psychology [ESC PS] 1200 or permission of instructor. Graded on A/F basis only.

**ESC PS 2200: Introduction to Personal Awareness and Group Process (3).** Small group experiential learning experience designed to provide a catalyst for students to evaluate and clarify attitudes and values reflected in everyday behavior and lives which impact professional functioning. Prerequisite: Education and Counseling Psychology [ESC PS] 1010 or instructor's consent.

**ESC PS 2250: American Sign Language IV (3).** ASL 4 students increase ability to produce and comprehend American Sign Language as it is used in educational, legal, medical and social service settings. Advanced grammatical constructions and vocabulary are introduced. Class conducted in sign language. Prerequisite: Education and Counseling Psychology [ESC PS] 1200 and 2150. Graded on A/F basis only.

**ESC PS 2300: Personal and Social Effectiveness (3).** Combination of didactic and experiential learning experiences designed to foster knowledge, skill, and awareness toward the development of personal and professional strategies for optimal human functioning. Prerequisites: Education and Counseling Psychology [ESC PS] 1010 or instructor's consent.

**ESC PS 2400: Learning and Instruction (2).** The nature of human learning processes with implications for instruction. Emphasis on bases of and readiness for learning, types of learning, memory forgetting and transfer, and related topics. Prerequisites: Psychology [PSYCH] 1000.

**ESC PS 2500: Child Development (3).** The psychological, intellectual, social, and physical development of children. Prerequisites: Psychology [PSYCH] 1000.

**ESC PS 2600: Adolescent Development (2).** The psychological, intellectual, social and physical development of adolescents. Prerequisite: Psychology [PSYCH] 1000.

**ESC PS 2700: Psychological Perspectives in Sport (3).** Survey of sport psychology literature with focus upon such topics as personality, positive and negative affect, cognitive and behavioral intervention, motivation, aggression, audience effects, team cohesion, team building, leadership, exercise, and multicultural issues.

**ESC PS 2901: Topics in Educational School, and Counseling Psychology - General (1-3).** Topics place holder for lower division courses.

**ESC PS 3085: Problems in Educational, School, and Counseling Psychology (1-3).** Prerequisite: instructor's consent.

**ESC PS 3100: African-American Psychology (3).** (same as Black Studies [BL\_STU] 3100 and Psychology [PSYCH] 3880). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed. Prerequisite: Psychology [PSYCH] 1000.

**ESC PS 3200: Black Feminism (3).** This course outlines the basic principles and practices of Black feminism in the United States. Examination of the multiple systems of oppression on Black women's lives and Black women's collective actions against social structures will occur. Prerequisites: Psychology [PSYCH] 1000 or instructor's consent.

**ESC PS 3400: Educational Measurement (2).** Basic concepts of standardized testing, evaluation techniques, and interpretation of test scores for the improvement of the instructional process. Prerequisites: Psychology [PSYCH] 1000.

**ESC PS 3901: Topics in Educational School, and Counseling Psychology - General (1-3).** Topics place holder for lower division courses.

**ESC PS 4087: Seminar in Educational, School, and Counseling Psychology (1-3).** Prerequisite: instructor's consent.

**ESC PS 4115: Human Learning (3).** An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning. Prerequisite: Education and Counseling Psychology [ESC PS] 4100.

**ESC PS 4120: Foundations of Counseling Psychology (3).** Survey of contemporary theories underlying individual feminist, family systems, and multicultural approaches to counseling. Introduction to professional and ethical issues in Counseling Psychology. Prerequisite: departmental consent.

**ESC PS 4130: Parent Counseling and Consultation (3).** For personnel working with parents in professional settings. Examines current family needs and child-rearing practices. Basic skills in diagnosis, counseling, consultation, parent education are developed. Prerequisite: Education and Counseling Psychology [ESC PS] 4120.

**ESC PS 4150: Interviewing and Counseling (3).** Study of beginning interviewing and counseling skills applied to helping relationships in human services professions. Emphasis placed on learning helping skills in small group format. Lab required. Prerequisites: Psychology [PSYCH] 1000 or 1010.

**ESC PS 4160: Developmental Aspects of Human Learning (3).** Investigates aspects of human development that affect classroom learning. Topics include parenting style, divorce, friendship, mental health, attachment, play, aggression, culture, and media.

**ESC PS 4170: Introduction to Applied Statistics (3).** Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Prerequisite: College Algebra or equivalent. Math Reasoning Proficiency Course.

**ESC PS 4180: Foundations of Rehabilitation (3).** The vocational and independent living rehabilitation system for disabled persons. Concept of disability, its social psychological implications, and techniques of preparing disabled persons for adult adjustment. Prerequisites: Psychology [PSYCH] 1000.

**ESC PS 4185: Health Behavior: Drug and Sexuality Education (3).** Psychological, social, and physical factors related to drug taking and sexuality behaviors. Prerequisites: Learning, Teaching and Curriculum [LTC] 1310 or equivalent or instructor's consent.

**ESC PS 4190: Alcohol Abuse and Rehabilitation I (3).** Covers historical perspective, definition and measurement of the problem, classifications and theories about the etiology of alcoholism. Prerequisites: Education and Counseling Psychology [ESC PS] 4120 or 4180 or instructor's consent.

**ESC PS 4200: Positive Psychology (3).** Using self-actualization and self-determination theory, the course builds on identifying personal strengths in people. An emphasis is placed on developing interventions that promote positive thinking.

**ESC PS 4220: Measurement of Cognitive Abilities (3).** Analysis of the function of psychological testing and a critical examination of various achievement, aptitude, and intelligence assessment instruments.

**ESC PS 4901: Topics in Educational School, and Counseling Psychology - General (1-3).** Topics place holder for lower division courses.

**ESC PS 4940: Human Services Practicum (3).** Supervised practice in a human services agency (approved by the College) focusing on the development and direct practice of human services professional skills. Prerequisites: senior standing; admission to professional standing.

**ESC PS 4960: Readings in Educational, School, and Counseling Psychology (1-3).** Prerequisite: instructor's consent.

**ESC PS 4970: Senior Seminar: Professional Issues in Human Services (3).** Advanced senior seminar, capstone course in human services. Project-based

learning activities provided individualized focus and culmination of training. Prerequisites: senior standing and admission to professional standing.

## ELECTRICAL AND COMPUTER ENGINEERING COURSES

**ECE 1000: Introduction to Electrical and Computer Engineering (2).** Introduction to the basic principles of electrical and computer engineering through hands-on activity. Course includes fundamentals of programming using Matlab, applied to electrical and computer engineering problems.

**ECE 1001: Experimental Course (cr.arr.).** For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

**ECE 1210: Introduction to Logic Systems (3).** Introduces basic tools, methods and procedures to design combinational and sequential digital circuits and systems. Topics include number systems, Boolean algebra, logic minimization, circuit design, memory elements, and finite state machine design. Graded on A-F basis only.

**ECE 2001: Experimental Course (cr.arr.).** For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**ECE 2100: Circuit Theory I (4).** DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power. Co-requisite: Mathematics [MATH] 2300. Graded on A/F basis only.

**ECE 2110: Experimental Electrical Engineering I (3).** Application of standard electronic test equipment to basic experimental tasks of measurement and characterization of electronic phenomena and devices. Prerequisites: Engineering [ENGINR] 2100 concurrently.

**ECE 3110: Electrical and Computer Engineering Projects (3).** Open-ended design projects which encourage innovative solutions to design and measurement problems. Students teams complete several projects from different areas. Both oral and written presentations emphasized. Prerequisites: Statistics [STAT] 4710 and at least two of three from the following: Electrical and Computer Engineering [ECE] 3210, 3410 and 3510. Restricted to Electrical and Computer Engineering [ECE] students only or instructor's consent. Graded on A/F basis only.

**ECE 3210: Microprocessor Engineering (4).** Introduction to microprocessor architectures and programming; memory, memory management and cache organizations, bus configurations and timing implications; parallel I/O and serial communication interfaces. Prerequisite: Electrical and Computer Engineering [ECE] 1210 and Computer Science [CMP\_SC] 1040 or 1050.

**ECE 3220: Computing for Embedded Systems (3).** Software/Hardware development for embedded systems, including memory, I/O and interrupts; an overview of C and C++, class structures in object oriented programming; software development with UML and testing and debugging strategies. Prerequisites: Electrical and Computer Engineering [ECE] 3210 and C++ or Java. Graded on A/F basis only.

**ECE 3230: Algorithms and Software Design (3).** Covers basic algorithms including: arithmetic operations, sorting, string processing, parsing, hashing, and tree and graph manipulations. The C language and UNIX operating system are used as vehicles for illustration and practice in use of the algorithms and in the application of software design techniques. Prerequisite: Electrical and Computer Engineering [ECE] 2210.

**ECE 3410: Electronic Circuits and Signals I (4).** Electron Devices, modeling and applications to basic electronic circuits, including RC amplifiers and power supplies. Co-requisite: Electrical and Computer Engineering [ECE] 3810.

**ECE 3470: Introduction to Power Engineering (3).** Real and reactive power in single and three-phase ac circuits; magnetic circuits and transformers; energy conversion, DC machines, induction and synchronous

machines; power transmission and distribution. Co-requisite Electrical and Computer Engineering [ECE] 3810. Graded on A/F basis only.

**ECE 3510: Electromagnetic Fields (3).** Elements of vector analysis, transmission line theory, electrostatics, magnetostatics, time varying fields and plane waves. Prerequisite: Physics [PHYSCS] 2760, Mathematics [MATH] 4100. Graded on A/F basis only.

**ECE 3610: Semiconductors and Devices (3).** Crystal structure; quantum aspects of energy, radiation and matter; quantum mechanics and energy bands in solids; electronic and optical properties of semiconductors; p-n junctions and diodes; bipolar and field-effect transistors. Prerequisites: Electrical and Computer Engineering [ECE] 3510.

**ECE 3810: Circuit Theory II (4).** Impulse and step responses, RLC circuits, classical differential equations solutions, complex plane stability, frequency and Bode Analysis, Resonance, Laplace transforms, two-port networks, mutual inductance and transformers. Prerequisites: Electrical and Computer Engineering [ECE] 2100 and Mathematics [MATH] 4100 concurrently. Graded on A/F basis only.

**ECE 3830: Signals and Linear Systems (3).** Transform Analysis of Signals and Linear Systems. Laplace transforms, z-transforms, Fourier series and transforms. Prerequisite: Electrical and Computer Engineering [ECE] 3810.

**ECE 4001: Topics in Electrical and Computer Engineering (3-4).** Current and new technical developments in electrical engineering. Prerequisite: senior standing.

**ECE 4020: Energy Systems and Resources (3).** (same as Nuclear Science and Engineering [NU\_ENG] 4315). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies. Prerequisite: Engineering [ENGINR] 2300.

**ECE 4030: Introduction to Nuclear Reactor Engineering (3).** (same as Nuclear Science and Engineering [NU\_ENG] 4346). Engineering principles of nuclear power systems, primarily for the production of electrical energy. Prerequisites: Engineering [ENGINR] 1200, 2300.

**ECE 4085: Problems in Electrical and Computer Engineering (2-4).** Analytical or experimental problems pertaining to electric circuits, machines, fields or electronics. Prerequisites: 12 hours Electrical and Computer Engineering credit or instructor's consent.

**ECE 4150: Solid State Area Laboratory (1).** Laboratory experiments involved with solid state theory and integrated circuit fabrication and testing. Prerequisites: Electrical and Computer Engineering [ECE] 4650 and 4670.

**ECE 4170: Control Systems Laboratory (1).** Experiments in computer process control and industrial automation; automated process modeling; control algorithm design; control simulation; direct digital real-time control; transducers; computer interfacing; industrial control mechanisms; Programmable Logic Controllers. Prerequisites: Electrical and Computer Engineering [ECE] 4310, 3210, 3110.

**ECE 4220: Real Time Embedded Computing (3).** Embedded systems development with real time constraints including RTOS, task management and synchronization, real time scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Prerequisite: Electrical and Computer Engineering [ECE] 3220. Graded on A/F basis only.

**ECE 4250: VHDL and Programmable Logic Devices (4).** Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors. Prerequisites: Electrical and Computer Engineering [ECE] 3210.

**ECE 4270: Computer Organization (4).** Advanced computer architectures and programming; memory, memory management and cache organizations,

parallel processing, graphical processor units for general programming. Prerequisite: Electrical and Computer Engineering [ECE] 3210.

**ECE 4310: Feedback Control Systems (4).** (same as Biological Engineering [BIOL\_EN] 4310). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Prerequisite: Mathematics [MATH] 4100. Graded on A/F basis only.

**ECE 4330: Introduction to Mechatronics and Robotic Vision (4).** Covers 1) mechatronic systems; 2) the mathematical tools used to model industrial and mobile robots; and 3) vision sensors, their underlying models and algorithms that allow us to control and interact with robots. Prerequisites: Electrical and Computer Engineering [ECE] 3220 or 4220 or a C/C++ languages.

**ECE 4340: Building Intelligent Robots (4).** (same as Computer Science [CMP\_SC] 4730). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Prerequisites: junior standing and programming experience in one of the following programming languages: Basic, C, C++, or Java.

**ECE 4350: Programmable Logic Controllers (4).** Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications. Prerequisite: junior standing or above.

**ECE 4370: Automatic Control System Design (3).** Techniques for feedback system design and analysis; compensation using root locus and frequency-domain methods; state-variable design methods; techniques for nonlinear systems analysis and design; sample-data control systems. Prerequisite: Electrical and Computer Engineering [ECE] 4310.

**ECE 4390: Computer Process Control (3).** Role of digital computer in process control; digital controller design; computer interfacing; transducers; programmable logic controllers; process modeling; introduction to robotics. Prerequisites: Electrical and Computer Engineering [ECE] 4310 and 3210.

**ECE 4410: Power Electronics I (4).** Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects. Prerequisites: Electrical and Computer Engineering [ECE] 3410.

**ECE 4430: Electronic Circuits and Signals II (3).** Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers. Prerequisites: Electrical and Computer Engineering [ECE] 3830 and 3410.

**ECE 4450: Amplifier Analysis and Design (3).** Design of electronic networks with application to instrumentation, control and communications systems. Practical specifications and problems in design. Lectures and projects. Prerequisite: Electrical and Computer Engineering [ECE] 4430

**ECE 4470: Sustainable Electrical Energy Resources (3).** Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid. Prerequisites: Electrical and Computer Engineering [ECE] 3470 or Engineering [ENGINR] 2100.

**ECE 4510: Pulsed Power Engineering (3).** Concepts of energy generation and storage systems used in pulse power engineering, high power opening and closing switches, high voltage engineering, grounding and shielding, high voltage safety. Prerequisite: Electrical and Computer Engineering [ECE] 3510.

**ECE 4530: Photonics (3).** Introduction to the physical principles and optical materials used in diagnostics, optical communications, semiconductor and solid state lasers, optical fiber transmissions, optical detectors, optical signal processing. Prerequisite: Electrical and Computer Engineering [ECE] 3510.

**ECE 4550: Introduction to Plasmas (3).** (same as Nuclear Science and Engineering [NU\_ENG] 4375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications. Prerequisites: Electrical and Computer Engineering [ECE] 3510.

**ECE 4570: Lasers and Their Applications (3).** (same as Nuclear Engineering [NU\_ENG] 4382). An introductory course in lasers. The course treats the subject from both a conceptual viewpoint and from the application of Maxwell's equations, to develop the optical theory for lasers. The course includes approximately 10 classroom hours of laboratory work with lasers. Prerequisites: Physics [PHYSICS] 2760 and Mathematics [MATH] 4110.

**ECE 4580: Computational Neuroscience (4).** (same as Biological Science [BIO\_SC] 4580 and Biological Engineering [BIOL\_EN] 4575). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Prerequisite: Mathematics [MATH] 1500 or equivalent. Graded on A/F basis only.

**ECE 4610: Physical Electronics (3).** Introduction to physical principles of semiconductors and semiconductor devices; gas, solid state, and semiconductor lasers; electro-optics; plasma physics and gaseous electronics; materials interaction with electric and magnetic fields. Prerequisite: Electrical and Computer Engineering [ECE] 3510.

**ECE 4620: Introduction to BioMEMS (3).** Study of BioMEMS devices and applications. Topics cover BioMEMS including overview of microfabrication techniques, common bioMEMS material, microfluidic principles, microfluidic devices, drug delivery, biomedical microdevices for neural implants, patch-clamping and single cell based analysis systems, microelectroporation, DNA microarrays, Polymerase Chain Reaction and biopolymers, chemical and gas sensors and biosensors. Graded on A/F basis only.

**ECE 4630: Introduction to Optical Electronics (3).** Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes and lasers. Electro-optic modulation. Thermal and quantum detection. Focus on semiconductor-based devices and application to fiber-optical communications. Prerequisite: Electrical and Computer Engineering [ECE] 3610.

**ECE 4640: MEMS Laboratory (4).** The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical Systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Prerequisites: Physics [PHYSICS] 2760, Chemistry [CHEM] 1320, or Electrical and Computer Engineering [ECE] 2100; instructor's consent.. Graded on A/F basis only.

**ECE 4650: Semiconductor Device Theory (3).** Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation. Prerequisite: Electrical and Computer Engineering [ECE] 3610.

**ECE 4655: Digital image Processing (3).** (same as Computer Science [CMP\_SC] 4650). This course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation. Prerequisites: Statistics [STAT] 4710 and Computer Science [CMP\_SC] 2050 or instructor's consent.

**ECE 4670: Microelectronic Fabrication (4).** Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics

of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory. Prerequisite: Electrical and Computer Engineering [ECE] 3610.

**ECE 4675: Digital Image Compression (3).** (same as Computer Science [CMP\_SC] 4670) This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.) Prerequisite: Statistics [STAT] 4710 or instructor's consent. Graded on A/F basis only.

**ECE 4690: Design and Simulation of VLSI Circuits (4).** Design of CMOS integrated circuits with emphasis on analog applications. Device models are developed for circuit simulation. Lecture and laboratory. Prerequisite: Electrical and Computer Engineering [ECE] 4670.

**ECE 4710: Communications Systems (3).** Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband digital communication, modulated digital communication, spread spectrum communication. Prerequisites: Electrical and Computer Engineering [ECE] 3830.

**ECE 4720: Introduction to Machine Learning and Pattern Recognition (3).** (Same as Computer Science [CMP\_SC] 4720) This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problems of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications. Prerequisites: Computer Science [CMP\_SC] 2050 and Statistics [STAT] 4710 or instructors consent.

**ECE 4730: Introduction to Wireless Communication System (3).** Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**ECE 4770: Electromechanical Conversion I (3).** Theory and applications of electric machinery. Steady state and transient performance analysis of AC and DC electrical machines with emphasis on internal electromagnetic phenomena. Fundamentals of electronic speed controls. Prerequisite: Electrical and Computer Engineering [ECE] 3470.

**ECE 4830: Introduction to Digital Signal Processing (4).** Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform. Prerequisites: Electrical and Computer Engineering [ECE] 2110, 2210, 3830.

**ECE 4850: Image Processing (3).** (same as Computer Science [CMP\_SC] 4650). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**ECE 4870: Introduction to Computational Intelligence (3).** (same as Computer Science [CMP\_SC] 4770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Prerequisite: some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects. Graded on A/F basis only.

**ECE 4880: Micro/Nano Systems (3).** Micro/nano systems including micromachining, material properties, micro-actuators, optical, RF, inertial/mechanical and acoustic MNEMS and M/Nanofluidic systems.

Prerequisite: Electrical and Computer Engineering [ECE] 3610 or instructor's consent. Graded on A/F basis only.

**ECE 4910: Microwave Systems (3).** Theory and applications of transmission systems with emphasis on transmission lines at low and high frequencies. Prerequisites: Electrical and Computer Engineering [ECE] 3510.

**ECE 4920: Microwave Engineering (3).** Wave equation, plane wave propagation, transmission line theory, Smith Chart analysis, impedance transformers, waveguides modes, basic antenna theory, impedance matching and tuning, basic microstrip and stripline circuits.

**ECE 4930: Intermediate Electromagnetics (4).** Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems. Prerequisites: Electrical and Computer Engineering [ECE] 3510.

**ECE 4940: Antenna Theory, Design and Laboratory (4).** Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, various antennas. Prerequisites: Electrical and Computer Engineering [ECE] 3510.

**ECE 4950: Microwave Principles (4).** Maxwell's Equations, transmission lines, plane wave propagation and reflection, waveguides, resonant cavities, microwave devices and components, radiation, radio wave propagation. Lecture and laboratory. Prerequisites: Electrical and Computer Engineering [ECE] 3510 and 3410.

**ECE 4970: Senior Capstone Design (3).** Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit. Prerequisites: Electrical and Computer Engineering [ECE] 3110 and senior standing. Restricted to ECE students only or instructor's consent.

**ECE 4980: Senior Capstone Design II (2).** (same as Computer Science [CMP\_SC] 4980). Completion of Electrical and Computer Engineering [ECE] 4970 design project. Design prototyping, testing, evaluation and preparation of documentation. Lectures on ethics, professionalism, safety, economic consideration. Oral and written reports. Not for graduate credit. Prerequisites: senior standing and Electrical and Computer Engineering [ECE] 4970.

**ECE 4990: Undergraduate Research in Electrical Computer Engineering (1-3).** Supervised independent study or project in electrical or computer engineering, culminating in a written report. Prerequisites: Undergraduate Program Director's consent.

**ECE 4995: Undergraduate Honors Research in Electrical Computer Engineering (1-3).** Independent investigation or project in electrical or computer engineering to be presented as an undergraduate honors thesis. Prerequisites: Participation in the Electrical and Computer Engineering [ECE] Honors Program.

## ENGINEERING COURSES

**ENGINR 1000: Introduction to Engineering (0-2).** This course will introduce the students to university life, discuss learning strategies for success and give an overview of the engineering profession and each of the main engineering disciplines.

**ENGINR 1001: Experimental Course (cr.arr.).** For freshman-level students. Content and number of credit of hours to be listed in Schedule of Courses.

**ENGINR 1100: Engineering Graphics Fundamentals (2).** Introduction to computer-aided design and drafting. Topics include visualization methods and standards techniques for communication and presenting engineering design graphics information. Restricted to Engineering Students Only, or by departmental consent.

**ENGINR 1110: Solid Modeling for Engineering Design (1).** Introduction to 3D (three dimensional) modeling techniques using computer aided design software. Topics include model creation techniques and advanced graphical presentation practices. Prerequisite: Engineering [ENGINR] 1100 and instructor's consent. Restricted to Engineering Students Only or by departmental consent. Graded on A/F basis only.

**ENGINR 1200: Statics and Elementary Strength of Materials (3).** Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials. Prerequisites: Mathematics [MATH] 1500 and Physics [PHYSICS] 2750 concurrently. Restricted to Engineering Students only or with departmental consent.

**ENGINR 2001: Experimental Course (cr.arr.).** For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**ENGINR 2100: Circuit Theory for Engineers (3).** DC circuit analysis, inductors and capacitors, first-order response, AC circuit analysis, single-phase AC power and three-phase, transformers. Co-Requisite: Mathematics [MATH] 2300. For Non-Electrical and Computer Engineering [ECE] Majors. Restricted to Engineering Students only or with Departmental Consent.

**ENGINR 2200: Intermediate Strength of Materials (3).** Elements of mechanics of elastic materials. Prerequisite: Engineering [ENGINR] 1200. Restricted to Engineering Students only or with departmental consent.

**ENGINR 2300: Engineering Thermodynamics (3).** (same as Mechanical and Aerospace Engineering [MAE] 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes. Prerequisites: Physics [PHYSICS] 2750. Restricted to Engineering Students Only or departmental consent.

**ENGINR 2500: A History of Modern Engineering (3).** This course will introduce the student to significant engineering events that have shaped the late modern-area from the French Revolution to the end of World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A/F basis only.

**ENGINR 2500H: A History of Modern Engineering - Honors (3).** This course will introduce the student to significant engineering events that have shaped the late modern-area from the French Revolution to the end of the World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Honors eligibility required. Graded on A/F basis only.

**ENGINR 3000: Short Term Education Abroad (3).** Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Instructor's consent required. Students must be in Academic Good Standing. Graded A-F only.

**ENGINR 4000: Study Abroad Technical Elective (3-6).** This course is designed to provide students with an international experience while also potentially fulfilling a required engineering technical elective course. Engineering technical electives are courses that are relevant or related to engineering from a broad range of fields including math and science as well as the various engineering departments. This course will be used as the umbrella course for all Engineering Technical Elective Study Abroad Opportunities and each course will provide a separate section number.

**ENGINR 4085: Problems in Engineering (0-6).** Special design, experimental or analytical problems in engineering. May be repeated to 6 hours.

**ENGINR 4890: Multi-disciplinary Senior Engineering Capstone Design (3).** Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic

and environmental constraints. Oral and written reports. Prerequisites: Senior Standing and Instructor consent. Student's department consent also required. Graded A-F only.

## ENGLISH COURSES

**ENGLISH 1000: Exposition and Argumentation (3).** Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English [ENGLISH] 1000 is a prerequisite for any Writing Intensive course.

**ENGLISH 1000H: Honors Exposition English (3).** Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English [ENGLISH] 1000 is a prerequisite for any Writing Intensive course. Honors eligibility required.

**ENGLISH 1060: Human Language (3).** (same as Anthropology [ANTHRO] 1060, Communication Science and Disorders [C\_S\_D] 1060 and Linguistics [LINGST] 1060). General introduction of various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**ENGLISH 1100: Reading Literature (3).** Introduces the student to the values, rigors, and pleasures of reading literature. Intended for first-year, non-English majors. No more than six hours may be taken in the Reading Literature Series.

**ENGLISH 1106: Reading Literature, Beginnings to 1603 (3).** See English [ENGLISH] 1100 course for description.

**ENGLISH 1107: Reading Literature, 1603 to 1789 (3).** See English [ENGLISH] 1100 course for description.

**ENGLISH 1108: Reading Literature, 1789-1890 (3).** See English [ENGLISH] 1100 course for description.

**ENGLISH 1109: Reading Literature, 1890 to Present (3).** See English 1100 course for description.

**ENGLISH 1160: Themes in Literature (3).** Topics (e.g., The Idea of Progress, Images of Women) announced at time of registration. No more than six hours may be taken in the Themes in Literature series.

**ENGLISH 1166: Themes in Literature, Beginnings to 1603 (3).** See English [ENGLISH] 1160 for course description.

**ENGLISH 1167: Themes in Literature, 1603 to 1789 (3).** See English [ENGLISH] 1160 for course description.

**ENGLISH 1168: Themes in Literature, 1789 to 1890 (3).** See English [ENGLISH] 1160 for course description.

**ENGLISH 1169: Themes in Literature, 1890 to Present (3).** See English 1160 for course description.

**ENGLISH 1200: Readings in British Literature (3).** Focuses on reading and interpreting selected texts in British literature. No more than six hours may be taken in Readings in British Literature Series.

**ENGLISH 1206: Readings in British Literature, Beginning to 1603 (3).** See English [ENGLISH] 1200 for course description.

**ENGLISH 1207: Readings in British Literature, 1603 to 1789 (3).** See English [ENGLISH] 1200 for course description.

**ENGLISH 1208: Readings in British Literature, 1789 to 1890 (3).** See English [ENGLISH] 1200 for course description.

**ENGLISH 1209: Readings in British Literature, 1890 to Present (3).** See English 1200 for course description.

**ENGLISH 1210: Introduction to British Literature (3).** A basic introduction to the concepts, terms, and practices commonly encountered in literary

study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. This course is recommended for prospective majors. Graded on A/F basis only.

**ENGLISH 1300: Readings in American Literature (3).** Focuses on reading and interpreting selected texts in American literature. No more than six hours may be taken in the Readings in American Literature series.

**ENGLISH 1307: Readings in American Literature, 1603 to 1789 (3).** See English [ENGLISH] 1300 for course description.

**ENGLISH 1308: Readings in American Literature, 1789 to 1890 (3).** See English [ENGLISH] 1300 for course description.

**ENGLISH 1309: Readings in American Literature, 1890 to Present (3).** See English 1300 for course description.

**ENGLISH 1310: Introduction to American Literature (3).** A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrate such concepts, terms, and practices. This course is recommended for prospective English Majors. Graded on A/F basis only.

**ENGLISH 1510: Creative Writing: Introduction to Fiction (3).** Introduces basic narrative techniques, including writing original stories.

**ENGLISH 1520: Creative Writing: Introduction to Nonfiction Prose (3).** Introduces the range and basic techniques of creative nonfiction, including composing original work in the genre.

**ENGLISH 1530: Creative Writing: Introduction to Poetry (3).** Introduces basic poetic techniques, including writing original poems.

**ENGLISH 1700: Introduction to Folklore Genres (3).** (same as Anthropology [ANTHRO] 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**ENGLISH 1800: Introduction to Film Studies (3).** (same as Film Studies [FILM\_S] 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. Prerequisites: freshman and sophomores only or instructor's consent. No credit for students who have completed Film Studies [FILM\_S] 2810. Graded on A/F basis only.

**ENGLISH 2000: Studies in English (1-3).** Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**ENGLISH 2000H: Studies in English - Honors (1-3).** Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series. Honors eligibility required.

**ENGLISH 2005: Topics in English - Humanities (3).** Underclass topics. Subjects vary from semester to semester. May be repeated to 6 hours maximum.

**ENGLISH 2006: Studies in English, Beginning to 1603 (1-3).** See English [ENGLISH] 2000 for course description.

**ENGLISH 2007: Studies in English, 1603 to 1789 (1-3).** See English [ENGLISH] 2000 for course description.

**ENGLISH 2008: Studies in English, 1789 to 1890 (1-3).** See English [ENGLISH] 2000 for course description.

**ENGLISH 2009: Studies in English, 1890 to Present (1-3).** See English [ENGLISH] 2000 for course description.

**ENGLISH 2010: Intermediate Composition (3).** Provides intensive guided practice in expository and

persuasive writing. Prerequisite: English [ENGLISH] 1000 or equivalent.

**ENGLISH 2015H: Theory and Practice of Tutoring Writing Seminar - Honors (3).** (same as General Honors [GN HON] 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semester. Honors eligibility required. Prerequisites: English [ENGLISH] 1000; instructor's consent.

**ENGLISH 2030: Professional Writing (3).** Introduction to the communication required in any professional field, including basic letters and resumes, reviews, reports, and electronic networking, culminating in an extensive report and a related oral presentation. Prerequisite: English [ENGLISH] 1000.

**ENGLISH 2100: Writing About Literature (3).** Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis. Prerequisite: English [ENGLISH] 1000.

**ENGLISH 2100H: Writing About Literature - Honors (3).** Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis. Prerequisite: English [ENGLISH] 1000. Honors eligibility required.

**ENGLISH 2140: Twentieth-Century Literature (3).** A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time. Prerequisite: English [ENGLISH] 1000.

**ENGLISH 2150: Popular Literature (3).** Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes. Prerequisite: English [ENGLISH] 1000.

**ENGLISH 2155: Introduction to World Literatures (3).** Presents and puts into context works by writers from different nations or ethnic backgrounds; includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**ENGLISH 2156: Introduction to World Literatures, Beginnings to 1603 (3).** See English [ENGLISH] 2155 for course description.

**ENGLISH 2157: Introduction to World Literatures, 1603 to 1789 (3).** See English [ENGLISH] 2155 for course description.

**ENGLISH 2158: Introduction to World Literatures, 1789 to 1890 (3).** See English [ENGLISH] 2155 for course description.

**ENGLISH 2159: Introduction to World Literatures, 1890 to Present (3).** Presents and puts into context works by writers from different nations or ethnic backgrounds, includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**ENGLISH 2160: Major Authors (3).** Focuses on the works of a single writer (e.g., Shakespeare) or set of writers (e.g., William Faulkner and Flannery O'Connor). Topic announced at time of registration. Prerequisite: English [ENGLISH] 1000. No more than six hours may be taken in the Major Authors series.

**ENGLISH 2166: Major Authors, Beginning to 1603 (3).** See English [ENGLISH] 2160 for course description.

**ENGLISH 2167: Major Authors, 1603 TO 1789 (3).** See English [ENGLISH] 2160 for course description.

**ENGLISH 2168: Major Authors, 1789 to 1890 (3).** See English [ENGLISH] 2160 for course description.

**ENGLISH 2169: Major Authors, 1890 to Present (3).** See English [ENGLISH] 2160 for course description.

**ENGLISH 2180: Introduction to Women's Literature (3).** (same as Women's and Gender Studies [WGST] 2180). A study of traditional and nontraditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. Prerequisite: English [ENGLISH] 1000. No more than six hours may be taken in the Introduction to Women's Literature series.

**ENGLISH 2186: Introduction to Women's Literature, Beginning to 1603 (3).** (same as Women's and Gender Studies [WGST] 2186). See English [ENGLISH] 2180 for course description.

**ENGLISH 2187: Introduction to Women's Literature, 1603 to 1789 (3).** (same as Women's and Gender Studies [WGST] 2187). See English [ENGLISH] 2180 for course description.

**ENGLISH 2188: Introduction to Women's Literature, 1789 to 1890 (3).** (same as Women's and Gender Studies [WGST] 2188). See English [ENGLISH] 2180 for course description.

**ENGLISH 2189: Introduction to Women's Literature, 1890 to Present (3).** (same as Women's and Gender Studies [WGST] 2189). See English [ENGLISH] 2180 for course description.

**ENGLISH 2200: Studies in British Literature (3).** Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. Prerequisite: English [ENGLISH] 1000. No more than six hours may be taken in the Topics in British Literature series.

**ENGLISH 2200H: Studies in British Literature - Honors (3).** Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. Prerequisite: English [ENGLISH] 1000. No more than six hours may be taken in the Topics in British Literature series. Honors eligibility required.

**ENGLISH 2206: Studies in British Literature, Beginning to 1603 (3).** See English [ENGLISH] 2200 for course description.

**ENGLISH 2207: Studies in British Literature, 1603 to 1789 (3).** See English [ENGLISH] 2200 for course description.

**ENGLISH 2208: Studies in British Literature, 1789 to 1890 (3).** See English [ENGLISH] 2200 for course description.

**ENGLISH 2209: Studies in British Literature, 1890 to Present (3).** See English [ENGLISH] 2200 for course description.

**ENGLISH 2300: Studies in American Literature (3).** Topic (e.g., American Culture, The Frontier) announced at time of registration. Prerequisite: English [ENGLISH] 1000. No more than six hours may be taken in the Topics in American Literature series.

**ENGLISH 2306: Studies in American Literature, Beginning to 1603 (3).** See English [ENGLISH] 2300 for course description.

**ENGLISH 2307: Studies in American Literature, 1603 to 1789 (3).** See English [ENGLISH] 2300 for course description.

**ENGLISH 2308: Studies in American Literature, 1789-1890 (3).** See English [ENGLISH] 2300 for course description.

**ENGLISH 2309: Studies in American Literature, 1890 to Present (3).** See English [ENGLISH] 2300 for course description.

**ENGLISH 2400: Introduction to African Diaspora Literature (3).** (same as Black Studies [BL\_STU] 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. Prerequisite: English [ENGLISH] 1000. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**ENGLISH 2407: Introduction to African Diaspora Literature, 1603 to 1789 (3).** (same as Black Studies [BL\_STU] 2407). See English [ENGLISH] 2400 for course description.

**ENGLISH 2408: Introduction to African Diaspora Literature, 1789 to 1890 (3).** (same as Black Studies [BL\_STU] 2408). See English [ENGLISH] 2400 for course description.

**ENGLISH 2409: Introduction to African Diaspora Literature, 1890 to Present (3).** (same as Black Studies [BL\_STU] 2409). See English [ENGLSH] 2400 for course description.

**ENGLISH 2490: Introduction to Native Studies (3).** Introduction to the field of Native Studies. Topics include indigenous knowledge, culture change and continuity, history and misrepresentation, politics and political history, and global indigenous relationships.

**ENGLISH 2510: Creative Writing: Intermediate Fiction (3).** Provides intensive guided practice in the writing of short fiction. Prerequisite: English [ENGLSH] 1510 or equivalent.

**ENGLISH 2520: Creative Writing: Intermediate Nonfiction Prose (3).** Provides guided practice in the writing of creative nonfiction. Prerequisite: English [ENGLSH] 1520 or equivalent.

**ENGLISH 2530: Creative Writing: Intermediate Poetry (3).** Provides intensive guided practice in the writing of poetry. Prerequisite: English [ENGLSH] 1530 or equivalent.

**ENGLISH 2560: Beginning Playwriting (3).** (same as Theatre [THEATR] 2920). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**ENGLISH 2700: Introduction to Folklore Field Research (3).** (same as Anthropology [ANTHRO] 2150). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities. Prerequisite: English [ENGLSH] 1000.

**ENGLISH 2770: Introduction to Oral Literature (3).** An introduction to works of verbal art from living oral tradition (e.g. Native American and African-American) and to some of our most important literary works with roots in oral tradition (e.g., the Bible, the Iliad, and the Odyssey, and Beowulf). Prerequisite: ENGLISH 1000.

**ENGLISH 2830: American Film History I, 1895-1950 (3).** (same as Film Studies [FILM\_S] 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed English [ENGLSH]/Film Studies [FILM\_S] 1810. Prerequisite: English [ENGLSH] 1000, English [ENGLSH]/Film Studies [FILM\_S] 1800.

**ENGLISH 2840: American Film History II, 1950-Present (3).** (same as Film Studies [FILM\_S] 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed English [ENGLSH]/Film Studies [FILM\_S] 1820. Prerequisite: English [ENGLSH] 1000 and English [ENGLSH]/Film Studies [FILM\_S] 1800.

**ENGLISH 2860: Film Themes and Genres (3).** (same as Film Studies [FILM\_S] 2860). Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres. Prerequisite: English [ENGLSH] 1000 and English [ENGLSH] / Film Studies [FILM\_S] 1800.

**ENGLISH 2870: Film and Literature (3).** (same as Film Studies [FILM\_S] 2870). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Prerequisites: English [ENGLSH] 1000 and English [ENGLSH]/Film Studies [FILM\_S] 1800. Graded on A/F basis only.

**ENGLISH 2945: Service Learning in English (1-3).** Students perform volunteer service and complete course requirements, which may include class meetings and written and oral assignments. May be repeated with departmental consent. Graded on a S/U basis only. Does not meet A&S general education requirements. Prerequisite: instructor's consent.

**ENGLISH 3010: Advanced Composition (3).** An intensive writing workshop in which student essays and related texts receive close reading and analysis. Focus (e.g. The Essay, The Research Paper) announced at time of registration. Prerequisite:

instructor's consent.

**ENGLISH 3080: Sexuality and Gender Theory (3-6).** (same as Women's and Gender Studies [WGST] 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with department consent. Prerequisite: sophomore standing.

**ENGLISH 3100: Introduction to Literary Theory (3).** Introduction to the range of theoretical approaches to the study of literature; intended as a broad survey of literary theory, whether from the Classical era onward or 20th century literary theory and beyond. Prerequisite: English [ENGLSH] 1000 and sophomore standing.

**ENGLISH 3110: Special Themes in Literature (3-6).** Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. Prerequisites: English [ENGLSH] 1000 or equivalent and sophomore standing. No more than six hours may be taken in the Special Themes in Literature series.

**ENGLISH 3116: Special Themes in Literature, Beginning to 1603 (3).** See English [ENGLSH] 3110 for course descriptions.

**ENGLISH 3117: Special Themes in Literature, 1603 to 1789 (3).** See English [ENGLSH] 3110 for course descriptions.

**ENGLISH 3118: Special Themes in Literature, 1789 to 1890 (3).** See English [ENGLSH] 3110 for course descriptions.

**ENGLISH 3119: Special Themes in Literature, 1890 to Present (3).** See English [ENGLSH] 3110 for course descriptions.

**ENGLISH 3170: World Dramatic Literature (3).** (same as Theatre [THEATR] 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A/F basis only. Prerequisite: sophomore standing.

**ENGLISH 3180: Survey of Women Writers (3).** (same as Women's and Gender Studies [WGST] 3180). A study of writing by women from the Middle Ages to the present. Prerequisite: sophomore standing.

**ENGLISH 3200: Survey of British Literature: Beginnings to 1784 (3).** Historical survey from beginnings of British literature through the age of Johnson, with readings representing significant writers, works and currents of thought. Prerequisite: English [ENGLSH] 1000 or equivalent.

**ENGLISH 3210: Survey of British Literature: Romanticism to the Present (3).** Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements. Prerequisite: English [ENGLSH] 1000.

**ENGLISH 3300: Survey of American Literature: Beginnings to 1865 (3).** A survey of major writers and movements in American literature from Colonialism to Romanticism. Prerequisite: English [ENGLSH] 1000 or equivalent.

**ENGLISH 3310: Survey of American Literature: 1865-Present (3).** A survey of major writers and movements in American literature from realism to postmodernism. Prerequisite: English [ENGLSH] 1000 or equivalent.

**ENGLISH 3400: Survey of African American Literature, Beginnings to 1900 (3).** (same as Black Studies [BL\_STU] 3400). A survey of major authors and movements in African American literature from its beginnings to 1900. Prerequisite: English [ENGLSH] 1000.

**ENGLISH 3410: Survey of African American Literature, 1900-Present (3).** (same as Black Studies [BL\_STU] 3410). A survey of major authors and movements in African American literature from 1900 to the present. Prerequisite: English [ENGLSH] 1000.

**ENGLISH 3420: Periods and Genres in African Diaspora Literature (3).** (same as Black Studies

[BL\_STU] 3420). Topic (e.g. Harlem Renaissance African Diaspora Poetry) Announced at time of registration. Prerequisite: English [ENGLSH] 1000. No more than six hours may be taken in the Periods and Genres in African Diaspora Literature series.

**ENGLISH 3427: Periods and Genres in African Diaspora Literature, 1603 to 1789 (3).** (same as Black Studies [BL\_STU] 3427). See English [ENGLSH] 3420 for course description.

**ENGLISH 3428: Periods and Genres in African Diaspora Literature, 1789 to 1890 (3).** (same as Black Studies [BL\_STU] 3428). See English [ENGLSH] 3420 for course description.

**ENGLISH 3429: Periods and Genres in African Diaspora Literature, 1890 to Present (3).** (same as Black Studies [BL\_STU] 3429). See English [ENGLSH] 3420 for course description.

**ENGLISH 3490: Survey of Native Writing and Representation (3).** Survey of native writing and representation from the late eighteenth century to the present, encompassing a diverse range of tribes and forms. Material will be drawn from tribes inhabiting the North American continent, but global indigenous relationships will also be addressed.

**ENGLISH 3560: Intermediate Playwriting (3).** (same as Theatre [THEATR] 3920). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production. Prerequisite: English [ENGLSH] 2560.

**ENGLISH 3570: Performance of Literature (3).** (same as Communication [COMMUN] 3570 and Theatre [THEATR] 3200). Analysis and oral interpretation of literary works. Graded on A/F basis only. Prerequisite: sophomore standing.

**ENGLISH 3700: American Folklore (3).** (same as Anthropology [ANTHRO] 3150). Focus on regional and ethnic folklore; emphasis on analysis of folklore in context. Requirements include book reports and two analytical papers based on student field research.

**ENGLISH 3820: Major Directors (3).** (same as Film Studies [FILM\_S] and Romance Languages [RM\_LAN] 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Prerequisites: English [ENGLSH] 1000 and English [ENGLSH]/Film Studies [FILM\_S] 1800. Graded on A/F basis only.

**ENGLISH 3850: Studies in Film History (3).** (same as Film Studies [FILM\_S] 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major. Prerequisites: English [ENGLSH] 1000 and English [ENGLSH]/Film Studies [FILM\_S] 1800.

**ENGLISH 3855: Documentary Film (3).** (same as Film Studies [FILM\_S] 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A/F basis only. Prerequisite: English [ENGLSH] 1000.

**ENGLISH 4000: Advanced Studies in English (1-3).** Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**ENGLISH 4004: Topics in English-Social Science (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat to six hours.

**ENGLISH 4040: Studies in Writing (3).** An advanced writing workshop in nonfiction prose. Topics (The Personal Narrative, Nature Writing) announced at time of registration. May repeat to six hours with departmental consent. Prerequisite: English [ENGLSH] 2010 or instructor's consent.

**ENGLISH 4045: Rhetorical Studies (3).** Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration

and may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes. Prerequisites: English [ENGLSH] 1000, junior standing.

**ENGLSH 4050: Historical Survey of Rhetoric (3).** A survey of major works of rhetoric from Plato to the present day, with special attention to those works influencing English language rhetorics and theories of rhetoric. Prerequisites: English [ENGLSH] 1000 and sophomore standing.

**ENGLSH 4060: Studies in Critical Theory (3).** Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4070: History of Criticism (3).** Surveys modern and contemporary theories of literary criticism: historical, archetypal, generic, formalist, phenomenological and interdisciplinary. Emphasizes key writers in each field. Prerequisite: junior standing.

**ENGLSH 4100: Genres (3).** Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. Prerequisite: junior standing. No more than six hours may be taken in the Genres series.

**ENGLSH 4106: Genres, Beginning to 1603 (3).** See English [ENGLSH] 4100 for course description.

**ENGLSH 4107: Genres, 1603 to 1789 (3).** See English [ENGLSH] 4100 for course description.

**ENGLSH 4108: Genres, 1789 to 1890 (3).** See English [ENGLSH] 4100 for course description.

**ENGLSH 4109: Genres, 1890 to Present (3).** See English [ENGLSH] 4100 for course description.

**ENGLSH 4120: Ethnic Literature (3).** Explores in depth the literary traditions of one of America's minority ethnic cultures: Native American, African-American, Hispanic American, Asian American. Prerequisite: junior standing. No more than six hours may be taken in the Ethnic Literature series.

**ENGLSH 4127: Ethnic Literature, 1603 to 1789 (3).** See English [ENGLSH] 4120 for course description.

**ENGLSH 4128: Ethnic Literature, 1789 to 1890 (3).** See English [ENGLSH] 4120 for course description.

**ENGLSH 4129: Ethnic Literature, 1890 to Present (3).** See English [ENGLSH] 4120 for course description.

**ENGLSH 4140: Modern Literature (3).** A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**ENGLSH 4150: World Literatures (3).** Study of important works and writers from Asia, Africa, Europe, Latin America or the mid-East. Topics (e.g., Survey of World Literature, The Bible) announced at time of registration. Prerequisite: junior standing. No more than six hours may be taken in the World Literature series.

**ENGLSH 4156: World Literatures, Beginning to 1603 (3).** See English [ENGLSH] 4150 for course description.

**ENGLSH 4157: World Literatures, 1603 to 1789 (3).** See English [ENGLSH] 4150 for course description.

**ENGLSH 4158: World Literatures, 1789 to 1890 (3).** See English [ENGLSH] 4150 for course description.

**ENGLSH 4159: World Literatures, 1890 to Present (3).** See English [ENGLSH] 4150 for course description.

**ENGLSH 4160: Major Authors (3).** Intensive study of the work of a single writer (e.g., Milton) or set of writers (e.g., Whitman and Dickinson). Topic announced at time of registration. No more than six hours may be taken in the Major Author series. Prerequisite: junior standing.

**ENGLSH 4166: Major Authors, Beginning to 1603 (3).** See English [ENGLSH] 4160 for course description.

**ENGLSH 4167: Major Authors, 1603-1789 (3).** See English [ENGLSH] 4160 for course description.

**ENGLSH 4168: Major Authors, 1789-1890 (3).** See English [ENGLSH] 4160 for course description.

**ENGLSH 4169: Major Authors, 1890-Present (3).** See English [ENGLSH] 4160 for course description.

**ENGLSH 4170: Comparative Approaches to Literature (3).** Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature. Prerequisite: junior standing.

**ENGLSH 4176: Comparative Approaches to Literature, Beginning to 1603 (3).** See English [ENGLSH] 4170 for course description.

**ENGLSH 4177: Comparative Approaches to Literature, 1609-1789 (3).** See English [ENGLSH] 4170 for course description.

**ENGLSH 4178: Comparative Approaches to Literature, 1789-1890 (3).** See English [ENGLSH] 4170 for course description.

**ENGLSH 4179: Comparative Approaches to Literature, 1890-Present (3).** See English [ENGLSH] 4170 for course description.

**ENGLSH 4180: Major Women Writers (3).** (same as Women's and Gender Studies [WGST] 4180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**ENGLSH 4181: Themes in Literature by Women (3).** (same as Women's and Gender Studies [WGST] and Black Studies [BL\_STU] 4181). Examines works by a number of women writers with particular attention to their socio-political context. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4186: Major Women Writers, Beginning to 1603 (3).** (same as Women's and Gender Studies [WGST] 4186). See English [ENGLSH] 4180 for course description.

**ENGLSH 4187: Major Women Writers, 1603-1789 (3).** (same as Women's and Gender Studies [WGST] 4187). See English [ENGLSH] 4180 for course description.

**ENGLSH 4188: Major Women Writers, 1789-1890 (3).** (same as Women's and Gender Studies [WGST] 4188). See English [ENGLSH] 4180 for course description.

**ENGLSH 4189: Major Women Writers, 1890-Present (3).** (same as Women's and Gender Studies [WGST] 4189). See English [ENGLSH] 4180 for course description.

**ENGLSH 4200: Introduction to Old English (3).** (same as Linguistics [LINGST] 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge. Prerequisite: junior standing.

**ENGLSH 4210: Medieval Literature (3).** Representative works from the Anglo-Saxon and Middle-English periods. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4220: Renaissance and Seventeenth Century Literature (3).** Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature. Prerequisite: junior standing.

**ENGLSH 4226: Renaissance and Seventeenth Century Literature, Beginning to 1603 (3).** See English [ENGLSH] 4220 for course description.

**ENGLSH 4227: Renaissance and Seventeenth Century Literature, 1603 to 1789 (3).** See English [ENGLSH] 4220 for course description.

**ENGLSH 4240: Restoration and 18th-Century English Literature (3).** Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4250: 19th-Century English Literature (3).** Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4260: 20th-Century British Literature (3).** Topics (e.g., Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4300: Early American Literature (3).** Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4310: 19th-Century American Literature (3).** Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4320: 20th-Century American Literature (3).** Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent. Prerequisite: junior standing.

**ENGLSH 4400: Studies in African Diaspora Literature (3).** (same as Black Studies [BL\_STU] 4400). Topics (e.g., African American Poetry, Africana Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in Africana Literature series. Prerequisite: junior standing.

**ENGLSH 4407: Studies in African Diaspora Literature, 1603 to 1789 (3).** (same as Black Studies [BL\_STU] 4407). See English [ENGLSH] 4400 for course description.

**ENGLSH 4408: Studies in African Diaspora Literature, 1789 to 1890 (3).** (same as Black Studies [BL\_STU] 4408). See English [ENGLSH] 4400 for course description.

**ENGLSH 4409: Studies in African Diaspora Literature, 1890 to Present (3).** (same as Black Studies [BL\_STU] 4409). See English [ENGLSH] 4400 for course description.

**ENGLSH 4410: Major Africana Diaspora Writers (3).** (same as Black Studies [BL\_STU] 4410). An intensive study of selected writers of African Diaspora literature focusing on texts originally in English. No more than six hours may be taken in the Major African Diaspora Writers series. Prerequisite: junior standing or instructor's consent.

**ENGLSH 4417: Major African Diaspora Writers, 1603 to 1789 (3).** (same as Black Studies [BL\_STU] 4417). See English [ENGLSH] 4410 for course description.

**ENGLSH 4418: Major African Diaspora Writers, 1789-1890 (3).** (same as Black Studies [BL\_STU] 4418). See English [ENGLSH] 4410 for course description.

**ENGLSH 4419: Major African Diaspora Writers, 1890 to Present (3).** (same as Black Studies [BL\_STU] 4419). See English [ENGLSH] 4410 for course description.

**ENGLSH 4420: Africana Womanism (3).** (same as Black Studies [BL\_STU] 4420). An intensive study of Africana Womanism, focusing on selected Africana women writers. Prerequisites: junior standing or instructor's consent. May be repeated to six hours with departmental consent.

**ENGLSH 4480: Major African Diaspora Women Writers (3).** (same as Women's and Gender Studies [WGST] 4480 and Black Studies [BL\_STU] 4480).

Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for English [ENGLSH] 4180 and 4480.

**ENGLSH 4487: Major African Diaspora Women Writers, 1603 to 1789 (3).** (same as Women's and Gender Studies [WGST] 4487 and Black Studies [BL\_STU] 4487). See English [ENGLSH] 4480 for course description.

**ENGLSH 4488: Major African Diaspora Women Writers, 1789 to 1890 (3).** (same as Women's and Gender Studies [WGST] 4488 and Black Studies [BL\_STU] 4488). See English [ENGLSH] 4480 for course description.

**ENGLSH 4489: Major African Diaspora Women Writers, 1890 to Present (3).** (same as Women's and Gender Studies [WGST] 4489 and Black Studies [BL\_STU] 4489). See English [ENGLSH] 4480 for course description.

**ENGLSH 4490: Native Studies (3).** In-depth study of topics in Native writing and representation, such as tribal intellectual histories, defined historical periods, or specific genres or media. Examples of course titles include Ojibwe Writing, Native Film and Video, and Contemporary Native Literature.

**ENGLSH 4510: Creative Writing: Advanced Fiction (3).** An intensive writing workshop in which student stories and related literary texts receive close reading and analysis. Prerequisite: English [ENGLSH] 2510 or equivalent.

**ENGLSH 4520: Creative Writing: Advanced Nonfiction Prose (3).** An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis. Prerequisite: English [ENGLSH] 2520 or equivalent.

**ENGLSH 4530: Creative Writing: Advanced Poetry (3).** Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques. Prerequisite: English [ENGLSH] 2530 or equivalent.

**ENGLSH 4560: Advanced Playwriting: Problems (3).** (same as Theatre [THEATR] 4920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques. Prerequisite: English [ENGLSH] 3560.

**ENGLSH 4570: Adaptation of Literature for the Stage (3).** (same as Theatre [THEATR] 4930). Explores adaptation principles and practices with literature not originally written for the stage. Identical to Theatre [THEATR] 4930. Graded on A/F basis only.

**ENGLSH 4600: Structure of American English (3).** (same as Linguistics [LINGST] 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax. Prerequisite: junior standing.

**ENGLSH 4610: History of the English Language (3).** (same as Linguistics [LINGST] 4610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English. Prerequisite: junior standing.

**ENGLSH 4620: Regional and Social Dialects of American English (3).** (same as Linguistics [LINGST] 4620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English. Prerequisite: English [ENGLSH] 4600 and English [ENGLSH] 4610 or equivalent.

**ENGLSH 4630: Phonology (3).** (same as Linguistics [LINGST] 4630). Survey of the sound patterns of English, with some comparison to other languages. Prerequisite: English [ENGLSH] 4600 or another introductory course in linguistics or phonetics.

**ENGLSH 4640: Syntax (3).** (same as Linguistics [LINGST] 4640). Study of the properties of phrase- and sentence-level grammar, emphasizing English, with some comparison to other languages. Prerequisite: English [ENGLSH] 4600 or another comparable linguistics course.

**ENGLSH 4650: Principles of Teaching English as a Second Language (3).** (same as Linguistics [LINGST] 4650 and Learning, Teaching and Curriculum [LTC] 4460). Linguistic and pedagogical principles of teaching English to speakers of other languages. Prerequisite: English [ENGLSH] 4600 and English [ENGLSH] 4610 or equivalent.

**ENGLSH 4670: Field Methods in Linguistics (4).** (same as Linguistics [LINGST] and Anthropology [ANTHRO] 4870). Provides training in the methods of constructing a detailed linguistic description and analysis of wholly unfamiliar language, based on interviews with a native speaker. Prerequisites: Linguistics [LINGST]/ Anthropology [ANTHRO]/ English [ENGLSH]/ Communication Science Disorders [C S D] 1060; Linguistics [LINGST]/ English [ENGLSH] 4600; Linguistics [LINGST]/ English [ENGLSH] 4630; Linguistics [LINGST]/ English [ENGLSH] 4640. Concurrent enrollment in Linguistics [LINGST]/ English [ENGLSH] 4630 or Linguistics [LINGST]/ English [ENGLSH] 4640 is ok. Graded on A/F basis only. May be repeated for credit.

**ENGLSH 4700: Special Themes in Folklore (3).** (same as Anthropology [ANTHRO] 4150). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**ENGLSH 4710: Themes in African Diaspora Folklore (3).** (same as Anthropology [ANTHRO] 4160 and Black Studies [BL\_STU] 4710). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. English [ENGLSH] 4700 and 4710 may be repeated for a maximum of six hours with instructor's consent. Prerequisite: junior standing.

**ENGLSH 4770: Oral Tradition (3).** (same as Classical Humanities [CL HUM] 4770). Study of verbal art from living oral traditions (e.g., Native American and African American) and important literary works with roots in oral tradition (e.g., the Bible, the Iliad, the Odyssey, and Beowulf). Prerequisite: junior standing and instructor's consent.

**ENGLSH 4780: Women's Folklore and Feminist Theory (3).** (same as Women's and Gender Studies [WGST] 4780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/ song) as well as material genres (quilting/arts). Prerequisite: junior standing or instructor's consent.

**ENGLSH 4810: Film Theory (3).** (Same as Film Studies [FILM\_S] 4810) This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others. Prerequisite: English [ENGLSH] 1000 and English/Film Studies [ENGLSH/FILM\_S] 1800. Junior standing or above required.

**ENGLSH 4820: Studies in Film Genre (3).** (same as Film Studies [FILM\_S] 4820) Topics (e.g. The Western, Film Noir) announced at time of registration. No more than six hours may be taken for credit toward the major. Prerequisite: English [ENGLSH] 1000 and English/Film Studies [ENGLSH/FILM\_S] 1800; junior standing or instructor's consent.

**ENGLSH 4840: Culture and Media (3).** (Same as Film Studies [FILM\_S] 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major. Prerequisite: English [ENGLSH] 1000 and English/Film Studies [ENGLSH/FILM\_S] 1800. Junior standing or instructor's consent required.

**ENGLSH 4935: Adaptation of Literature for Film (3).** (same as Film Studies [FILM\_S] 4935 and Theatre [THEATR] 4935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**ENGLSH 4940: Internship in English (1-3).** Students work in an agency or institution using their English-related skills for one to three credit hours.

Prerequisite: junior standing, department's consent. Graded on an S/U basis only.

**ENGLSH 4950: Internship in Publishing (3).** Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members. Graduate students in English must take the course two semesters in order to count three hours toward the completion of their program. Prerequisite: instructor's consent.

**ENGLSH 4955: Independent Research in English (1-3).** Development of a carefully considered research project under close supervision of a faculty member. Open to undergraduate students only. Prerequisites: junior standing and departmental consent.

**ENGLSH 4960: Special Readings in English (cr. arr.).** Individual work with conferences adjusted to needs of student. Prerequisites: 4000-level course in area of proposed work and written consent of instructor. Restricted to senior English majors in their final semester.

**ENGLSH 4970: Capstone Experience (3).** For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter). Prerequisite: English major with senior standing.

**ENGLSH 4995: Senior Honors Thesis (3).** Independent research under direction of faculty. Second course of two part Honors Sequence. Prerequisite: English [ENGLSH] 4996.

**ENGLSH 4996: Honors Seminar in English (3).** First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis. Prerequisite: 3.3 overall GPA and in major.

## ENGLISH LANGUAGE SUPPORT PROGRAM COURSES

**ELSP\_0100: Grammar and Composition I (3).** Grammar and Composition I. Graded S/U only.

**ELSP\_0200: Reading and Vocabulary (3).** Reading and Vocabulary. Graded on S/U basis only.

**ELSP\_0300: Grammar and Composition II (3).** Grammar and Composition II. Graded S/U Only.

**ELSP\_0400: Oral Communication (3).** Oral Communication. Graded S/U Only.

## ENVIRONMENTAL SCIENCE COURSES

**ENV SC 1001: Topics in Environmental Science - General (cr.arr.).** Organized study of selected topics in environmental science.

**ENV SC 1100: Introduction to Environmental Science (3).** This class provides an opportunity to develop an understanding of environment, physical and social causes of environmental problems, their impacts, and strategies to manage these issues. Prerequisites: Restricted to freshman; sophomores and juniors or instructor's consent.

**ENV SC 2001: Topics in Environmental Science - General (cr.arr.).** Organized study of selected topics in environmental science.

**ENV SC 2002: Topics in Environmental Science-Biological/Physical/Mathematical (cr.arr.).** Organized study of selected topics. Subjects and credit may vary from semester to semester.

**ENV SC 3001: Topics in Environmental Science - General (cr.arr.).** Organized study of selected topics in environmental science.

**ENV SC 3085: Problems in Environmental Science (cr.arr.).** Special individualized projects or readings in environmental science.

**ENV SC 3290: Soils and the Environment (3).** (same as Soil Science [SOIL] 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and

sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution. Prerequisites: Soil Science [SOIL] 2100, 3 hrs of chemistry, English [ENGLSH] 1000 or instructor's consent.

**ENV SC 3330: Environmental Land Use Management (3).** An introduction to environmentally sustainable use and management of land.

**ENV SC 3500: Pollutant Fate and Transport (3).** This course introduces students to concepts governing pollutant fate and transport in the environment, and it provides students with the quantitative tools necessary to estimate the fate and transport of pollutants in the environment. Prerequisite: Environmental Science [ENV SC] 1100 or Soil Science [SOIL] 2100, and Chemistry [CHEM] 1310 and 1320.

**ENV SC 4001: Topics in Environmental Science - General (cr.arr.).** Organized study of selected topics in environmental science.

**ENV SC 4085: Problems in Environmental Science (cr.arr.).** Special individualized research projects or readings in environmental science.

**ENV SC 4305: Environmental Soil Physics (3).** (same as Soil Science [SOIL] 4305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat. Prerequisites: Soil Science [SOIL] 2100, Physics [PHYSICS] 1210 or equivalent.

**ENV SC 4306: Environmental Soil Physics Laboratory (2).** (same as Soil Science [SOIL] 4306). Introduction to the methodology and equipment for measurement of soil physical properties and processes. Prerequisites: concurrent or previous enrollment in Environmental Science [ENV SC] 4305.

**ENV SC 4312: Environmental Soil Microbiology (3).** (same as Soil Science [SOIL] 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc. Prerequisite: general microbiology, Soil Science [SOIL] 2100, or instructor's consent.

**ENV SC 4318: Environmental Soil Chemistry (3).** (same as Soil Science [SOIL] 4318 and Geology [GEOL] 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes. Prerequisites: Soil Science [SOIL] 2100 or Geology [GEOL] 2400, Chemistry [CHEM] 1320 and Chemistry [CHEM] 1330. Junior level standing or consent of instructor.

**ENV SC 4320: Hydrologic and Water Quality Modeling (3).** (same as Natural Resources [NAT\_R] 4320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making. Prerequisites: Environmental Science [ENV\_SC] 1100 or Soil Science [SOIL] 2100 or equivalent.

**ENV SC 4396: Agroforestry for Watershed Restoration (3).** Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. Prerequisite: Forestry [FOREST] 4385/7385 or permission of instructor. May be repeated for credit. Graded on A/F basis only.

**ENV SC 4940: Environmental Science Internship (cr.arr.).** Supervised professional experience with an approved public or private organization. Graded on S/U basis only.

#### ENVIRONMENTAL STUDIES COURSES

**ENV ST 2070: Introduction to Ecological Economics (3).** (same as Agricultural Economics [AG\_EC] 2070). Examines current environmental and natural resource issues using a systems perspective

and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels. Prerequisite English [ENGLSH] 1000 and sophomore standing.

**ENV ST 2101: Topics in Environmental Sciences (1-3).** Selected topics not in regularly offered courses.

**ENV ST 2110: Environmental Sustainability (3).** Students will assess availability of key resources, estimate sustainable rates of use and develop plans for aligning current and sustainable rates of use using personal, business and government strategies. Prerequisites: English [ENGLSH] 1000 and one introductory environmental course. Graded A-F only.

**ENV ST 2150: Directed Independent Study (1-3).** Working with Environmental Studies you will find and develop a research project or an internship with the university, a government agency, a business or a non-profit agency. The project will be directed towards solving an environmental problem. Prerequisite: instructor's consent.

**ENV ST 3000: Natural History of Missouri (2).** This class deals with the characteristics of natural ecological communities of Missouri and with the skills needed to observe, record and interpret those characteristics. Graded on A/F basis only. Prerequisites: Mathematics [MATH] 1100 and English [ENGLSH] 1000

**ENV ST 4310: Topics in Environmental Studies (1-3).** This course covers topics not covered in regularly offered courses. Students are expected to combine skills, knowledge and perspectives from the natural and social science to analyze selected environmental problems.

**ENV ST 4350: Modeling Environmental Problems (3).** This course covers modeling environmental problems as systems. Modeling incorporates rates of changes, feedback loops, short/long term signals, inertia, upstream causes, interventions, implementing interventions and unintended consequences. Prerequisites: 9 hours natural science courses and junior standing. Graded on A/F basis only.

#### FILM STUDIES COURSES

**FILM S 1800: Introduction to Film Studies (3).** (same as English [ENGLSH] 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. Prerequisites: Freshmen and Sophomores only or instructor's consent. No credit for students who have completed Film Studies [FILM\_S] 2810. Graded on A/F basis only.

**FILM S 2001: Topics in Film Studies-General (1-3).** Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**FILM S 2005: Topics in Film Studies- Humanities (1-3).** Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**FILM S 2010: The Philosophy of Film (3).** (same as Philosophy [PHIL] 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**FILM S 2520: Film Pre-Planning and Production (3).** Provides an overview of the pre-production and production work involved in the making of a feature film with hands-on examples. It covers planning, scheduling, and shooting within a budget and on a schedule. It examines operational aspects and language of a working film set, and addresses filmmaking skills and aesthetic quality in the study of cameras, lights and sound equipment. Students will help produce an independent feature film during the semester. The course and the film project stresses quality and production values of a film with the main goal of producing a commercially viable film.

**FILM S 2820: Trends in World Cinema (3).** (same as German [GERMAN] 2820 and Romance Languages [RM\_LAN] 2820). This course is a historical

overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production. Prerequisite: Sophomore standing, English [ENGLSH] / Film Studies [FILM\_S] 1800 or instructor's consent.

**FILM S 2830: American Film History I, 1895-1950 (3).** (same as English [ENGLSH] 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed English [ENGLSH]/Film Studies [FILM\_S] 1810. Prerequisite: English [ENGLSH] 1000, English [ENGLSH]/Film Studies [FILM\_S] 1800.

**FILM S 2840: American Film History II, 1950-Present (3).** (same as Film Studies [FILM\_S] 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed English [ENGLSH]/Film Studies [FILM\_S] 1820. Prerequisite: English [ENGLSH] 1000 and English [ENGLSH]/Film Studies [FILM\_S] 1800.

**FILM S 2850: Italian Cinema (3).** (same as Italian [ITAL] 2850). A course which concentrates on the development of Italian Cinema, primarily since the Post-WWII era, and the ways in which it reflects major economic, social and political events occurring in Italy. No knowledge of Italian required. Prerequisite: Sophomore standing.

**FILM S 2860: Film Themes and Genres (3).** (same as English [ENGLSH] 2860) Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres. Prerequisite: English [ENGLSH] 1000 and English [ENGLSH] / Film Studies [FILM\_S] 1800.

**FILM S 2865: The Art of Soviet and Russian Cinema (3).** (Same as Russian [RUSS] 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken toward major.

**FILM S 2870: Film and Literature (3).** (same as English [ENGLSH] 2870). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Prerequisites: English [ENGLSH] 1000 and English [ENGLSH]/Film Studies [FILM\_S] 1800. Graded on A/F basis only.

**FILM S 3001: Topics in Film- General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: Sophomore standing or instructor's consent.

**FILM S 3005: Topics in Film Studies - Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: Sophomore standing or instructor's consent.

**FILM S 3780: Architecture in Film (3).** (same as Art History and Archaeology [AR\_H\_A] 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a variety of genres, this course explores how architecture operates within film.

**FILM S 3785: Art and Artists on Film (3).** (same as Art History and Archaeology [AR\_H\_A] 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**FILM S 3820: Major Directors (3).** (same as English [ENGLSH] and Romance Languages [RM\_LAN] 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Prerequisites: English [ENGLSH] 1000 and English [ENGLSH]/Film Studies [FILM\_S] 1800. Graded on A/F basis only

**FILM S 3830: History of German Film (3).** (same as German [GERMAN] 3830). Introduction to the development of the German film. Old and recent

films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit. Prerequisites: Sophomore standing or instructor's consent.

**FILM S 3840: German Film After 1945 (3).** (same as German [GERMAN] 3840). Examines a selection of post-War films by German directors, as well as historical, literary, and theoretical texts. Prerequisite: Sophomore standing, or instructor's consent.

**FILM S 3845: Modern Israeli Film (3).** (same as Hebrew [HEBREW] 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture. Prerequisite: Sophomore standing or consent of instructor required.

**FILM S 3850: Studies in Film History (3).** (same as English [ENGLISH] 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major. Prerequisites: English [ENGLISH] 1000 and English [ENGLISH]/Film Studies [FILM\_S] 1800.

**FILM S 3855: Documentary Film (3).** (same as English [ENGLISH] 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A/F basis only. Prerequisite: English [ENGLISH] 1000.

**FILM S 3861: Film Themes and Genres (3).** Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 3861. Prerequisite: English [ENGLISH] 1000 and ENGLISH/Film Studies [FILM\_S] 1800.

**FILM S 3865: The Holocaust on Screen (3).** (same as German [GERMAN] 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Prerequisites: Sophomore standing. Graded on A/F basis only.

**FILM S 3870: Russian Women and Film (3).** (same as Russian [RUSS] 3870 Women and Gender Studies [WGST] 3870) Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles). Prerequisite: Sophomore standing or instructor's consent.

**FILM S 3875: Brazilian Cinema (3).** (same as Portuguese [PORT] 3875). An introduction to Brazilian cinema, culture, and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; redefinition of national identity and history, representations of race and gender. Prerequisite: English [ENGLISH] 1000.

**FILM S 3880: Contemporary Chinese Film (3).** (same as Chinese [CHINESE] 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required. Prerequisite: Sophomore standing or instructor's consent.

**FILM S 3890: Russian and Soviet Film (3).** (same as Russian [RUSS] 3890). Introduces three significant genres of Russian cinema: comedy, literary adaptations, and films that explore issues of identity and autobiography. Includes examples from different epochs. Considers Soviet and post-Soviet films. Russia and Russian culture. Course conducted in English; films have English subtitles. Prerequisites: Sophomore standing or instructor's consent.

**FILM S 3930: Screenwriting for Television and Film (3).** (same as Theatre [THEATR] 3930). Fundamentals of storytelling utilizing tools and structure used by television and film. Prerequisite: English [ENGLISH] 1000.

**FILM S 4001: Topics in Film-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: Sophomore standing or instructor's consent.

**FILM S 4005: Topics in Film Studies - Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: sophomore standing or instructor's consent.

**FILM S 4810: Film Theory (3).** (Same as English [ENGLISH] 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others. Prerequisite: English [ENGLISH] 1000 and English/Film Studies [ENGLISH/FILM\_S] 1800. Junior standing or above required.

**FILM S 4820: Studies in Film Genre (3).** (Same as English [ENGLISH] 4820) Topics (e.g. The Western, film noir) announced at time of registration. No more than six hours may be taken toward the major. Prerequisite: English [ENGLISH] 1000 and English/Film Studies [ENGLISH/FILM\_S] 1800; Junior Standing or instructor's consent.

**FILM S 4840: Culture and Media (3).** (Same as English [ENGLISH] 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major. Prerequisite: English [ENGLISH] 1000 and English/Film Studies [ENGLISH/FILM\_S] 1800. Junior standing or instructor's consent required.

**FILM S 4860: Film Themes and Genres (3).** Topics (e.g. Film noir, African-American filmmakers, Food and Film., The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 4860. Prerequisite: English [ENGLISH] 1000 and English [ENGLISH] / Film Studies [FILM\_S] 1800.

**FILM S 4880: Capstone Experience (3).** This course is for Film Studies students who have completed their concentration requirements. The main objective is to help students independently create and complete a capstone project. The project should allow you to conceptualize and enter professional life after commencement. Film Studies majors only. Consent of instructor required.

**FILM S 4935: Adaptation of Literature for Film (3).** (same as English [ENGLISH] 4935 and Theatre [THEATR] 4935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**FILM S 4940: Internship (1-3).** This course is for Film Studies students who have the opportunity to work in an internship position in a related industry or at a government agency where they can gain valuable on the job experience and knowledge. The student must register for the Internship course in the semester in which the work takes place. Prerequisites: English [ENGLISH] 1000, English/Film Studies [FILM\_S] 1800. Must have at least 15 hours of Films Studies credit. Online courses do not count for the 15 hours of Film Credit. Graded S/U only. Instructor consent required.

**FILM S 4960: Special Readings in Film Studies (1-3).** Arranged. Individual work with conferences adjusted to needs of student. Prerequisites: English [ENGLISH] 1000 and English [ENGLISH]/Film

Studies [FILM\_S] 1800. Consent of instructor required. Restricted to Film Studies majors in their final year.

**FILM S 4963: Latin American Cinema (in Spanish) (2-3).** (same as Spanish [SPAN] 4960). Subject varies according to instructor. Prerequisites: Spanish [SPAN] 3420 and 3430.

**FILM S 4995: Senior Honors Thesis (3).** Independent honors research under direction of faculty. Senior standing required, consent of instructor required, Honors eligibility required. Graded on S/U basis only.

## FINANCE COURSES

**FINANC 1000: Principles of Finance (3).** Financing business, consumer, and government activity; stocks, bonds, real estate, and financial markets; risk; insurance; inflation; cash and income management; capital accumulation and appreciation. Students admitted to COB upper level degree program cannot enroll.

**FINANC 2000: Survey of Business Finance (3).** An overview of the global financial system, financial markets, financial institutions, and principles of financial management. Students admitted to COB upper level degree program cannot enroll.

**FINANC 3000: Corporate Finance (3).** Financial decision-making in a corporate environment. Time value of money, capital budgeting, cost of capital, working capital management and financial instruments issued by the firm. Prerequisites: completed 45 semester hours, Accountancy [ACCTCY] 2036 and 2037, Statistics [STAT] 2500, in addition to Economics [ECONOM] 1015 or 1014 or 1024 and 1015.

**FINANC 3300: Personal Risk Management and Insurance (3).** Teaches the importance of risk in personal endeavors and the intelligent handling of such risk. Life, health, auto, homeowner and liability risks are treated. Prerequisite: sophomore standing.

**FINANC 4010: Financial Management (3).** Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing. Prerequisite: Finance [FINANC] 3000.

**FINANC 4020: Investments (3).** Security valuation and analysis, formulation of personal and professional investment programs. Prerequisite: Finance [FINANC] 3000.

**FINANC 4020H: Investments - Honors (3).** Security valuation and analysis, formulation of personal and professional investment programs. Prerequisite: Finance [FINANC] 3000. Honors eligibility required.

**FINANC 4030: Financial Intermediaries and Markets (3).** Functions of intermediaries in the aggregation and allocation of funds, creation and transfer of assets, and distribution of risks. Regulation of financial institutions; financial institutions as instruments of public policy. Prerequisites: Finance [FINANC] 3000 and Economics [ECONOM] 3229.

**FINANC 4110: Financial Management Policy (3).** Application of the concepts and tools of finance to cases in working capital management, capital budgeting analysis and capital structure decisions. Prerequisite: senior standing and Finance [FINANC] 4010; Corequisites: Accountancy [ACCTCY] 3300.

**FINANC 4120: Security Analysis (3).** Classifies and analyzes securities, markets, industries. Formulation of investment policy for institutions, aggressive personal investors. Prerequisites: Finance [FINANC] 4020, senior standing.

**FINANC 4130: Management of Financial Institutions (3).** Operating principles of major financial intermediaries, including commercial banking, savings, insuring, lending and investing institutions. Analysis of cases; study of current problems. Prerequisite: Finance [FINANC] 4030 and senior standing. Some sections of the course may be graded on A/F or S/U graded basis only.

**FINANC 4185: Problems in Finance (cr.arr.).** Independent study, reports on selected topics. Some

sections of this course may be offered A-F only or S/U only.

**FINANC 4201: Topics in Finance (3).** Selected topics in finance, insurance or real estate. Offered on an experimental basis. Some sections of this course may be offered A-F only or S/U only.

**FINANC 4220: Portfolio Management (3).** Development and application of the principles of modern portfolio theory to financial assets. Analysis of the concepts of diversification, portfolio construction, portfolio revision, and use of types of financial assets in effective portfolio management. Prerequisite: Finance [FINANC] 4020 and senior standing.

**FINANC 4320: Financial Futures and Options (3).** A basic overview of financial futures and options markets. Topics include: theoretical pricing of financial futures contracts and stock options, institutional aspects of these markets, hedging, and speculative strategies. Prerequisites: Finance [FINANC] 4020 and senior standing.

**FINANC 4500: Principles of Real Estate (3).** Principle factors influencing land use, practices in real estate business. Prerequisites: Finance [FINANC] 3000, Management [MANGMT] 3540 or senior standing.

**FINANC 4510: Real Estate Appraisal (3).** Procedures for valuing industrial, commercial, residential realty by market, income, replacement cost approaches. Case method, field investigations. Prerequisite: Finance [FINANC] 4500 and senior standing.

**FINANC 4520: Real Estate Finance and Investment (3).** Financing of residential, commercial, and industrial real estate and real estate development. Instruments, institutions, and markets; role of government agencies; investment qualities of real estate. Prerequisite: Finance [FINANC] 4500 and senior standing.

**FINANC 4530: Real Estate Portfolio Analysis and REITs (3).** Management of real estate portfolios and analysis of real estate investment trusts including financial statement analysis, cash flows, and valuation techniques. Prerequisite: Finance [FINANC] 3000.

**FINANC 4620: Investment Strategy of Warren Buffett (3).** Survey and application of the investment philosophy and valuation methods of Warren Buffett. Prerequisites: Finance [FINANC] 3000; Co-requisite: Finance [FINANC] 4020.

**FINANC 4720: International Finance (3).** Application of domestic corporate finance to the international arena. Emphasis on international capital budgeting, working capital management, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination. Prerequisites: Finance [FINANC] 4010, senior standing.

**FINANC 4820: Investment Fund Management (3).** Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. Prerequisites: Finance [FINANC] 3000, 4120 or 4620, instructor's consent. May be repeated for credit.

**FINANC 4940: Professional Finance Internship (3).** Provides students experience with financial activities in business organizations (or, occasionally, in a governmental or not-for-profit setting). Students are required to prepare and execute a plan of study approved by the instructor and the complete written assignments detailed in the plan. Prerequisite: Finance [FINANC] 3000, College of Business students with a finance concentration or international business students with a finance emphasis, and instructor's consent.

## FISHERIES AND WILDLIFE COURSES

**F W 1002: Topics in Fisheries and Wildlife (cr. arr.).** Organized study of selected topics intended primarily for lower-level students in Fisheries and Wildlife Sciences.

**F W 1012: Introduction to Captive Wild Animal Management (3).** (same as Animal Science [AN\_SCI] 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A/F basis only.

**F W 1100: Introductory Zoology with Laboratory (5).** (same as Biological Sciences [BIO\_SC] 1100). Introduces important principles and concepts of zoology. Emphasizes cell biology; evolution; genetics; ecology; structure, function, development of the organism.

**F W 2002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics (cr.arr.).** Organized study of selected topics. Intended for lower division Fisheries and Wildlife students. Subjects may vary from semester to semester.

**F W 2100: Colloquium in Fisheries and Wildlife (1).** Case studies in the biology and management of fish and wildlife and their environments. Prerequisite: Fisheries and Wildlife majors. S/U graded only.

**F W 2500: Introduction to Genetics and Evolution for Conservation (3).** Basic principles and processes of genetics and evolution and their importance for management and conservation. Prerequisite: Natural Resources [NAT\_R] 1070, Biological Sciences [BIO\_SC] 1500, Chemistry [CHEM] 1310, Mathematics [MATH] 1100. Graded on A/F basis only.

**F W 2600: Ornithology (4).** (same as Biological Sciences [BIO\_SC] 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab. Prerequisites: 5 hours Biological Sciences or instructor's consent.

**F W 2700: Ichthyology (4).** (same as Biological Sciences [BIO\_SC] 2700). A broad introduction to the biology and ecology of fishes. Emphasis will be placed on understanding the adaptations fishes exhibit to aspects of their environment. Prerequisite: 8 hours Biological Sciences or equivalent.

**F W 2900: Principles of Wildlife Management (4).** Expose students to the principles of wildlife management with emphasis on current issues faced by wildlife researchers and managers in the field. Prerequisite: Natural Resources [NAT\_R] 1070 and one other course in biological or environmental science; sophomore standing or higher. Graded on A/F basis only.

**F W 3002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics (cr.arr.).** Organized study of selected topics. Intended for upper division students. Subjects and credit may vary from semester to semester.

**F W 3085: Problems in Fisheries and Wildlife (cr.arr.).** Individual problems studies to supplement regularly organized undergraduate courses in Fisheries and Wildlife. Proposal for problems study must be arranged by student and supervising faculty member prior to registration. Prerequisite: consent of supervising faculty member.

**F W 3090: International Studies in Conservation (1-5).** International study abroad that enhances and expands conservation knowledge and experience. Prerequisites: 12 hours biological science and/or conservation-related coursework. Restricted to Fisheries and Wildlife majors only; departmental consent. Must complete a Study Abroad Proposal prior to attending the course. May be repeated for credit

**F W 3200: Aquaculture (3).** This course aims to develop an understanding of key aspects of the practice of fish culture, an awareness of aquatic species being cultured worldwide, and an appreciation of why aquaculture is expanding so rapidly on a global basis and the emerging environmental concerns associated with aquaculture growth. Graded on A/F basis only.

**F W 3300: Wildlife Damage Management (3).** To explore wildlife damage conflicts involving human health and safety, agricultural resources, economics and natural resources. The course studies damage caused by wildlife species and methods to alleviate

damage. Covers wildlife diseases, human dimensions and wildlife policies. Graded on A/F basis only.

**F W 3350: Wildlife Damage Management Lab (1).** To explore wildlife damage management techniques in a field setting. To gain knowledge in assessing wildlife damage and the responsible species and determine the best approach to reduce that damage. Pre/Co-requisite: Fisheries and Wildlife [F\_W] 3300. Graded on A/F basis only.

**F W 3400: Water Quality and Natural Resource Management (3).** Introduction to broad aspects of water quality science, management and policy. Topics include aquatic ecology, eutrophication, lake and coastal management, water supply and treatment, watershed management with respect to agriculture and urban development, and toxicology. Prerequisite: Chemistry [CHEM] 1310 and Natural Resources [NAT\_R] 1070 or instructor's consent.

**F W 3500: Wildlife Conservation in British Cities (3-6).** (same as Agriculture, Food and Natural Resources [AFNR] 2190). Five week study abroad course focusing on approaches to wildlife conservation in London, Birmingham, Manchester, Liverpool and Edinburgh. Students will learn how managers blend ecology, conservation, and participatory approaches to management to conserve species in a human dominated landscape. Hands on involvement with conservation projects included. Prerequisites: Natural Resources [NAT\_R] 1060 or 1070, Management course in SNR; instructor's consent.

**F W 3600: Introduction to Conservation Biology (3).** Introduction to principles of conservation biology. Application of ecological concepts and conservation biology principles to management of endangered species, biodiversity and threatened ecosystems. Prerequisite: Biological Sciences [BIO\_SC] 3650.

**F W 3660: Mammalogy (4).** (same as Biological Sciences [BIO\_SC] 3660). Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States. Prerequisite: junior standing or instructor's consent.

**F W 3900: Ecology of Fishes (3).** This course considers fishes' interactions with their environments in relation to survival, growth and population processes. The course is for mid- to upper-level undergraduates interested in fisheries science, management and fish conservation. Prerequisites: Statistics [STAT] 2530 or 1400; Biological Sciences [BIO\_SC] 1500 or Fisheries and Wildlife [F\_W] 1100; sophomore standing. May be repeated once for credit. Graded on A/F basis only.

**F W 4002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics (cr.arr.).** Organized study of selected topics intended primarily for senior-level students in Fisheries and Wildlife Sciences.

**F W 4100: Limnology (3-4).** (same as Biological Sciences [BIO\_SC] 4100) (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity. Prerequisites: senior standing or Biological Sciences [BIO\_SC] 3650.

**F W 4200: Urban Wildlife Conservation (3).** Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas. Prerequisites: Biological Sciences [BIO\_SC] 3650 or instructor's consent.

**F W 4220: Human Dimensions of Fish and Wildlife Conservation (3).** Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation. Prerequisite: One 3000-level or above professional Fisheries and Wildlife [F\_W] management or techniques course or instructor consent.

**F W 4300: Fisheries Management (3).** Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations. Prerequisites: Biological Sciences [BIO\_SC] 3650 and Statistics [STAT] 2530.

**F W 4400: Techniques for Fisheries Management and Conservation (3).** Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding

of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Prerequisites: graduate standing and Biological Sciences [BIO\_SC] 3650 and Statistics [STAT] 2530 or Natural Resources [NAT\_R] 3110 and Fisheries and Wildlife [F\_W] 2700 or 4300.

**F W 4500: Animal Population Dynamics and Management (3).** Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species. Prerequisites: Mathematics [MATH] 1400, Statistics [STAT] and Biological Sciences [BIO\_SC] 3650.

**F W 4600: Ecosystem Management (4).** Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Prerequisites: Biological Sciences [BIO\_SC] 3650. Graded on A/F basis only.

**F W 4700: Wildlife Research and Management Techniques (4).** Research and Management methods for wildlife populations and habitats. Prerequisite: Biological Sciences [BIO\_SC] 3650 and Statistics [STAT] 2530 or Natural Resources [NAT\_R] 3110. One week pre-semester field session required.

**F W 4800: Environmental Toxicology (3).** Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment. Prerequisites: Chemistry [CHEM] 1320 and Fisheries and Wildlife [F\_W] 3400 or instructor's consent.

**F W 4810: Wildlife Disease Ecology (3).** An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation. Prerequisites: for undergraduates, Biological Sciences [BIO\_SC] 3650.

**F W 4880: Waterfowl Ecology and Management (3).** Ecology and management of North American waterfowl and their habitats. Laboratory exercises focus on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Prerequisite: Fisheries and Wildlife [F\_W] 2600; Biological Sciences [BIO\_SC] 3650; instructor's consent. Graded on A/F basis only.

**F W 4910: Senior Seminar in Captive Wild Animal Management (1).** (same as Animal Science [AN\_SCI] 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Prerequisite: Animal Science [AN\_SCI] or Fisheries and Wildlife [F\_W] 1012 or instructor's consent; junior or senior standing. Graded A-F only.

**F W 4940: Fisheries and Wildlife Internship (cr. arr.).** Supervised professional experience with an approval public or private organization. Prerequisite: Fisheries and Wildlife majors only, instructor's consent. Graded on S/U basis only. May be repeated for credit.

**F W 4950: Undergraduate Research in Fisheries and Wildlife (cr.arr.).** Individually directed field or laboratory research for students under faculty supervision. Project must be arranged by student and faculty member prior to registration. Prerequisite: consent of supervising faculty member.

**F W 4960: Special Readings in Fisheries and Wildlife (cr.arr.).** Critical review of current literature and research in fisheries and wildlife sciences. Project must be arranged by student and faculty supervisor prior to registration. Prerequisites: supervising faculty member's consent required.

## FOOD SCIENCE COURSES

**F S 1010: Introduction to Viticulture and Enology (1).** This course will give a general overview of growing grapes (viticulture) and winemaking (enology) with an emphasis on Missouri wines and wineries. This course is the first course in a sequence of courses in the viticulture and enology track of the food science degree program.

**F S 1030: Food Science and Nutrition (3).** Basic principles of science and technology as applied to the problem of providing safe, nutritious, and desirable food for man.

**F S 2114: Live Animal and Meat Evaluation (3).** (same as Animal Science [AN\_SCI] 2114). The composition and quality meat produced from food animals is the driving component of livestock economic value. This course will teach the principles and procedures involved in evaluation, grading, selection, and economic value of meat animals and poultry and the carcasses they produce. This course is an excellent introduction and (or) prerequisite for all livestock production courses and will provide a baseline of information for students interested in livestock or meat judging.

**F S 2131: Dairy Products Evaluation (2).** (same as Animal Science [AN\_SCI] 2131). Sensory Evaluation and judging of dairy products.

**F S 2172: Elements of Food Microbiology (3).** Basic course stressing principles of microbiology applied to foods.

**F S 2195: Grapes and Wines of the World (3).** (same as Plant Science [PLNT\_S] 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**F S 2199: Seminar in Professional Development (1).** Readings and discussion related to professional development for the industry. Prerequisites: sophomore standing.

**F S 3190: Study Abroad: International Meat, Dairy and Enology (3).** (same as Animal Science [AN\_SCI] 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Prerequisite: instructor's consent

**F S 3214: Principles of Meat Science (3).** (same as Animal Science [AN\_SCI] 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food. Prerequisite: one course in Biological Sciences.

**F S 3231: Principles of Dairy Foods Science (3).** (same as Animal Science [AN\_SCI] 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.) Prerequisite: One course in Chemistry [CHEM] or Biological Sciences [BIO\_SC].

**F S 3240: Principles of Viticulture I (4).** (Same as Plant Science [PLNT\_S] 3240) Students will gain knowledge and skills in vineyard establishment, grapevine propagation, yield estimation, harvest and pruning. Knowledge of grapevine physiology, cultivars, and the world's major grape production regions will also be fostered. Prerequisites: Food Science [F\_S] 1010 and Food Science [F\_S]/Plant Science [PLNT\_S] 2195 or Plant Science [PLNT\_S] 2100 or Plant Science [PLNT\_S] 2110. Graded on A/F basis only.

**F S 3250: Physical Principles for Food Processing (3).** Introduction to basic engineering concepts used to process raw materials: Energy balance, Pipe flow, Viscosity, Heat exchange, Refrigeration. Prerequisites: one calculus course and one physics course.

**F S 3385: Problems in Food Science (cr.arr.).** Supervised study in a specialized phase of food science and nutrition.

**F S 4199: Food Industry Senior Seminar (1).** The course explores the structure and the various branches of the food industry. Emphasis is placed on industry trends and the manufacture of specific selected food products and their ingredients. Prerequisite: Food Science [F\_S] 1030 or equivalent, Food Science [F\_S] 2199 or equivalent; junior or senior standing. Graded on A/F basis only.

**F S 4301: Topics in Food Science (cr.arr.).** Instruction in specific subject matter areas in the field of food science and nutrition.

**F S 4310: Food Chemistry and Analysis (4).** Structure, composition and chemical properties of food. Prerequisite: 5 hours Chemistry [CHEM] or Biochemistry [BIOCHM].

**F S 4311: Investigation of Food Properties (3).** Study of the chemical and physical properties of foods and the interaction of food components. Lecture. Prerequisites: Food Science [F\_S] 4310 or equivalent, or instructor's consent.

**F S 4315: Food Chemistry and Analysis Laboratory (3).** The quantitative determination of the constituents of food. Prerequisites: Food Science [F\_S] 4310 or concurrent enrollment.

**F S 4330: Principles of Food Processing (4).** Basic principles of food processing, with emphasis on blanching, pasteurization, commercial sterilization, refrigeration, freezing, concentration, dehydration and packing. Impacts of processing on product quality are evaluated.

**F S 4331: Technology of Dairy Products and Ingredients (3).** Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients. Prerequisites: one Chemistry course and Food Science [F\_S] 3231 or equivalent.

**F S 4340: Principles of Viticulture II (4).** (Same as Plant Science [PLNT\_S] 4340) To develop an understanding of the factors influencing vine physiology and winegrape quality such as irrigation strategies, canopy management, and disease and pest control. Budgets for profitable operation, mechanized viticulture, and current trends in viticulture will also be covered. Prerequisite: Food Science [F\_S]/Plant Science [PLNT\_S] 3240. Graded on A/F basis only.

**F S 4344: Processing Muscle Foods (3).** (same as Animal Science [AN\_SCI] 4304). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility. Prerequisites: One Chemistry course.

**F S 4354: Physiology and Biochemistry of Muscle as Food (3).** (same as Animal Science [AN\_SCI] 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food. Prerequisite: Biological Science [BIO\_SC] 1010 or equivalent or Food Science [F\_S] 3214 or instructor's consent.

**F S 4370: Food Microbiology (3).** Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups. Prerequisites: Food Science [F\_S] 2172 and one Biochemistry course or concurrent enrollment.

**F S 4375: Food Microbiology Laboratory (2).** Examination of foods for microorganisms and characterization of major species. Prerequisite: Food Science [F\_S] 4370 or concurrent enrollment.

**F S 4380: Sensory Analysis of Food and Beverages (3).** Methodological principles of the sensory analysis of food and beverages with an emphasis on wine analysis. Recommended: one statistics course.

**F S 4385: Problems in Food Science (cr.arr.).** Advanced problems in a selected field of food science and nutrition.

**F S 4390: Optimization and Management of Food and Agricultural Systems (3).** (same as Agricultural Systems Management [AG S M] and Hospitality Management [HSP MGMT] 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function. Prerequisite: Mathematics [MATH] 1100.

**F S 4440: Principles of Winemaking and Wine Chemical Analysis (4).** The theoretical and practical basics needed by enologists/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Prerequisites: 5 credit hours inorganic chemistry and organic chemistry or concurrent, or instructors consent. Graded on A/F basis only.

**F S 4441: Cellar Operations and Special Vinifications (3).** The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Prerequisite: 5 credit hours inorganic chemistry and organic chemistry and "Principles of Winemaking and Wine Chemical Analysis" (Food Science [F S] 4440) or instructor's consent. Graded on A/F basis only.

**F S 4940: Field Training (cr.arr.).** Prerequisites: junior or senior standing and instructor's consent.

**F S 4941: Internship in Food Science (1-6).** Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation. Prerequisites: one Food Science course and instructor's consent.

**F S 4970: Food Product Development (3).** Capstone course integrating the various disciplines of food science to create new food products. Prerequisites: English [ENGLSH] 1000 and instructor's consent.

**F S 4980: Food Quality Assurance (3).** Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods. Prerequisites: English [ENGLSH] 1000, senior standing and instructor's consent.

## FORESTRY COURSES

**FOREST 1102: Topics in Forestry - Biological/Physical/Mathematical (1-3).** Organized study of selected topics in forestry. Intended for undergraduate students.

**FOREST 1104: Topics in Forestry - Social Science (1-3).** Organized study of selected topics in forestry. Intended for undergraduate students.

**FOREST 2151: Dendrology (4).** An introduction to the biology of trees, emphasizing identification in the field, taxonomy, ecology, geographic distribution and economic significance of forest species. Prerequisites: Biological Sciences [BIO\_SC] 1200 or Plant Science [PLNT\_S] 2120 and 3130 or instructor's consent.

**FOREST 2540: Forest Hydrology Field Studies (1).** Introduction to forest hydrology, watershed management, water quantity and quality, climate and biophysical relationships. Prerequisites: Soils [SOIL] 2100, Forestry [FOREST] 2151 and Forestry [FOREST] 2541, 2542, 2543, 2544 and 2545 concurrently.

**FOREST 2541: Forest Utilization (1).** Field studies of logging and milling of timber. Prerequisites: Soils [SOIL] 2100, Forestry [FOREST] 2151 and Forestry [FOREST] 2540, 2542, 2543, 2544 and 2545 concurrently.

**FOREST 2542: Forest Measurement and Inventory (1).** Field measurement of standing trees

including diameter, height and age. Estimation of forest timber resources using a variety of sampling schemes and techniques. Introduction to Arcview and growth models. Prerequisites: Soils [SOIL] 2100, Forestry [FOREST] 2151 and Forestry [FOREST] 2540, 2541, 2543, 2544 and 2545 concurrently.

### FOREST 2543: Forest Ecology Field Studies

**(1).** Field studies of vegetation, soils, habitats and ecological units. Application of ecological principles of natural resource management and understanding of natural and managed forested communities with an emphasis on southeastern Missouri. Prerequisites: Soils [SOIL] 2100, Forestry [FOREST] 2151 and Forestry [FOREST] 2540, 2541, 2542, 2544 and 2545 concurrently.

**FOREST 2544: Introduction to Silviculture and Management (1).** Management objectives and stand prescriptions, regeneration and intermediate silvicultural treatments, management on private and federal forest lands, tree evaluation and timber marking. Prerequisites: Soils [SOIL] 2100, Forestry [FOREST] 2151 and Forestry [FOREST] 2540, 2541, 2542, 2543 and 2545 concurrently.

**FOREST 2545: Forest Management Planning (1).** Preparation and presentation of a written forest management plan using material and data developed in prerequisite courses. Prerequisites: Soils [SOIL] 2100, Forestry [FOREST] 2151 and Forestry [FOREST] 2540, 2541, 2542, 2543 and 2544 concurrently.

**FOREST 3201: Topics in Forestry (cr.arr.).** Organized study of selected topics. Intended primarily for undergraduate Forestry students. Subjects and credit may vary from semester to semester.

**FOREST 3207: Forest Fire Control and Use (2).** Fundamentals of all phases of fire protection. Objectives and techniques in use of fire.

**FOREST 3212: Forest Health and Protection (4).** Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies. Prerequisite: Forestry [FOREST] 2151.

**FOREST 3217: Fire and Society (2).** A study of the relationship between society (humans) and fire. What kind of role does fire play in day-to-day life? How has fire influenced our behavior since Day 1? How do we view fire today?

**FOREST 3240: Wood Technology (3).** Structure and identification of commercial woods. Relation of growth to physical and chemical properties of wood.

**FOREST 3290: Urban Forestry (2).** The culture and management of trees in urban areas, including ownership patterns, species composition, growth environment, amenities provided and evaluation. One-day field trip required. Prerequisites: Forestry [FOREST] 2151 or Plant Science [PLNT\_S] 2210, or instructor's consent.

**FOREST 3300: Problems in Forestry (cr.arr.).** Problems in Forestry

**FOREST 3350: Special Readings in Forestry (cr.arr.).** Critical review of current literature and research in forestry, fisheries and wildlife, and methods of presenting research results.

**FOREST 4301: Topics in Forestry (3).** Organized study of selected topics. Intended for upper-division students. Subjects and credit may vary from semester to semester.

**FOREST 4320: Forest Ecology (5).** Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function. Prerequisites: Forestry [FOREST] 2151, Biological Sciences [BIO\_SC] 3210 or instructor's consent.

**FOREST 4330: Practice of Silviculture (3).** Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services. Prerequisite: Forestry [FOREST] 4320.

**FOREST 4340: Tree Physiology (3).** Lectures on physical and chemical phenomena involved in

the functions and activities of trees. Prerequisites: Biochemistry [BIOCHM] 2110, Biological Sciences [BIO\_SC] 1200, Chemistry [CHEM] 1100; or instructor's consent.

**FOREST 4350: Forest Economics (3).** Economic principles applied to production/marketing of goods and services from forest land; emphasizes capital and land factors and investment alternatives related to time. Prerequisites: Mathematics requirement completed; Agricultural Economics [AG\_EC] 1042, or 2070.

**FOREST 4360: Photogrammetry, Inventory and Models (3).** Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**FOREST 4365: Logging Systems: Operations and Analyses (3).** A systems approach to timber harvesting from acquisition through engineering to log transport. Regional aspects and influences will be considered. Prerequisites: Forestry [FOREST] 2540, 2541.

**FOREST 4370: Wildland Fire Management (3).** Management, administration, and organization of wildland and prescribed fires and other natural and man-made disasters. Emphasis placed on organizational arrangements of incidents rather than on either strategy or tactics. Prerequisites: Forestry [FOREST] 3207 or equivalent.

**FOREST 4375: Forest Stand Dynamics (3).** Examine the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics. Prerequisite: Forestry [FOREST] 4330 or instructor's consent.

**FOREST 4380: Forest Resource Management (3).** Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives. Prerequisites: Forestry [FOREST] 4330 and 4350.

**FOREST 4385: Agroforestry I: Theory, Practice and Adoption (3).** Understand biophysical, ecological, social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices. Prerequisite: junior standing.

**FOREST 4390: Watershed Management and Water Quality (3).** Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality. Prerequisites: Mathematics [MATH] 1400 or instructor's consent.

**FOREST 4940: Forestry Internship (cr.arr.).** Supervised professional experience with an approved public or private organization. Prerequisite: Forestry majors only, instructor's consent. Graded on S/U basis only. May be repeated for credit.

**FOREST 4994: Senior Honors Research in Forestry (1-3).** Prerequisites: 3.30 GPA and instructor's consent.

**FOREST 4995: Senior Honors Research in Forestry (1-3).** Prerequisites: 3.30 GPA and instructor's consent.

## FRENCH COURSES

**FRENCH 1100: Elementary French I (5).** An introductory course for students who wish to begin their study of French. It teaches the four skills—listening, speaking, reading, and writing. The class meets four days a week and one day in the lab. Class-time is used to practice the structures and vocabulary.

**FRENCH 1100H: Elementary French I - Honors (5).** This course designed for Honors students with 2-3 years of high school French focuses on the four skills, speaking, listening, reading and writing, and offers enriched cultural opportunities in and out of the classroom, such as movies, guest lectures, art exhibits,

and plays. Students practice those skills, using authentic materials in real-life situations. Prerequisites: 2 years high school French; Honors eligibility required. Graded on A/F basis only.

**FRENCH 1200: Elementary French II (5).** The second course of the beginning language sequence is the continuation of French [FRENCH] 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of French are encouraged to take this course. Prerequisite: grade of C or better in French [FRENCH] 1100 or equivalent. NO credit for both FRENCH 1200 and 1250.

**FRENCH 1250: Accelerated Beginning French (5).** Course is designed for students who have taken more than two years of High School French. It offers a reinforcement of the beginning concepts of the French language and the many cultures it encompasses. Course allows students to further develop all language skills. NO credit for both French [FRENCH] 1200 and 1250.

**FRENCH 2001: Undergraduate Topics in French-General (1-3).** Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department. Prerequisite: French [FRENCH] 1200 with a grade of C or better.

**FRENCH 2004: Undergraduate Topics in French-Social Science (1-3).** Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department. Prerequisite: French [FRENCH] 1200 with a grade of C or better.

**FRENCH 2005: Undergraduate Topics in French-Humanities/Fine Arts (1-3).** Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department. Prerequisite: French [FRENCH] 1200 with a grade of C or better.

**FRENCH 2100: Elementary French III (3).** A multi-skill course following French [FRENCH] 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression. Prerequisite: grade of C or better in French [FRENCH] 1200 or 1250, or their equivalent courses.

**FRENCH 2160: Intermediate French Composition and Conversation (3).** A course designed to develop the ability to speak, read, and write in French via the reading of French short stories and/or a short novel. Grammar review. Prerequisite: French [FRENCH] 2100.

**FRENCH 2310: French Civilization (3).** Open to any student interested. No knowledge of French required. May not be included in area of concentration in French. Prerequisite: sophomore standing.

**FRENCH 2320: French Literature and Thought in English Translation I (3).** This course examines how the masterworks of French literature, from the Middle Ages to the eighteenth century, have influenced Western literary, cultural and philosophical traditions. Prerequisite: sophomore standing or instructor's consent.

**FRENCH 2330: French Literature in Translation II (3).** This course examines how the masterworks of French literature of the nineteenth and twentieth centuries have influenced Western literary, cultural and philosophical traditions. Prerequisite: sophomore standing or instructor's consent.

**FRENCH 2350: New World Francophone Literature in Translation (3).** A survey of literature written by Caribbean writers of French expression. Writers include M. Conde, P. Chamoiseau, A. Césaire, E. Glissant, S. Bart-Schwartz, R. Depestre and G. Etienne. Prerequisite: English [ENGLSH] 1000.

**FRENCH 2370: French Women Writers (in translation) (3).** Survey of texts and contributions of French women writers from the medieval period to the 20th century. Prerequisite: sophomore standing.

**FRENCH 3001: Topics in French-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

Prerequisites: sophomore standing, departmental consent for repetition.

**FRENCH 3004: Topics in French-Social Science (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: sophomore standing, departmental consent for repetition.

**FRENCH 3005: Topics in French-Humanities/Fine Arts (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: sophomore standing, departmental consent for repetition.

**FRENCH 3160: Advanced French Composition and Conversation I (3).** Development of more sophisticated skills of written and oral expression. Prerequisites: French [FRENCH] 2160 or equivalent.

**FRENCH 3180: Les Fondations de la Civilisation Française (3).** Overview of French civilization from its origins to French Revolution. Studies will examine key cultural objects from art, literature, and popular culture as well as political and historical movements that have shaped development of French civilization. Ideal for students interested in engaging with issues, debates, and problems that helped to define the nascent French state. Prerequisite: French [FRENCH] 2160.

**FRENCH 3280: Commercial French (3).** Composition and Conversation course based on materials related to the French business world. Acquisition of business-related vocabulary. Introduction to French business operations and correspondence. Prerequisites: French [FRENCH] 2160 or equivalent.

**FRENCH 3410: Introduction to Literary Analysis (3).** Will acquaint students with vocabulary required for analysis of literary texts. Along with the traditional French method of poetry explication, students will learn to analyze the major literary genres (poetry, theatre, prose). Prerequisite: French [FRENCH] 3160.

**FRENCH 3420: Introduction to French Literature I (3).** Study of selected masterpieces of French literature from the Middle Ages through the 18th century. Prerequisites: French [FRENCH] 3160 is required; French [FRENCH] 3410 is highly recommended.

**FRENCH 3430: Introduction to French Literature II (3).** Study of selected masterpieces of French literature of the 19th and 20th centuries. Prerequisites: French [FRENCH] 3160 is required; French [FRENCH] 3410 is highly recommended.

**FRENCH 3440: Francophone Literature of North America (3).** A survey course of Francophone literature of New France, Louisiana territory and the French West Indies from its beginnings in the seventeenth century to the late twentieth century. Selected novels, poems and plays will be studied in their historical and social context. Prerequisite: French [FRENCH] 2160.

**FRENCH 3710: Survey of Minority & Creole Languages of the U.S. & the Caribbean (3).** (same as Spanish [SPAN] 3710 and Linguistics [LINGST] 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, cultural and national identity (taught in Eng.). Prerequisite: sophomore standing.

**FRENCH 4004: Topics in French-Social Science (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing, departmental consent for repetition.

**FRENCH 4070: Intensive Beginning French (3).** Rapid acquisition of a reading knowledge of French. Cannot be taken to fulfill undergraduate language requirement. Prerequisites: instructor's consent.

**FRENCH 4120: Foreign Language Teaching Methodology (3).** (same as Spanish [SPAN] 4120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. Prerequisite: departmental consent. May not be used

toward Arts & Science major.

**FRENCH 4130: Stylistics (3).** A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis. Prerequisites: French [FRENCH] 3160 or 3280 and 3420 or 3430.

**FRENCH 4410: French Medieval Literature (3).** Survey of representative works from the principal literary genres of the Middle Ages: epic (La Chanson de Roland), courtly romance (Chretien de Troyes), chantefable (Aucassin et Nicolette), short story (lai, fabliau), theatre, and lyric poetry. Prerequisites: French [FRENCH] 3420 and 3430.

**FRENCH 4420: French Renaissance (3).** Survey of prose and poetry of the sixteenth century with significant emphasis on Montaigne, Rabelais, and the poetry of the Pleiade. Prerequisites: French [FRENCH] 3420 and 3430.

**FRENCH 4430: Seventeenth-Century French Literature (3).** Survey of major writers of the seventeenth century. The principal currents of the century as well as the Baroque and the classical movements are discussed. Authors include Corneille, Moliere, Racine, Descartes, Pascal, La Bruyere, La Rochefoucauld, and Madame de Lafayette. Prerequisite: French [FRENCH] 3420 and French [FRENCH] 3430.

**FRENCH 4440: Eighteenth-Century French Literature (3).** Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclos, Diderot, Marivaux, Prevost, and Beaumarchais. Prerequisites: French [FRENCH] 3420 and French [FRENCH] 3430.

**FRENCH 4450: Nineteenth-Century French Literature (3).** Selected readings from poetry and theatre with an emphasis on the various manifestations of Romanticism throughout the century. Works by Lamartine, Hugo, Vigny, Musset, Gautier, Nerval, Baudelaire, Verlaine, and Mallarme are included. Prerequisites: French [FRENCH] 3420 and French [FRENCH] 3430.

**FRENCH 4460: Twentieth-Century French Novel (3).** The course is a historical survey that deals with three topics: the modernist writings of the early twentieth century (Proust, Gide, and Colette), existentialism of the mid-century (Sartre, Camus), and contemporary forms of writing (Beckett, Robbe-Grillet, Sarraute, among others). Prerequisites: French [FRENCH] 3420 and French [FRENCH] 3430.

**FRENCH 4470: Introduction to the Contemporary French Theatre (3).** Survey of twentieth-century French drama. Students read plays by Claudel, Giraudoux, Sartre, Anouilh, Beckett, Ionesco, Genet, and others. Strong emphasis is played on class discussions. Written analyses of two plays are assigned, and there is an hourly exam and a final. Prerequisites: French [FRENCH] 3420 and French [FRENCH] 3430.

**FRENCH 4480: Introduction to Modern French Poetry (3).** Introduction to major currents of French poetry from beginning of the 19th century to the present. Students will write explications of poems, present oral analyses and will be tested on poetic terms and poetic content/styles of various poems and poets. Prerequisite: French [FRENCH] 3420 and 3430.

**FRENCH 4490: Nineteenth-Century French Novel (3).** Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included. Prerequisites: French [FRENCH] 3420 and French [FRENCH] 3430.

**FRENCH 4510: African Francophone Literature (3).** Course introduces contemporary African Literature to students via readings and detailed analysis of literary texts by Francophone African writers. Prerequisite: French [FRENCH] 3420 and 3430.

**FRENCH 4710: History of the French Language (3).** (same as Linguistics [LINGST] 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external social, political, and historical factors that have affected the development of French, followed by a diachronic study of the internal structural features of the language. Prerequisites: French [FRENCH] 3420 and French [FRENCH] 3430.

**FRENCH 4720: Structure of Modern French (3).** (same as Linguistics [LINGST] 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French. Prerequisites: French [FRENCH] 3160 or equivalent or instructor's consent.

**FRENCH 4820: Blogging the World: The Web in Cultural Context (3).** (same as German [GERMAN] and Russian [RUSS] 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts? Prerequisite: sophomore standing required.

**FRENCH 4960: Special Readings in French (1-3).** Independent study through readings, conferences, reports. Prerequisite: French [FRENCH] 3420 and 3430 and departmental consent.

**FRENCH 4980: Special Themes in French (3).** Subject varies according to instructor. Prerequisites: French [FRENCH] 3420 and 3430. May be repeated for credit.

**FRENCH 4993: The Capstone Experience in French (3).** This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**FRENCH 4996: Honors Reading in French (1).** Directed readings in area of honors thesis. Prerequisite: admission to departmental Honors program.

#### GENERAL HUMAN ENVIRONMENTAL SCIENCES COURSES

**GN HES 1100: Introduction to Human Environmental Sciences (1).** Introduction to Human Environmental Sciences

#### GENERAL STUDIES COURSES

**G STDY 3301: Topics in General Studies (cr.arr.).** Experimental and/or interdisciplinary. Subjects and earnable credit may vary from semester to semester.

**G STDY 4940: Internship in General Studies (1-6).** Internship limited to students pursuing the Bachelor of General Studies degree. S/U graded only.

**G STDY 4950: Special Project in General Studies (1-6).** With adviser's approval, student works with a faculty member on a major reading, research, or creative project, usually of interdisciplinary nature.

**G STDY 4960: Readings in General Studies (1-6).** Independent readings with supervisory faculty member. Open only to General Studies majors. May be repeated to a maximum of six hours.

**G STDY 4970: Directed Readings in General**

**Studies (1-6).** Independent readings with supervisory faculty member; this course serves as the student's capstone experience. Open only to General Studies majors only.

**G STDY 4971: Internship in General Studies (1-6).** Internship experience which serves as the student's capstone experience. Program advisor must approve internship. Graded on S/U basis only. Section 2 of this course will be designated for Service Learning Capstone experience.

#### GEOGRAPHY COURSES

**GEOG 1050: Introductory Meteorology (3).** (same as Atmospheric Science [ATM\_SC] 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

**GEOG 1100: Regions and Nations of the World I (3).** Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

**GEOG 1100H: Regions and Nations of the World I - Honors (3).** Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography. Honors eligibility required.

**GEOG 1200: Regions and Nations of the World II (3).** Introductory analysis for general education. Regional character, spatial relationships, problems of environment and development of the former Soviet Union, Pacific World, South and East Asia, Africa and Middle East. Organized around basic concepts in the field of geography. May be taken independently of Geography [GEOG] 1100.

**GEOG 1205H: Regions and Nations General Honors (3).** Honors eligibility required.

**GEOG 1600: Climate Change: Science and Public Policy (3).** This course will explore the role of physical science, environmental politics and public policy in shaping contemporary debate concerning climate change, mitigation, and adaptation strategies. We will examine the scientific rationale and statistical basis underwriting the concept of climate change, why aspects of the science remain controversial, the prospects of institutional action and the difficulties inherent in developing public policies targeting mitigation and adaptation. Course includes a role-playing simulation where students will play roles based on 2009 climate negotiations in Copenhagen, Denmark. Prerequisites: freshman and sophomores only. Graded on A/F basis only.

**GEOG 1840: Mapping the Environment (3).** Introduction to methods of map interpretation and geographic communication through maps. Primary emphasis is on the development of skills in map analysis, with laboratory work and possible field analysis.

**GEOG 2120: United States and Canada (3).** Intensive examination of selected areas and distributions. Regional systems, problems and planning. Prerequisite: sophomore standing.

**GEOG 2130: Geography of Missouri (3).** Physical, human, economic, and political geography of Missouri; regions of the state; geography applied to current state issues. Prerequisite: Geography [GEOG] 1100.

**GEOG 2210: Geography of Europe (3).** Survey of Europe's lands and peoples; emphasis on historical areal relationships as reflected in Europe's changing economic and political organization. Prerequisite: sophomore standing.

**GEOG 2260: Geography of East Asia (3).** Cultural, physical and economic geography of China, Japan, and Korea, with emphasis on China. Landscape analysis, determination of regional identities, and study of political forces evident in the development of the contemporary scene are stressed. Prerequisite: Geography [GEOG] 1200.

**GEOG 2270: Geography of Asia (3).** (same as South Asian Studies [S\_A\_ST] 2270). An introductory survey of the geography of Asia from India through Southeast Asia to China and Japan, emphasizing factors contributing to cultural similarities and variations, conflicts of interest, and current development.

**GEOG 2340: South America (3).** Physical environment and culture in the regional development of South America. Prerequisite: one course in Geography or instructor's consent.

**GEOG 2450: Themes in the Geography of Africa South of the Sahara (3).** (same as Black Studies [BL\_STU] 2450). Major concepts of African geography in current and historical perspective. Case studies of major African countries.

**GEOG 2550: Introduction to the Humanized Earth (3).** Examines human culture as a geographical element; the power of culture and human institutions in human-environmental interaction and the creation of agriculture, folk culture, popular culture, cities, and a broad range of cultural landscapes. Prerequisite: Geography [GEOG] 1100 or 1200.

**GEOG 2580: Geography of Cemeteries (3).** Cemeteries have a discernible spatial and temporal pattern providing a foundation for geographical study. Migration, demographics, spatial analysis and basic mapping skills will be used to investigate cemeteries and their pattern. Prerequisite: freshman and sophomores only.

**GEOG 2610: Introduction to Physical Geography (3).** Examination of the interacting natural systems that comprise the Earth's physical environment, including the atmosphere, biosphere, and landforms. Focus on relating fundamental physical, chemical and ecological processes to the global geographic patterns they produce.

**GEOG 2660: Environmental Geography (3).** Historical perspectives on the human agency in transforming the earth, with emphasis on international environmental problems. Topics include basic biogeography; environmental impacts of population growth, underdevelopment and overdevelopment; and new approaches to management of global resources.

**GEOG 2710: Economic Geography (3).** Geographical location and organization of world's major economic activities. Emphasizes agricultural and industrial patterns, commodity flows, transport networks, geographical principles of market and industrial location, internal spatial organization of cities, land-use models, geographic aspects of economics growth. Prerequisites: Geography [GEOG] 1100 or 1200 or sophomore standing.

**GEOG 2720: Urban Geography (3).** Study of cities: origin, development, distribution; social, economic, and demographic significance. Consideration of theories of structure, urban hierarchies, and land use planning. Prerequisites: Geography [GEOG] 1100, 1200 and two other Geography courses, or instructor's consent.

**GEOG 2780: World Political Geography: Patterns and Processes (3).** (same as Peace Studies [PEA\_ST] 2780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world. Prerequisites: Geography [GEOG] 1100 or 1200 or sophomore standing.

**GEOG 2840: Introduction to Mapping Science (3).** Introduction to basic map concepts, reinforced through lab exercises, lecture material and field work.

**GEOG 2904: Topics in Geography-Social Science (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: sophomore standing, departmental consent for repetition.

**GEOG 3140: Mexico, Central America, and the Caribbean (3).** Physical environment and culture in the regional development of Mexico, Central America, and the Caribbean. Prerequisite: one course in Geography or instructor's consent.

**GEOG 3260: Southeast Asia (3).** (same as South Asia Studies [S\_A\_ST] 3260). Physical, cultural,

historical and regional geography of Southeast Asia, with an introduction to East Asian geography. Emphasizes the problems of tradition and development.

**GEOG 3270: Geography of the Middle East (3).** Cultural, physical and historical geography of Middle East, with emphasis on cultural adaptations to environments and conflicts over the resources.

**GEOG 3280: Geography of South Asia (3).** (same as South Asia Studies [S\_A\_ST] 3280). Topical and regional analysis of India, Pakistan, Sri Lanka. Historical development of distinctive cultural regions. Relations with neighboring areas. Impact of Westernization on economic activities, settlements, population.

**GEOG 3290: Geography of Russia and the Newly Independent States of Eurasia (3).** Geographic analysis of social, economic and political issues confronting Russia and the NIS, including environmental problems, economic interdependence and prospects for regional economic development, population change and migration, inter-ethnic relations and ethno-territorial conflict.

**GEOG 3385: Special Problems in Geography (1-3).** Independent investigation leading to a paper or project. May be repeated to a maximum of 6 hours. Prerequisite: instructor's consent.

**GEOG 3450: Geography of Africa (3).** Major concepts of African geography in current and historical perspective.

**GEOG 3510: Historical Geography of North America (3).** Analysis of selected geographical patterns and themes in the continent's past. Focus is explicitly geographical, stressing extensive use of maps and recent scholarly work by historical geographers. Prerequisites: junior standing, or instructor's consent.

**GEOG 3530: Global Politics of HIV/AIDS (3).** (same as Women's and Gender Studies [WGST] 3530). Examines AIDS science, sociopolitical causes of the epidemic, global AIDS policy and transnational AIDS activism.

**GEOG 3540: Geographies of Sexualities (3).** (Same as Women and Gender Studies [WGST] 3540) This class will explore the relationship of sexuality and space. The class will focus on the ways that sexuality creates particular spaces, and the ways that sexuality and space shape one another in the midst of nation, gender, religion, race, class, and generation. Sophomore standing required.

**GEOG 3560: Native American Geographies (3).** A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and GIS representations, and natural resources.

**GEOG 3600: Climates of the World (3).** (same as Atmospheric Science [ATM\_SC] 3600). A study of the world distribution of climates based on "cause and effect" relationships. Special attention is given to the impacts of climate on humanity. Prerequisites: Geography [GEOG] 1050 or equivalent or graduate standing.

**GEOG 3610: Physical Geography of the United States (3).** Study of natural regions of the United States by integrating topics from landforms, geology, climate, soils, vegetation, resources, and land use. Prerequisites: geography [GEOG] 2610.

**GEOG 3630: Process Geomorphology (3).** Systematic study of landforms and the processes which govern them. Provides a foundation for the theoretical, technical, and practical understanding of environmental systems. Prerequisites: Geography [GEOG] 2610 and junior standing or instructor's consent.

**GEOG 3740: Geography and Planning (1-3).** Emphasis on geographic techniques for gathering and generating environmental information for planners. Principles of land use planning will be applied to selected regions. Prerequisites: Geography [GEOG] 2840 and instructor's consent.

**GEOG 3760: Geography of the World's Religions (3).** (same as Religious Studies [REL\_ST] 3760).

Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion. Prerequisite: 1000/2000 level Geography course; junior standing or instructor's consent.

**GEOG 3840: Computer-Assisted Cartography (3).** Principles of computer-assisted cartography. Automated cartographic display. "Hands on" experience with computer-mapping software and hardware systems. Role of computers in map design. Digital encoding of geographic data. Prerequisite: Geography [GEOG] 2840.

**GEOG 3904: Topics in Geography - Social Science (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated up to 6 hours credit. Prerequisites: sophomore standing; departmental consent for repetition.

**GEOG 4130: The Geospatial Sciences in National Security (3).** (Same as Civil Engineering [CV\_ENG] 4175). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. Prerequisite: junior standing or above required; instructor's consent. May be repeated for credit.

**GEOG 4390: Special Readings in Geography (1-3).** Independent readings selected in consultation with supervisory faculty member. May be repeated to a maximum of 6 hours. Prerequisite: instructor's consent and independent study contract.

**GEOG 4520: Environmental Biophysics (3).** (same as Atmospheric Science [ATM\_SC] 4520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water and gas. Prerequisites: College Physics and Calculus I

**GEOG 4550: Selected Themes in Cultural Geography (3).** Case studies in the patterns and processes of human-environmental interactions. Study of the cultural forces responsible for the continual transformation of the earth's cultural landscapes.

**GEOG 4560: Resources and Indigenous Peoples (3).** This is a survey of indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations. Junior standing required. Cross level with Geography [GEOG] 7560

**GEOG 4620: Biogeography (3).** Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation. Prerequisite: Geography [GEOG] 2610 and junior standing, or instructor's consent.

**GEOG 4630: Fluvial Geomorphology (3).** Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems. Prerequisite: Geography [GEOG] 2610 and 3630, or instructor's consent.

**GEOG 4710: Spatial Analysis in Geography (3).** Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data. Prerequisite: Mathematics [MATH] 1100/1120. Math Reasoning Proficiency Course.

**GEOG 4720: Seminar in Geography Education (3).** Study and research on fundamental themes in geography. Integration of these themes into regional and systematic approaches to the teaching of geography. Enrollment is restricted to students pursuing or considering careers in teaching. Prerequisites: junior standing and instructor's consent.

**GEOG 4740: Location Analysis and Site Selection (3).** (same as Civil Engineering [CV\_ENG] 4185). An

overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**GEOG 4770: Migration and Immigration (3).** Explores demographic, economic, and social issues surrounding immigration and migration. The course focuses on the global labor migration system, immigration to the United States, and internal migration within the US, as well as the linkages between these systems.

**GEOG 4780: Selected Themes in Political Geography (3).** Study of basic writing, dominant geographers, case studies, bibliographies and development of research methods.

**GEOG 4790: Geographic Information Systems for the Social Sciences (3).** Designed for social science students interested in learning about the tools available in GIS for linking to and analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research. Prerequisites: juniors and seniors only.

**GEOG 4810: Landscape Ecology and GIS Analysis I (3).** (same as Natural Resources [NAT\_R] 4385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes. Prerequisite: Geography [GEOG] 4840, or instructor's consent.

**GEOG 4830: Remote Sensing (3).** Introduction to the principles of remote sensing of the environment. Digital imagery from spacecraft, conventional and high-altitude aerial photography, thermal imaging, and microwave remote sensing. Prerequisite: Geography [GEOG] 2840 and instructor's consent.

**GEOG 4840: Geographic Information Systems I (3).** (Same as Civil and Environmental Engineering [CV\_ENG] 4165) Introduces concepts of computer analysis of geographic data and emphasizes the techniques for handling geographic data. Application of computer-based GIS systems in coursework. Prerequisite: Geography [GEOG] 2840.

**GEOG 4850: Transportation Geography (3).** (same as Civil Engineering [CV\_ENG] 4155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**GEOG 4860: Advanced Remote Sensing (3).** Advanced remote sensing to provide digital image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land use/land cover change detection. Class project heavily involved. Prerequisite: Geography [GEOG] 4830.

**GEOG 4904: Topics in Geography-Social Science (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent; departmental consent for repetition.

**GEOG 4940: Geographic Information Systems II (3).** Advanced study and application of Geographic Information Systems technology to natural resources planning. Focus on individual research projects. Prerequisite: Geography [GEOG] 4840 or instructor's consent.

**GEOG 4945: Internship in Applied Geography and Cartography (1-3).** Regularized individual work experience with local, regional, state or national agencies, with guidance and readings supplied by faculty coordinator. May repeat to maximum of 6 hours. Prerequisites: upper-level standing in Geography, cartographic training, and departmental consent.

**GEOG 4990: Senior Seminar in Geography (3).** A seminar in selected themes in Geography. Class will

focus on research, writing, presenting, and discussing themes in contemporary geography. Required of all majors prior to graduation. Prerequisite: 5 courses in geography or instructor's consent.

**GEOG 4996H: Honors in Geography (3).** Special work for Honors candidates in geography. Honors eligibility required

**GEOG 4997H: Honors in Geography (3).** Special work for Honors candidates in geography. Honors eligibility required.

## GEOLOGY COURSES

**GEOL 1050: Planet Earth (3).** An introduction to Earth Science. Topics include: evidence for continental drift and plate tectonics, causes and prediction of natural hazards, the scale of geological time.

**GEOL 1100: Principles of Geology with Laboratory (4).** Three lectures, 2-hours lab. Earth processes and products and their impact on human needs and the environment. One field trip.

**GEOL 1100H: Principles of Geology with Laboratory - Honors (4).** Three lectures, 2-hours lab. Earth processes and products and their impact on human needs and the environment. One field trip. Honors eligibility required.

**GEOL 1150: Physical Geology for Scientists and Engineers (4).** Introduction to physical geology and basic earth processes with a focus on applications and societal relevance. In addition to basic geologic processes, basic physical principles will illustrate the interactions between geology and engineering. Prerequisite: Mathematics [MATH] 1500. Instructor's consent required.

**GEOL 1200: Environmental Geology with Laboratory (4).** The interaction between geologic processes and human society. Topics include mineral, water, and energy resources, volcanic hazards, earthquakes, landslides, floods, coastal erosion, pollution problems and environmental management.

**GEOL 1250: The World's Oceans (3).** An interdisciplinary introduction to oceanography. Topics include: geologic evolution of ocean basins, properties of seawater, ocean circulation (waves, tides, and currents), marine ecosystems, instability of beaches and coastlines, coastal development and engineering.

**GEOL 1400: Themes in Geology (1).** 5-week course organized around a central theme or topic, up to 3 different sections can be taken for credit.

**GEOL 2100: Independent Study in Geology (1-3).** Directed Library research in geological topics, under the supervision of faculty sponsor. May be repeated for a maximum of 3 hours credit. Prerequisite: instructor's consent.

**GEOL 2110: Introduction to Soil Science with Laboratory (5).** (same as Soil Science [SOIL] 2110). Introduction to Soil Science with emphasis placed on physical, biological, and chemical properties and applications to land use, plant growth, and environmental problems with laboratory application of these concepts. Prerequisite: Chemistry [CHEM] 1320.

**GEOL 2120H: Faults and Earthquakes: Past, Present, and Future (3).** Seminar in science and societal ramifications of earthquakes. Geologic background includes causes, behavior, and distribution of faults. Student-led discussions cover historical disasters, economic, political, psychological, and cultural perspectives. Prerequisite: English [ENGLSH] 1000. Honors eligibility required.

**GEOL 2150: The Age of the Dinosaurs (3).** Study of the evolution of dinosaurs during the Mesozoic Era. New information on dinosaur life habits, food resources, dispersal by plate tectonics, and theories of extinction will be covered. Prerequisite: 1000-level science course.

**GEOL 2160H: Volcanoes and the Human Environment - Honors (3).** (same as Honors [GN\_HON] 2450H). This course gives students an understanding of how volcanoes work, how they are studied, and how they have impacted human cultures. Students will gain appreciation of volcanology as a

broad scientific discipline within geology and the role that science plays in public policy. Honors eligibility required. Graded on A/F basis only.

**GEOL 2200: Oceanography (3).** Topics include: history and methods of marine research, properties of seawater, ocean circulation, biological productivity and zonation, origin and classification of marine sediments, character of major coastal and open-ocean environments, economic resources and environmental hazards. Prerequisite: Mathematics [MATH] 1100/1120. Math Reasoning Proficiency Course.

**GEOL 2220H: Honors Seminar: Headline Topics in the Geological Science (3).** Seminar organized around a central theme that is the focus of intense ongoing research and public debate. Prerequisite: English [ENGLSH] 1000. Honors eligibility required.

**GEOL 2300: Earth Systems and Global Change (3).** Study of the earth as a whole, taking into account the many interwoven components of the geosphere, hydrosphere, atmosphere and biosphere. Prerequisite: 1000-level Science course.

**GEOL 2350: Historical Geology (3).** Summary of principles and techniques used in reconstructing Earth's history. Survey of major events that have affected Earth and its inhabitants. Review of geologic history of North America. Prerequisites: Geology [GEOL] 1100 or 1200 and English [ENGLSH] 1000.

**GEOL 2360: Historical Geology Laboratory (1).** A laboratory course designed to improve understanding of Earth History by examination of maps and mineral, rock, sediment and fossil samples. Prerequisites: Geology [GEOL] 1100 or 1200, Co-enrollment in 2350.

**GEOL 2400: Surficial Earth Processes and Products with Laboratory (4).** Semi-quantitative analysis of geologic processes that shape the earth's surface. Includes topics in sedimentation and geomorphology. Prerequisites: Geology [GEOL] 1100 OR 1200 and Mathematics [MATH] 1100/1120.

**GEOL 2450: Global Water Cycle (3).** Study of environmental geochemical factors controlling the composition of natural waters, and sources of water's constituents (natural or human-produced). Prerequisites: Geology [GEOL] 1100 or 1200 and Mathematics [MATH] 1100/1120. Math Reasoning Proficiency Course.

**GEOL 2500: Regional Geology Field Trip (3).** Field based study of a particular geologic region, including classroom preparation prior to the field trip. The trip will last 7-10 days, either during Spring Break or immediately after finals week. Prerequisite: Geology [GEOL] 1100 or 1200. May be repeated for credit.

**GEOL 2600: Mineral and Energy Resources of the Earth (3).** This course examines the geology of Earth's major mineral and energy resources--their origin, distribution, and characteristics--and societal implications of their use and abundance. Major topics: fossil fuels, nuclear energy, base & precious metals, non-metallic minerals, water. Prerequisite: Geology [GEOL] 1100 or 1200.

**GEOL 3085: Problems in Geological Sciences (1-5).** Prerequisite: instructor's consent.

**GEOL 3110: Geology of Missouri (3).** The physical, historical, and environmental geology of Missouri are described, discussed and interpreted. Prerequisites: English [ENGLSH] 1000 and either Geology [GEOL] 1100 or 1200.

**GEOL 3115: Geology of Missouri Laboratory (1).** A field based and laboratory based course that uses standard geological techniques to interpret the rock record of Boone County and Missouri. Corequisite: Geology [GEOL] 3110.

**GEOL 3200: Rocks and Rock-Forming Minerals: Identification, Occurrence and Origin (3).** Introduction to the classification, occurrence, and origin of rocks and rock-forming minerals. Prerequisites: Geology [GEOL] 1100 or 1200 and Chemistry [CHEM] 1310.

**GEOL 3210: Rocks and Rock-Forming Minerals Laboratory (1).** Identification of rock-forming

minerals and rocks in hand specimen by their physical properties. Corequisite: Geology [GEOL] 3200.

**GEOL 3250: Mineralogy (5).** Introduction to crystallography, crystal chemistry and crystal structures. Systematic study of mineral groups. Includes identification of minerals by physical, chemical and optical properties. Prerequisite: Chemistry [CHEM] 1310.

**GEOL 3300: Introduction to Geochemistry (3).** Fundamentals of chemistry as applied to geology. Includes phase diagrams, thermodynamics, redox chemistry, aqueous chemistry, stable and radiogenic isotopes. Computer-based homework problems (satisfies computing requirement for Geology majors). Prerequisites: Chemistry [CHEM] 1330 (may be co-enrolled), Mathematics [MATH] 1400 or 1500, and Geology [GEOL] 1100 or 1200, or instructor's consent.

**GEOL 3800: Sedimentology with Lab (4).** Mechanics of sediment transport by fluid flow and gravity flow, origins of stratification and sedimentary structures, facies characteristics depositional environments. Prerequisite: Geology [GEOL] 2350 and 2400 and either Geology [GEOL] 3250 or 3200 and 3210.

**GEOL 4002: Topics in Geological Sciences-Biological/Physical/Mathematics (cr.arr).** Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent. Prerequisite: instructor's consent.

**GEOL 4100: Groundwater Hydrology (3).** Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust. Prerequisites: Geology [GEOL] 1100 or 1200, Physics [PHYSICS] 1210, Mathematics [MATH] 1400 or 1500.

**GEOL 4110: Karst Hydrology (3).** The hydrology of karst terrains is taught from the perspective of integrated drainage basins. Discussion addresses the origin and hydrogeology of karst aquifers and the biology of the animals that live in karstic aquifers. Prerequisite: instructor's consent.

**GEOL 4130: Groundwater Modeling (3).** Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems. Prerequisite: Geology [GEOL] 4100 or equivalent.

**GEOL 4150: Structural Geology (4).** The mechanical behavior of earth materials. Analysis of the geometry and mechanics of faults, fractures, and folds. Laboratory includes problems on stresses and strains associated with deformation, geometric analysis of deformation structures, and interpretation of geologic maps. Prerequisites: Geology [GEOL] 1100 or 1200 and Mathematics [MATH] 1500 or 1400.

**GEOL 4180: Solar System Science (3).** (same as Physics [PHYSICS] 4180 and Astronomy [ASTRON] 4180). Investigates physical states, interior structures and comparative geology of solar system bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution. Prerequisites: Mathematics [MATH] 1700 and Physics [PHYSICS] 1220 or 2760 or instructor's consent.

**GEOL 4200: Economic Geology with Laboratory (4).** Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types. Prerequisites: Geology [GEOL] 3900.

**GEOL 4210: Marine Geology (3).** Comprehensive examination of the geology of the oceans. Topics include techniques of data collection and interpretation, physical oceanography, origin of marine sediments, marine tectonics, and ocean history. Prerequisites: Geology [GEOL] 3800 Chemistry [CHEM] 1330 and Physics [PHYSICS] 1220.

**GEOL 4300: Introduction to Low-Temperature Geochemistry (3).** Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water. Prerequisite:

Geology [GEOL] 3300 or instructor's consent.

**GEOL 4318: Environmental Soil Chemistry (3).** (same as Soils [SOIL] 4318 and Environmental Science [ENV SC] 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes. Prerequisites: Soil Sciences [SOIL] 2100 or Geology [GEOL] 2400, Chemistry [CHEM] 1320 and 1330. Junior standing or instructor's consent.

**GEOL 4400: Geomicrobiology and Microbial Biogeochemistry (3).** Roles of microbes in a variety of geological settings through time. Microbial roles in degradation of organic pollutants and transformation of toxic metals and radionuclides in contaminated environments. Prerequisite: Geology [GEOL] 3300 or instructor's consent.

**GEOL 4500: Organic Geochemistry (3).** Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere. Prerequisite: instructor's consent.

**GEOL 4550: Introduction to Paleontology with Laboratory (4).** Study of the morphology, paleontology, patterns of evolution, and causes of extinction in geologically important groups of invertebrate and vertebrate fossils. Lab concentrates on identification of biostratigraphically important fossils (mostly invertebrates). Several half-day field trips. Prerequisites: Geology [GEOL] 1100 or 1200.

**GEOL 4650: Plate Tectonics (3).** Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features. Prerequisites: Geology [GEOL] 3250, 4150 or instructor's consent.

**GEOL 4680: Neotectonics and Earthquake Geology (3).** Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment. Prerequisites: Geology [GEOL] 4650 or 4150 and instructor's consent.

**GEOL 4700: Theoretical Geochemistry (3).** Introduction to theoretical concepts in low and high temperature geochemistry. Topics include thermodynamics of fluids, gases and solids in geological materials, phase diagrams, equilibrium constants, electrolyte theory, oxidation-reduction reactions. Prerequisites: Geology [GEOL] 3250, Chemistry [CHEM] 1330 and Mathematics [MATH] 1700.

**GEOL 4800: Introduction to Geophysics (3).** Introduction to the fundamentals of geophysical methods and their applications in geology, environmental studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods. Prerequisite: Physics [PHYSICS] 1210 or 2750 and Mathematics [MATH] 1700.

**GEOL 4900: Igneous and Metamorphic Petrology with Laboratory (4).** Introduction to igneous and metamorphic rock associations and rock-forming processes. Emphasis on understanding the evolution of the Earth in view of igneous and metamorphic rock petrogenesis. Prerequisites: Geology [GEOL] 3250 and 3300.

**GEOL 4950: Senior Thesis (1-3).** Research conducted in an area of the Geological Sciences under the auspices of a member of the faculty. Under normal circumstances, this research should be completed over two semesters. May be repeated for a maximum of 3 hours credit.

**GEOL 4990: Communicating in the Earth Sciences (3).** Synthesis of Geology curriculum through study of classic Earth Science papers. Emphasizes critical analysis of scientific papers, data interpretation, science writing and oral presentations. Prerequisites: Geology [GEOL] 3800 and senior standing or instructor's permission. Satisfies Capstone for BA in Environmental Geology.

**GEOL 4991: Capstone in Environmental Geology (1-3).** Readings and discussions in selected areas of environmental geology. Subject depends on instructor. Restricted to Environmental Geology students. 3 credit hour Capstone must be completed unless student completes a Senior Thesis. In that case, Capstone + Senior Thesis credit hours must equal 3.

**GEOL 4992: Field Course (6).** Field study of sedimentary, igneous and metamorphic rocks. Facies analysis of sedimentary rocks, mapping of folded and faulted sedimentary strata and fabric analysis of an igneous-metamorphic terrane. Excursion to Yellowstone and Grand Teton National Parks. Prerequisite: Geology [GEOL] 2350, 4150, and 3800.

## GERMAN COURSES

**GERMAN 1100: Elementary German I (5).** For beginners with no prior knowledge of German. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication—oral and listening skills, reading and writing

**GERMAN 1150: Freshman Introduction to German Studies (1).** Introduction to German Studies as academic field. Small seminar setting with senior faculty, their favorite texts, and questions pursued in the research and teaching. Recommended for all students interested in integrating German studies into their academic career, conducted in English. Restricted to Freshman students only.

**GERMAN 1200: Elementary German II (5).** A continuation of German [GERMAN] 1100. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing. Prerequisite: C- or better in German [GERMAN] 1100, or equivalent.

**GERMAN 2001: Undergraduate Topics in German-General (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**GERMAN 2005: Undergraduate Topics in German-Humanities (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**GERMAN 2100: Intermediate German I (3).** A continuation of German [GERMAN] 1200. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing. Prerequisite: C- or better in German [GERMAN] 1200, or equivalent.

**GERMAN 2260: Intermediate German II: Language and Culture (3).** This course continues to help learners develop the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life. Prerequisite: C- in German [GERMAN] 2100 or equivalent.

**GERMAN 2310: German Civilization: Beginning to 1850 (3).** Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of German [GERMAN] 2320. No foreign language credit.

**GERMAN 2320: German Civilization: 1850 to Present (3).** Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of German [GERMAN] 2310. No foreign language credit.

**GERMAN 2480: Monstrous Births: Tales of Creation in 19th Century Literature (3).** Examines literary and other cultural works which explore the

creation of human beings by traditional, technological, or magical means. Course and readings in English translation. Prerequisites: English [ENGLISH] 1000 or equivalent.

**GERMAN 2820: Trends in World Cinema (3).** (same as Film Studies [FILM\_S] 2820 and Romance Languages [RM\_LAN] 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production. Prerequisite: sophomore standing, English [ENGLISH] / Film Studies [FILM\_S] 1800 or instructor's consent.

**GERMAN 3001: Topics in German-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisites: sophomore standing and instructor's consent.

**GERMAN 3005: Topics in German-Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisites: sophomore standing and instructor's consent.

**GERMAN 3160: German Conversation and Composition (3).** This course expands communicative competence in German and provides a review of advanced grammar concepts. Primary emphasis is on the further development of oral and written skills, reading comprehension, vocabulary expansion, and a broad exposure to relevant topics of contemporary German culture and society. Conducted in German. Prerequisite: German [GERMAN] 2260, or equivalent.

**GERMAN 3180: Business German (3).** Examines language within the economic and professional context of German-speaking countries. Introduces different economic concepts of Germany's turbulent 20th century, modern-day business systems and everyday commercial activities such as job applications, professional routines, capital investment and banking. Provides students with vocabulary, cultural knowledge and communicative abilities in order to participate in the professional German-speaking world using linguistically-solid and stylistically-persuasive writing and speaking skills. Prerequisite: German [GERMAN] 2260 and 3230 or equivalent.

**GERMAN 3190: Contemporary German Culture (3).** This content-driven course provides insights into essential subjects of 20th century German history and contemporary society, using a variety of literature, journalistic sources and film. The course will improve German conversation and literacy skills, and will strengthen critical reading and writing, as well as interpretative abilities. Significant grammatical concepts will be throughout the semester. Conducted in German. Prerequisites: German [GERMAN] 2260 or instructor's consent.

**GERMAN 3230: Introduction to German Literature (3).** This course introduces students to German-language literary texts, images, and films in their cultural and historical context through exposure to major genres (poetry, drama, short stories, and the novel). It further builds their vocabulary and teaches them critical interpretive skills as preparation for the analysis of literary texts in upper-division courses - and in life. Prerequisite: C- or better in German [GERMAN] 3160, or 3190.

**GERMAN 3320: Readings in German Literature (3).** Readings in English of selected works of German literature from Goethe to the present, with a particular emphasis on writers and texts that have had a strong influence on European thought and culture. Prerequisite: sophomore standing, English [ENGLISH] 1000.

**GERMAN 3440: After the Fact: Holocaust in Contemporary History, Art & Literature (3).** (same as Peace Studies [PEA\_ST] 3440). Explores responses to the Holocaust from numerous perspectives. Considers how the Holocaust is remembered, memorialized, and debated in a variety of national contexts. Touches on historical, philosophical, and aesthetic points of view. Prerequisites: sophomore

standing or instructor's consent.

**GERMAN 3460: Marx & Nietzsche: Labor, Power, & the German Mind of 19th Century (3).** Examines writings of Germany's two most radical nineteenth-century thinkers. Explores key terms of political economy and philosophy developed by Marx and Nietzsche. Journal and three papers. Prerequisite: sophomore standing, English [ENGLISH] 1000.

**GERMAN 3520: Folk and Fairytales in a Global Context (3).** Analyzes the most famous European collection of fairy tales, namely the Kinder-und Hausmärchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairy tales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairy tales with folk tales of different cultural traditions, analyzes and identifies the formal structure of fairy tales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairy tales and fairy tale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English. Prerequisite: Sophomore standing required.

**GERMAN 3830: History of the German Film (3).** (same as Film Studies [FILM\_S] 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit. Prerequisites: sophomore standing or instructor's consent.

**GERMAN 3840: German Film After 1945 (3).** (same as Film Studies [FILM\_S] 3840). Examines a selection of post-War films by German directors, as well as historical, literary, and theoretical texts. Prerequisite: sophomore standing, or instructor's consent.

**GERMAN 3865: The Holocaust on Screen (3).** (same as Film Studies [FILM\_S] 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Prerequisites: sophomore standing. Graded on A/F basis only.

**GERMAN 3895: Service Learning in German Studies (2).** Service learning offers students a chance to put into practice what they have learned in theory. Students work as teacher-aids or tutors in foreign language/culture classes at area schools. Graded on S/U basis only. Does not meet A&S foundation requirements. Prerequisites: German [GERMAN] 2260, or instructor's consent.

**GERMAN 4001: Topics in German-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisites: junior standing and instructor's consent.

**GERMAN 4005: Topics in German-Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisites: junior standing and instructor's consent.

**GERMAN 4070: Intensive Beginning German (3).** Designed to lead to a reading knowledge of German. Cannot be taken to fulfill undergraduate language requirement. Prerequisites: graduate standing or instructor's consent.

**GERMAN 4160: Advanced Language Proficiency (3).** A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life. Prerequisite: German [GERMAN] 3230, or equivalent.

**GERMAN 4180: Advanced German: Conversation and Stylistics (3).** This course continues to emphasize all communicative skills in German: oral and listening skills, reading and writing. There is also an emphasis on advanced grammar. The content focuses on contemporary German culture and social life. Prerequisite: senior or graduate standing, or instructor's consent.

**GERMAN 4220: Eerie Tales: Classic German Narratives (3).** In this class, we will read classic uncanny tales in German by major authors, and will explore the traits of this category across a variety of literary movements. Prerequisites: German [GERMAN] 3230 or equivalent language capacity.

**GERMAN 4230: Enlightenment and Revolution (3).** Reading and discussion of selected works by major German writers from 1740 to 1870. Prerequisite: German [GERMAN] 3230 or equivalent.

**GERMAN 4240: Modernism and Modernity (3).** Reading and discussion of selected works by major German writers from 1870 to the present. Prerequisite: German [GERMAN] 3230 or equivalent.

**GERMAN 4260: Recent German Literature (3).** This course examines 'post-unification' works (i.e. by formerly East and West German authors) of literature and film written since 1989 that addresses social and political changes leading to or resulting from unification and the experience of WWII. Students will analyze the diverse cultural, political and economic factors that influence writers and filmmakers whose aesthetic production in turn helps shape contemporary German society.

**GERMAN 4440: Enlightenment and Sturm und Drang (3).** Survey of literature and thought of 18th-century Germany, with emphasis on the works of Lessing, Wieland, Herder and the younger Goethe. Prerequisite: German [GERMAN] 4230 or equivalent.

**GERMAN 4450: German Romanticism (3).** Prerequisite: German [GERMAN] 4230 or equivalent.

**GERMAN 4530: The German Novelle (3).** Prerequisite: German [GERMAN] 4230 or equivalent.

**GERMAN 4650: Faust (3).** Prerequisite: German [GERMAN] 4230 or equivalent.

**GERMAN 4670: Medieval German Literature 1170-1210 (3).** Analysis of major narrative and lyric poetry of the Age of Chivalry. Prerequisite: German [GERMAN] 4230 or equivalent.

**GERMAN 4730: German Internship and Methods (3).** Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment. Prerequisites: junior standing, German [GERMAN] 4230, or instructor's consent.

**GERMAN 4820: Blogging the World: The Web in Cultural Context (3).** (same as French [FRENCH] and Russian [RUSS] 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts? Prerequisite: sophomore standing required.

**GERMAN 4960: Special Readings in German (1-3).** Independent study through readings, conferences, and reports. Prerequisites: junior standing and

instructor's consent.

**GERMAN 4980: German Capstone Seminar (3).** Required of all senior German majors. Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program. Prerequisites: senior standing, one 3000-level literature course or equivalent or departmental consent.

**GERMAN 4996: Honors in German (1-3).** Special problems in Germanic literature or linguistics. Prerequisite: consent of departmental Honors director.

## GRADUATE SCHOOL COURSES

**GRAD 4010: Preparing To Be A Graduate Teaching Assistant (1).** Provides an understanding of the roles and responsibilities of teaching assistants to prepare students for graduate school. Learning will take place through observation, lecture, reading and discussion. Graded on S/U basis only.

## GREEK COURSES

**GREEK 1100: Elementary Ancient Greek I (5).** Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

**GREEK 1100H: Elementary Ancient Greek I - Honors (5).** Study of forms, grammar, syntax. Early attention to reading in simple Attic prose. Honors eligibility required.

**GREEK 1200: Elementary Ancient Greek II (5).** Continuation of Greek [GREEK] 1100. Readings in Attic prose. Prerequisite: grade of C or higher in Greek [GREEK] 1100 or equivalent.

**GREEK 1200H: Elementary Ancient Greek II - Honors (5).** Continuation of Greek [GREEK] 1100H. Readings in Attic prose. Prerequisite: grade of C or higher in Greek [GREEK] 1100 or equivalent. Honors eligibility required.

**GREEK 2000: Greek Reading (3).** Selected works of Greek literature. Prerequisite: grade of C or higher in Greek [GREEK] 1200.

**GREEK 2000H: Greek Reading - Honors (3).** Selected works of Greek literature. Prerequisite: grade of C or higher in Greek [GREEK] 1200. Honors eligibility required.

**GREEK 4120H: Intensive Beginning Greek II - Honors (3).** Continuation of Greek [GREEK] 4110H. Attention to ability to read rapidly and accurately. Course meets five hours weekly for three hours credit. Prerequisite: graduate standing or Honors eligibility required.

**GREEK 4300: Intermediate Readings (3).** Selected advanced readings in prose and poetry. Introduction to Homer. Prerequisite: Greek [GREEK] 2000 or equivalent.

**GREEK 4350: The Greek New Testament (3).** (same as Religious Studies [REL\_ST] 4650). Readings in the Greek New Testament and similar literature, e.g., the Septuagint. Prerequisite: Greek [GREEK] 4300 or instructor's consent. Graded on A-F basis only.

**GREEK 4400: Homer (3).** Reading, discussion, and literary analysis of Iliad and Odyssey. Prerequisite: two years Classical Greek or equivalent.

**GREEK 4500: Greek Stylistics (3).** Study and practice of Greek prose, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**GREEK 4505: Topics in Greek (3).** Topics course involving Greek texts. Prerequisites: Greek [GREEK] 4300 or equivalent. May be repeated for credit.

**GREEK 4510: Greek Tragedy (3).** Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques. Prerequisite: two years Classical Greek or equivalent.

**GREEK 4520: Greek Comedy (3).** Selected plays of Aristophanes and Menander, with special attention

to cultural contexts. Prerequisite: two years Classical Greek or equivalent.

**GREEK 4530: Greek Lyric Poetry (3).** Selected readings from lyric poets, with attention to verse forms, and dialects. Prerequisite: two years Classical Greek or equivalent.

**GREEK 4540: Greek Oratory (3).** Selections from Greek orators, with emphasis on Lysias and Demosthenes. Prerequisite: two years Classical Greek or equivalent.

**GREEK 4550: Greek Philosophers (3).** Emphasis on readings and analysis of selected texts of major Greek philosophers. Prerequisite: two years Classical Greek or equivalent.

**GREEK 4560: Greek Historians (3).** Reading and analysis of selected texts of major Greek historians. Prerequisite: two years Classical Greek or equivalent.

**GREEK 4570: Greek Epigraphy (3).** Introduction to study of Greek inscriptions and their contribution to the understanding of other aspects of ancient culture. Prerequisite: Greek [GREEK] 2000.

**GREEK 4700: Survey of Greek Literature (3).** Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres. Prerequisite: two years Classical Greek or equivalent.

**GREEK 4960: Special Readings in Greek (3).** Readings in authors and texts not covered in other courses. Prerequisites: departmental consent, two years Classical Greek or equivalent.

## HEALTH MANAGEMENT AND INFORMATIC COURSES

**HMI 2210: The American Health Care System (3).** Student is provided with a basic understanding of the major components (financing, planning, and regulating) of the American health care system. Emphasis is placed on current issues and their impact on the delivery system.

**HMI 3310: The Health Care System (3).** Overview of health care system and relationship between its components. Focuses on changing nature of the system and issues confronting the future health care system. Prerequisite: senior standing.

## HEALTH PROFESSIONS COURSES

**HTH PR 1000: Introduction to the Health Professions (2).** Overview of various health science majors and careers, as well as the aptitudes and abilities needed to each career. Presents information regarding current health concerns, topics affecting the current and future state of health care, historical developments and basic information about the U.S. health care system. Assists with career planning and selection of appropriate major. Graded on A/F basis only.

**HTH PR 1001: Topics in Health Professions (1-3).** Organized study of selected topics in Health Professions. Particular topics and credit may vary each semester. Prerequisite: instructor's consent.

**HTH PR 2001: Topics in Health Professions (cr. arr.).** Organized study of selected topics in health professions. Particular topics and earnable credit may vary from semester to semester. Prerequisite: sophomore standing and instructor's consent.

**HTH PR 2100: Health Sciences Seminar (1).** Designed to analyze career opportunities and establish career expectations for students in the sophomore year. Development of a four-year plan, identification of individual skill sets and resume development. Prerequisite: sophomore standing required. Graded on S/U basis only.

**HTH PR 2190: Medical Terminology (3).** Medical terminology based on a word building system. This course is intended for students majoring in health professions, nursing and other helping professions, pre-med and biology. Prerequisite: sophomore standing.

**HTH PR 2960: Special Readings in Health Professions (1-3).** Directed study of literature and research reports in the health-related professions. Prerequisite: instructor's consent.

**HTH PR 3200: Essentials of Pathology (2).** Provides basic foundation for understanding etiology of disease with emphasis on systemic pathology for non-medical students. Prerequisites: general biology and one course in either physiology or anatomy.

**HTH PR 3300: Public Health Principles and Practice (3).** This course focuses on the basic structures of the public health system in the US and provides an introduction to the factors that influence and shape that system including financing, politics and global issues. Restricted to Health Sciences Majors during pre-registration. Graded on an A/F basis only.

**HTH PR 3400: Global Health (3).** An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded A-F only.

**HTH PR 3500: Mental Health (3).** This course provides a look at mental health problems with regard to influences, etiology, diagnosis, and treatment. Students learn theories of mental health, diagnostic criteria, treatment modalities, and community issues concerning the mental health system. Prerequisite: Health Profession [HTH PR] 2100. Graded A-F only.

**HTH PR 3900: Introduction to The Research Process and Evidence Base (3).** This course is an introduction to the basic quantitative and qualitative research techniques used in the health professions. Basic elements of research as well as strengths and weaknesses of various methodologies, Institutional Boards, research ethics, research design, validity and reliability will be covered. Restricted to Health Sciences Majors. Graded A-F only.

**HTH PR 4001: Topics in Health Professions (1-3).** Organized study of selected topics. Subjects will vary from semester to semester.

**HTH PR 4085: Problems in Health Professions (cr.arr.).** Prerequisite: instructor's consent.

**HTH PR 4250: Human Kinesiology (3).** (same as Physical Therapy [PH\_THR] 4250 and Occupational Therapy [OC\_THR] 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Application through analysis of daily functional performance, exercise and sport. Prerequisite: anatomy.

**HTH PR 4300: Health Care in the United States (3).** Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Restricted to Health Sciences Majors during pre-registration. Graded on A/F basis only.

**HTH PR 4300H: Health Care in the United States - Honors (3).** Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A/F basis only. Honors eligibility required.

**HTH PR 4310: Health Policy for the Health Professional (1-3).** Seminar to facilitate understanding of health policy, the legislative process, and politics. Emphasis on health professions, including issues of workforce, funding, and advocacy in the context of current health policy issues.

**HTH PR 4400: Culture and Health Literacy for the Health Professions (3).** This course will explore differences and attitudes towards the health care industry across various social, cultural and ability groups. This exploration will result in more culturally competent health professionals by promoting self-awareness and challenging the existing assumptions and biases of the health care system. Prerequisite: junior or senior standing or instructor's consent.

**HTH PR 4410: Humanism and Health Literacy (3).** This class will teach how the humanities can help

students become better health professionals. Topics include: spirituality and health; non-medical factors that impact health; representation of disability in art history; and literature and health. Graded on A/F basis only.

**HTH PR 4420: Health Literacy and Behavioral Compliance (3).** Students will learn about the behavioral, psychological, and cognitive factors that impact health literacy and the ability to follow healthcare recommendations.

**HTH PR 4480: Clinical Ethics (3).** (same as Cardiopulmonary and Diagnostic Science [CPD] 4480) Exploration of important global bioethics issues in health care systems with emphasis placed on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare. Restricted to Health Science Majors.

**HTH PR 4975: Internship in Health Sciences (1-6).** Focuses on knowledge, skills and attitudes that enhance personal effectiveness and professional success. Opportunities to research selected career paths and related topics in health sciences and participate in directed service learning projects or internships in selected emphasis area. Prerequisite: Health Professions [HTH\_PR] 2100. Graded on A/F basis only.

**HTH PR 4985: Healthcare Organization and Leadership (3).** (same as Cardiopulmonary and Diagnostic Science [CPD] 4985) In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Prerequisites: Health Professions [HTH\_PR] 2100. Senior standing required. Graded A-F only.

## HEBREW COURSES

**HEBREW 1100: Elementary Hebrew I (6).** Five hours of classroom instruction, with one hour lab work weekly.

**HEBREW 1200: Elementary Hebrew II (6).** Five hours of classroom instruction, with one hour lab work weekly. Prerequisite: C- or better in Hebrew [HEBREW] 1100, or equivalent.

**HEBREW 2001: Topics in Hebrew-General (1-3).** Organized study of selected topics. Subjects and topics may vary semester to semester. May be repeated with consent of department.

**HEBREW 2005: Topics in Hebrew - Humanities (1-3).** Organized study of selected topics. Subjects and topics may vary semester to semester. No knowledge of Hebrew required. No language credit.

**HEBREW 3085: Problems in Hebrew (1-3).** Supervised study of Hebrew language and/or culture. Prerequisite: instructor's consent.

**HEBREW 3310: Introduction to Israeli Culture (3).** Examines unique qualities that shape modern Israeli culture; looks at major social and political events that have shaped ethnicity, ideology, religion, identity, and diversity of the State of Israel. Discusses literature, the fine arts, language, and the mass media. No Foreign Language credit. Prerequisite: sophomore standing or instructor's consent. Graded on A/F basis only.

**HEBREW 3845: Modern Israeli Film (3).** (same as Film Studies [FILM\_S] 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture. Prerequisite: sophomore standing or consent of instructor required. Graded on A/F basis only.

## HISTORY COURSES

**HIST 1004: Undergraduate Topics in History-Social Science (1-3).** Organized study of selected topics. Subjects and credits may vary from semester

to semester. Prerequisite: departmental consent for repetition.

**HIST 1100: Survey of American History to 1865 (3).** Introduction to U.S. history through the Civil War, surveying political, economic, social and cultural development of the American people.

**HIST 1100H: Survey of American History to 1865 - Honors (3).** Introduction to U.S. history through the Civil War, surveying political, economic, social and cultural development of the American people. Honors eligibility required.

**HIST 1200: Survey of American History Since 1865 (3).** Introduction to U.S. history since 1865, surveying political, economic, social, and cultural development of the American people.

**HIST 1200H: Survey of American History Since 1865 - Honors (3).** Introduction to U.S. history since 1865, surveying political, economic, social, and cultural development of the American people. Honors eligibility required.

**HIST 1400: American History (5).** Broad survey of political, economic, social, intellectual, diplomatic and constitutional development of American people from first English settlements to present day; emphasizes evolution of American culture and institutions. Students may not receive additional credit for History [HIST] 1100 and/or 1200.

**HIST 1410: African American History (3).** (same as Black Studies [BL\_STU] 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**HIST 1500: Foundations of Western Civilization (3).** Development of characteristic ideas and institutions of Western cultural tradition, from origin of civilization in ancient Near East to beginning of rapid social, political, intellectual transformation of Europe in 18th century.

**HIST 1500H: Foundations of Western Civilization - Honors (3).** Development of characteristic ideas and institutions of Western cultural tradition, from origin of civilization in ancient Near East to beginning of rapid social, political, intellectual transformation of Europe in 18th century. Honors eligibility required.

**HIST 1510: History of Modern Europe (3).** Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**HIST 1510H: History of Modern Europe - Honors (3).** Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity. Honors eligibility required.

**HIST 1520: The Ancient World (3).** Survey of institutional and cultural development of ancient Near East, Greece, Rome, and Asia.

**HIST 1540: England Before the Glorious Revolution (3).** Survey of English institutions, culture and politics from the Roman invasion to the Revolution of 1688.

**HIST 1560: The World of the Middle Ages (3).** Survey of European development from the fall of Rome to the 16th century.

**HIST 1570: Survey of Early Modern Europe, 1350-1650 (3).** Survey of Western and Central Europe (including Britain) from the Black Death to the end of the Thirty Years' War. This period comprises late medieval crises, the Renaissance, Reformation, Counter-Reformation, Exploration and the New World, the Confessional Age, early modern state-building, and the Thirty Years' War.

**HIST 1580: History of Christianity (3).** Origin, diffusion and development of Christianity, with

special attention to its influence on Western civilization. Major emphasis on period up to French Revolution.

**HIST 1590: Women and the Family in the Pre-Modern West (3).** Examines the changing roles of women and familial structures from the Ancient Mediterranean World to the Protestant Reformation and the effects of religious, political and economic change on the family.

**HIST 1600: Foundations of Russian History (3).** A survey of the Kievan and Muscovite period to the end of the 17th century.

**HIST 1610: Russia in Modern Times (3).** (same as Peace Studies [PEA\_ST] 1610). Survey of Russian history from 1801 to present.

**HIST 1800: History of Modern Africa (3).** (same as Black Studies [BL\_STU] 1800). Provides a general survey of Sub-Saharan Africa from 1800 to the present. Topics include: state formation, the slave trade, colonialism, nationalism, national liberation and the problems of independent Africa.

**HIST 1810: History of South Africa (3).** (same as Black Studies [BL\_STU] 1810). Surveys the social, cultural and economic dynamics of South African society from the 16th century to the present with an emphasis on the last two centuries and the consolidation of the apartheid state.

**HIST 1820: Asian Humanities (3).** (same as Religious Studies [REL\_ST] 1820, Art History and Archeology [AR\_H\_A] 1230 and South Asian Studies [S\_A\_ST] 1152). This course in an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**HIST 1830: Survey of East Asian History (3).** Introductory survey of the history of East Asian countries (China, Korea, Vietnam, and Japan) in the past two thousand years, focusing on their cultural, economic, and political traditions as well as their transformations in the modern era.

**HIST 1840: Colonial Latin America (3).** Survey of Latin America, 1492-1825; Exploration and conquest; European settlement; colonial government and institutions; economy and society; cultural and intellectual life, independence movements.

**HIST 1850: Latin America Since Independence (3).** Political, social and economic developments; nationalism; revolutionary movements; U.S. influence.

**HIST 1860: History of Ancient India (3).** (same as South Asian Studies [S\_A\_ST] 1860). This course surveys the history of South Asian history. The course begins with the Indus Valley Civilization (fl. 2600-1900B.C.) and ends with an analysis of Islamic impact on India culture around 1200-1350. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used for the study of premodern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**HIST 1861: History of Modern India (3).** (same as South Asian Studies [S\_A\_ST] 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**HIST 1862: History of India: 1000-1750 (3).** (Same as South Asia Studies [S\_A\_ST] 1862) This course surveys the history of the South Asian subcontinent from the eleventh through mid-eighteenth centuries. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used to study civilization. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**HIST 1870: Imperial China: China to 1600 (3).** This course offers a broad introduction to Chinese history and culture from antiquity up to the later

imperial period (around 1600). It is designed to provide the student with an understanding of the historical development of China's culture, economic, political, and intellectual traditions.

**HIST 1871: History of China in Modern Times (3).** This is a lecture course designed to introduce to beginning level students the epic journey of China's historical transformation since c. 1600. This survey provides a basis for understanding the painstaking transition from "tradition" to "modernity" in China.

**HIST 2004: Topics in History-Social Science (cr. arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: departmental consent for repetition.

**HIST 2210: Twentieth Century America (3).** Survey of American development from 1900 to present. For students who have not taken advanced courses in American history, especially History [HIST] 4210, 4220, or 4230.

**HIST 2220: America in the 1960's (3).** (same as Peace Studies [PEA\_ST] 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period. Prerequisite: sophomore standing.

**HIST 2230: Walt Disney and American Culture (3).** Examines Walt Disney's influence on shaping of modern American culture.

**HIST 2400: Social History of U.S. Women (3).** (same as Women's and Gender Studies [WGST] 2400). This course, the social History of US Women, offers a general overview of US Women, beginning with the colonial period up to the present day.

**HIST 2410: African American Women in History (3).** (same as Black Studies [BL\_STU] and Women's and Gender Studies [WGST] 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**HIST 2420: Conspiracy Theories & Conspiracies in American History & Culture (3).** From the Salem witch trials to the present-day obsessions with the JFK assassination, UFOs, and the like, Americans have often embraced conspiracy theories to explain mysterious events and wrenching social changes. The primary objective of the course is to help students deal more intelligently with the conspiratorial fears and political paranoia that pervade modern American culture, by placing them in a broad historical context. Prerequisite: sophomore standing or instructor's consent.

**HIST 2440: History of Missouri (3).** Survey of Missouri's development from the beginning of settlement to present.

**HIST 2520: Europe in the Nineteenth Century (3).** Political, social, economic, and cultural development of Europe from French Revolution to outbreak of World War I.

**HIST 2530: Ukrainian History from Medieval to Modern Times (3).** A successor state of the former Soviet Union, Ukraine occupies a strategic position in Eastern Europe. The course will trace the long, turbulent history of this East Slavic nation, culminating the independence in 1991.

**HIST 2531: Women in Russian History (3).** This is a survey course which is designed for students who have not previously taken in course in Russian history, and who are interested in how women experienced the period from the formation of the Kievan state in the ninth century to the fall of the Soviet Union in 1991.

**HIST 2600: Early Christianity (3).** (same as Religious Studies [REL\_ST] 2600). History of Christian practices and teachings from Christian origins through the 8th century, including Eastern Orthodoxy Syrian Christianity, Roman Catholicism. Themes such as interpretation and creation of Scriptures, worship style, central rituals, debates about right teaching (orthodoxy) mysticism and developing lifestyles both in and apart from the world. Prerequisite: sophomore standing.

**HIST 2610: Medieval Christianity (3).** (same as Religious Studies [REL\_ST] 2610). Study of the doctrinal developments, major theologians and schools, institutional formation and dissolution, mysticism, and liturgical expression within the context of cultural and political history. Beginning with Augustine and concluding with the 15th century. Prerequisite: Religious Studies [REL\_ST] 2600

**HIST 2620: History of Christianity, 1500–Present (3).** (same as Religious Studies [REL\_ST] 2620). Protestant and Catholic Christianity in age of European expansion; enlightenment; 19th and 20th-century challenges and responses. Prerequisites: Religious Studies [REL\_ST] 2600 and 2610.

**HIST 2800: Women in Indian History (3).** (same as South Asian Studies [S\_A\_ST] 2800). This course examines the role of women in Indian (South Asian) history, focusing on women in British India from the eighteenth century up to the Partition of 1947. While previous knowledge of South Asian history may be beneficial, it is not required for this course.

**HIST 2950: Sophomore Seminar (3).** This course is designed to introduce history majors to the experience of doing original research early in their undergraduate career. Topic will vary. Prerequisites: sophomore standing required; departmental consent required.

**HIST 3000: History of Religion in America to the Civil War (3).** (same as Religious Studies [REL\_ST] 3000). Studies major American religious traditions from the Age of Discovery to the Civil War, especially the evolution of religious practices and institutions and their influence upon American social, intellectual and political developments. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3010: Colonial America (3).** This course will examine major colonial American events from a cultural history standpoint. We will explore the ways in which the famous and not so famous shaped and were shaped by events of the seventeenth and eighteenth centuries and how these people understood the changing meaning of American liberty.

**HIST 3200: Black Freedom Movement, 1955–1973 (3).** (same as Black Studies [BL\_STU] 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement was converted into a struggle for Black Power. May be restricted to History majors only during pre-registration.

**HIST 3210: History of Religion in Post-Civil War America (3).** (same as Religious Studies [REL\_ST] 3210). Surveys major American religious traditions from 1865 to the present. Focuses on the evaluation of religious practices and institutions and their interaction with and influence upon American social, intellectual and political developments. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3220: U.S. Women's Political History, 1880–Present (3).** (same as Women's and Gender Studies [WGST] 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3230: Individualism and Success in Modern America, 1830–Present (3).** This course explores changing notions of individualism and success in American culture during the 19th and 20th centuries. Standards defining achievement, gain, and happiness for the individual citizen have evolved over time, and we will examine a wide variety of sources - advice literature, essays, novels, historical texts, plays and movies, political and religious texts, social criticism - to analyze this broad evolution. The resulting insights into a variety of historical issues and values, problems and possibilities, promise to forge a deeper understanding of what it has meant to be a successful individual in the United States over the last two hundred years. May be restricted to History majors

only during pre-registration.

**HIST 3400: Religious Biography: Black Religion (3).** (same as Black Studies [BL\_STU] 3590). Studies black American religion through the biographies of representative and influential figures of the 19th and 20th centuries, including Nat Turner, W.E.B. Du Bois, and Marcus Garvey, M.L. King, Malcolm X. May be restricted to History majors only during pre-registration.

**HIST 3420: America's Environmental Experience (3).** (same as Peace Studies [PEA\_ST] 3420). Team-taught analysis of American thought and action on physical environment during 19th-20th centuries. Relation between politics, economics, technological change, environmental quality; roles of science, law, regulatory agencies, grassroots action. May be restricted to History majors only during pre-registration.

**HIST 3430: Sex Radicals in U. S History (3).** (same as Women and Gender Studies [WGST] 3430). Survey of the history of sexuality in the United States. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3510: The Ancient Greek World (3).** Political and social institutions, intellectual life of Greek city-states to time of Alexander. May be restricted to History majors only during pre-registration.

**HIST 3520: The Roman World (3).** Rise and development of Roman institutions, Rome's imperialism and culture through reign of Marcus Aurelius. May be restricted to History majors only during pre-registration.

**HIST 3530: Alexander the Great and the Hellenistic World (3).** Alexander's conquest of the East to 323 B.C.; political, social, economic development of Hellenistic kingdoms from his death to 31 B.C. May be restricted to History majors only during pre-registration.

**HIST 3540: Contemporary Europe (3).** Political, social, and economic development of Europe from 1900 to the present, with emphasis on the period between the two world wars. May be restricted to History majors only during pre-registration.

**HIST 3550: The Origins of Scientific Thought (3).** This course will trace the evolution of Western science from its Egyptian-Babylonian roots to the "Copernican Revolution" of the mid-sixteenth century. Prerequisites: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3560: The Scientific Revolution: 1550–1800 (3).** This course covers the history of science, or natural philosophy, from late Renaissance to the beginnings of the "Darwinian Revolution." Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3570: European Women in the 19th Century (3).** (same as Women's and Gender Studies [WGST] 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's roles in the family, workplace and the state. Grading: exams, papers and discussions. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3580: Modern Italy, 1815 to the Present (3).** Political, cultural and social history of Italy since 1815. Looks at how Unification, World War, Fascism, the Cold War, Student protests, the women's movement and the end of the USSR shaped contemporary Italy. May be restricted to History majors only during pre-registration.

**HIST 3590: The Early Middle Ages (3).** This course will focus on the social, political, economic, and cultural development of Europe from roughly 300 to 1050. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3600: The Later Middle Ages (3).** This course will focus on the social, political, economic, and cultural development of Europe from roughly

1050 to 1500. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3610: Ireland, 1100s to 1850 (3).** (same as Peace Studies [PEA\_ST] 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3611: Ireland, 1850–1923 (3).** (same as Peace Studies [PEA\_ST] 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states. May be restricted to History majors only during pre-registration.

**HIST 3612: Ireland, 1920–Present (3).** (same as Peace Studies [PEA\_ST] 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post-partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s. Prerequisites: History [HIST] 3610 and/or 3611 recommended. May be restricted to History majors only during pre-registration.

**HIST 3810: Imperial China (3).** (same as Peace Studies [PEA\_ST] 3810). A survey of China under the Manchu Ch'ing dynasty. Within framework of the dynastic cycle, examines imperial rule, Chinese society, culture, art, internal rebellion, Western intrusion and modernization. May be restricted to History majors only during pre-registration.

**HIST 3820: Twentieth Century China (3).** History of China from Nationalist Revolution of 1911 to present. A problem-oriented course: special emphasis on Mao and Maoist ideology, social, literary and cultural history also receive attention. Prerequisites: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 3830: Chinese Women's History (3).** Historical analysis of Chinese women in family, community, ideology, and national politics from the Late Imperial period to the present. Prerequisites: sophomore standing or instructor's consent. May be restricted to History majors only during pre-registration.

**HIST 3850: Islam and the West (3).** This course provides a historical intellectual context for the raging debate on Islam and the West. It will discuss how Muslims conceived and reacted variously to the political and cultural challenge the West posed in the nineteenth and twentieth century. It will focus on the discourse on the reception of modernization in Islam. It will highlight the political and cultural energies invested by various Muslim elite communities to distinguish between modernization and Westernization. Islamic fundamentalism, the dominant Islamic expression of our time, will be usefully discussed in the context of this debate and praxis about modernization, authenticity, and Westernization. Prerequisite: junior/senior standing. May be restricted to History majors only during pre-registration.

**HIST 3860: History of Mexico (3).** Survey of Mexican history from Cortes to present day. May be restricted to History majors only during pre-registration.

**HIST 3870: Social Revolution in Latin America (3).** (same as Peace Studies [PEA\_ST] 3870 and Sociology [SOCIO] 3870). Twentieth century social revolutions in selected Latin American countries. May be restricted to History majors only during pre-registration.

**HIST 3880: History of Caribbean America (3).** Comparative regional study of insular and mainland Caribbean nations. Emphasis on modern period. Independence; abolition of slavery; U.S. hegemony; economic, social, and political upheaval. May be restricted to History majors only during pre-registration.

**HIST 4000: Age of Jefferson (3).** Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions. May be restricted to History majors only during pre-registration.

**HIST 4001: Topics in History-General (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: departmental consent for repetition.

**HIST 4004: Topics in History-Social Science (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: departmental consent for repetition. May be restricted to History majors only during pre-registration.

**HIST 4010: The Age of Jackson (3).** This course will examine American Politics, society and culture in the 1820's, 1830's, and 1840's. Considerable attention will be devoted to Andrew Jackson himself, as a figure who both shaped and represented his era, for better or worse. May be restricted to History majors only during pre-registration.

**HIST 4030: History of the Old South (3).** Study of the South to 1860. May be restricted to History majors only during pre-registration.

**HIST 4040: Houses Divided: Society and Politics in the Civil War Era (3).** Houses Divided: Society and Politics in the Civil War Era examines the sectional crisis, the Civil War and Reconstruction through the lens of divided households. Considers the experience of soldiers and civilians, women and men, slaves and freed people. May be restricted to History majors only during pre-registration.

**HIST 4050: American Colonial History to 1760 (3).** Study of colonial America; special emphasis on creation of a native American culture prior to 1760. May be restricted to History majors only during pre-registration.

**HIST 4055: Witchcraft in Seventeenth Century New England (3).** This course explores the social, cultural and intellectual aspects of witchcraft and witch-hunting in seventeenth century New England.

**HIST 4060: The Period of the American Revolution, 1760-1789 (3).** Analysis of the Revolution, its causes and consequences, through establishment of the new government in 1789. May be restricted to History majors only during pre-registration.

**HIST 4070: Indians and Europeans in Early America (3).** A study of the cultural, political and often military struggle that took place for control of North America from contact through mid 19th century emphasizing native efforts to resist European domination and expansion in areas that became the U.S. and Canada. Prerequisite: History [HIST] 1100 or equivalent. May be restricted to History majors only during pre-registration.

**HIST 4085: Special Problems in History (cr.arr.).** Independent investigation leading to a paper or project.

**HIST 4100: American Cultural and Intellectual History to 1865 (3).** Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures. May be restricted to History majors only during pre-registration.

**HIST 4200: American Cultural and Intellectual History Since 1865 (3).** Tensions and transformations in American culture to the present. Topics include: spiritual crisis in Christianity; rise of welfare state liberalism; socialist and feminist alternatives; literature and the arts. May be restricted to History majors only during pre-registration.

**HIST 4210: Origins of Modern America, 1877-1919 (3).** Political, social, economic, and intellectual evolution of America into a modern society, 1877-1918. May be restricted to History majors only during pre-registration.

**HIST 4220: U.S. Society Between the Wars 1918-1945 (3).** Detailed examination of American history from end of World War I to end of World War II. May be restricted to History majors only during pre-registration.

**HIST 4230: Our Times: United States Since 1945 (3).** Detailed examination of American history from end of World War II to the present. May be restricted to History majors only during pre-registration.

**HIST 4240: History of the New South (3).** Study of the South since 1860. May be restricted to History majors only during pre-registration.

**HIST 4250: U.S. Foreign Relations, 1898-1945 (3).** A history of American Foreign Policy from the Spanish American War to the end of World War II. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945 - Present (3).** (same as Peace Studies [PEA\_ST] 4260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 4270: African-Americans in the Twentieth Century (3).** (same as Black Studies [BL\_STU] 4270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends. May be restricted to History majors only during pre-registration.

**HIST 4280: America in the Reagan Years (3).** Examines the major political, economic, social, and cultural currents and developments of the "Long Eighties," from Jimmy Carter's "malaise speech" of July 1979 to Bill Clinton's mid-1990s embrace of welfare reform and pronouncement that the era of big government was over. May be restricted to History majors only during pre-registration.

**HIST 4310: Adoption, Child Welfare and the Family, 1850-Present (3).** (same as Women and Gender Studies [WGST] 4310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption. May be restricted to History majors only during pre-registration.

**HIST 4400: History of American Law (3).** American law from English origins to present. Reviews common law, codification, legal reform movements, slavery law, administrative state, formalism, legal realism, jurisprudential questions concerning rule of law. Prerequisites: History [HIST] 1100, 1200, or 1400. May be restricted to History majors only during pre-registration.

**HIST 4410: Introduction to U.S. Social History (3).** Study of daily life and the ways ordinary Americans experienced historical change. Considers such topics as work, leisure, family and community. Compares how people's experiences varied by region, class, gender, ethnicity, and race. May be restricted to History majors only during pre-registration.

**HIST 4415: African Americans and American Justice (3).** (same as Black Studies [BL\_STU] 4415) This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws. May be restricted to History majors only during pre-registration.

**HIST 4420: American Urban History (3).** Growth, development and implications of the city in American history; historical analysis of urban problems. May be restricted to History majors only during pre-registration.

**HIST 4430: The Great West in American History (3).** Historical development of major regions, with emphasis on response to environment, public land policy, role of government in economic and resource development, citizen action, and cultural pluralism. May be restricted to History majors only during pre-registration.

**HIST 4440: History of the American Environment (3).** A reading and discussion course exploring diverse responses to the changing American environment from early man to the present, including ecological, institutional, and philosophical aspects. May be restricted to History majors only during pre-registration.

**HIST 4470: Quantitative Methods in Historical Study (3).** Introduces quantitative approaches to the study of history. Emphasizes opportunities, limitations, and dangers involved in several common forms of quantitative study. Math Reasoning Proficiency Course. May be restricted to History majors only during pre-registration.

**HIST 4480: War Crimes and Genocide (3).** (same as Peace Studies [PEA\_ST] 4480). This course will explore the development of international law, international consciousness, and U.S. Foreign policy on the two distinct but often related issues of war crimes and genocide during the late 19th and throughout the 20th centuries. May be restricted to History majors only during pre-registration.

**HIST 4500: Philip II and Alexander the Great of Macedonia (3).** Concentrates on the history and politics of Greece during reigns of these two kings along with Alexander's military conquests and various controversies from the period. Prerequisite: junior standing or instructor's consent. May be restricted to History majors only during pre-registration.

**HIST 4510: Crime and Punishment: Law in Classical Athens (3).** Examines the main principles of Athenian law and judicial procedures including history of law code and study of actual speeches from a variety of law suits and procedures. May be restricted to History majors only during pre-registration.

**HIST 4515: Power and Oratory in Ancient Greece (3).** Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC. May be restricted to History majors only during pre-registration.

**HIST 4530: The Roman Empire (3).** Roman imperialism; management of, and rebellion in, the Empire; cultural exchange between Rome and its provinces. May be restricted to History majors only during pre-registration.

**HIST 4540: The Later Roman Empire (3).** Political, religious and cultural life in Late Antiquity, from the "soldier emperors," to the barbarian kingdoms and early Byzantium. May be restricted to History majors only during pre-registration.

**HIST 4550: Age of the Vikings (3).** Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement. Prerequisites: History [HIST] 1500, 1540, 1600 or 2560 recommended; junior standing required or instructor's consent. May be restricted to History majors only during pre-registration.

**HIST 4555: Medieval France (3).** This course covers the area that became the kingdom of France from the end of the Roman era until the end of the Hundred Years War; emphasis on political and cultural developments. Junior Standing or consent of instructor required. Previous coursework in medieval history recommended.

**HIST 4560: The Crusades (3).** Survey of the European crusading movement from its inception in the late eleventh century to its decline during the later Middle Ages. Prerequisites: junior standing or instructor's consent. May be restricted to History majors only during pre-registration.

**HIST 4570: Intellectual History of Europe, 17th and 18th Centuries (3).** The Enlightenment's attack on traditional Christian thought and values. Prerequisite: junior standing or departmental consent. May be restricted to History majors only during pre-registration.

**HIST 4580: Intellectual History of Europe, 19th and 20th Centuries (3).** Topics include: Romanticism, Darwin, Marx and Freud. Prerequisite: junior

standing or departmental consent. May be restricted to History majors only during pre-registration.

**HIST 4610: Early Modern Britain, 1450-1688 (3).** Study of English politics, society, economy, culture, and religion during primarily the Tudor and Stuart eras, from the establishment of the Tudor dynasty (1485) through the Glorious Revolution. Emphasis on social and religious history. Prerequisite: sophomore standing. May be restricted to History majors only during pre-registration.

**HIST 4620: Modern England (3).** Surveys British history in the 18th and 19th centuries. Emphasizes social and economic change. May be restricted to History majors only during pre-registration.

**HIST 4630: The Age of the Renaissance (3).** Major changes in European economic, social, political, religious, and intellectual life between 1250-1500. Humanism and Renaissance. The "Renaissance problem." May be restricted to History majors only during pre-registration.

**HIST 4640: The Age of the Reformation (3).** State of Europe about 1500. Political, diplomatic, social, and intellectual changes to 1648. Humanistic reform movements. Protestant-Catholic Reformation. Development of the modern state and international relations. May be restricted to History majors only during pre-registration.

**HIST 4650: Revolutionary France, 1789-1815 (3).** Revolutionary upheavals of the revolutionary-Napoleonic era, which destroyed traditional French society and laid the basis for modern France. Prerequisite: junior standing or departmental consent. May be restricted to History majors only during pre-registration.

**HIST 4660: European Women in the 20th Century (3).** (same as Women's and Gender Studies [WGST] 4660). Examines the history of European women from World War I to the present. The course focuses on wars, migration, and the changing nature of family, work and community. Prerequisite: junior standing. May be restricted to History majors only during pre-registration.

**HIST 4670: Germany in the Nineteenth Century (3).** Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism. May be restricted to History majors only during pre-registration.

**HIST 4680: Germany in the Twentieth Century (3).** Cultural, social and political history from 1914 to present day. Focus on world wars, national socialism, the holocaust, the cold war and the emergence of East and West Germany. May be restricted to History majors only during pre-registration.

**HIST 4700: Imperial Russia, 1682-1825 (3).** Russia in the 18th and early 19th centuries, with special emphasis on the reigns of Peter I, Catherine II, and Alexander I. May be restricted to History majors only during pre-registration.

**HIST 4710: The Russian Revolution (3).** Analyzes the transformation of Russian society that produced the collapse of autocracy, efforts to create a parliamentary government, the Bolshevik seizure of power in 1917, and the civil war that followed. May be restricted to History majors only during pre-registration.

**HIST 4800: Modern Japan and China--A Comparative Survey (3).** A structured, comparative examination of the histories and cultures of Japan and China, from the mid-19th century to the present. Orientation towards broad social, intellectual and political developments. May be restricted to History majors only during pre-registration.

**HIST 4840: History of the Mongols (3).** In the 13th century, the Mongols went from warring tribes to the largest Eurasian empire in history. This course examines the Mongol tribes, Chinggis Khan's unification of the tribes, the Mongols rapid military victories across Eurasian and their equally rapid decline. May be restricted to History majors only during pre-registration.

**HIST 4850: Traversing the Muslim World (3).** (same as South Asian Studies [S\_A\_ST] 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive seminar-style course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo. Prerequisites: restricted to juniors and seniors only. May be restricted to History majors only during pre-registration.

**HIST 4860: Indian Army as Colonial Army (3).** (same as South Asian Studies [S\_A\_ST] 4860). This writing intensive seminar-style course examines how the Indian Army acted as a colonial army in the British Empire, including Africa, the Boxer Rebellion, and the World Wars. Focus is on the role of the Indian Army, impact of the Sepoy Mutiny, and martial race ideology. Prerequisites: restricted to juniors and seniors only. May be restricted to History majors only during pre-registration.

**HIST 4870: Southeast Asia Since the Eighteenth Century (3).** The general objective of this course is to introduce students to the fascinating world of Southeast Asia. We will look at the shared history of commodity, cultural, and religious exchanges that gave this region a collective character, as well as explore the historical conditions from which individual modern Southeast Asian state emerged. May be restricted to History majors only during pre-registration.

**HIST 4880: Chinese Migration Modern Times (3).** This course surveys Chinese emigration in the global context over the span of five centuries. We will pay special attention to the changing relationships between China and Chinese migrants. Our emphasis will be on history as a process of negotiation and contestation of heterogeneous groups or individuals through creative and selective activities. May be restricted to History majors only during pre-registration.

**HIST 4940: Internship in History (3).** Professional training in history and archive-related fields. Prerequisites: History Department Area of Concentration; junior or senior standing; departmental consent. Graded on S/U basis only.

**HIST 4960: Special Readings in History (cr.arr.).** Individual work, with conferences adjusted to needs of student.

**HIST 4970: Undergraduate Seminar in Third World History (3).** Readings in selected problems in the history of Africa, Asia or Latin America with reports and discussion. Prerequisite: junior standing, departmental consent.

**HIST 4971: Undergraduate Seminar in European History (3).** Readings in problems in European history with reports and discussion. Prerequisite: junior standing, departmental consent.

**HIST 4972: Undergraduate Seminar in American History (3).** Readings in selected problems in American history with reports and discussion on selected topics. Prerequisite: junior standing, departmental consent.

**HIST 4980: Undergraduate Thesis in History (3).** Individually directed research leading to a senior thesis. Prerequisite: senior standing and departmental consent.

**HIST 4981: Undergraduate Thesis in History (3).** Continuation of History [HIST] 4980. Prerequisite: senior standing and departmental consent.

**HIST 4995: Honors Thesis in History (3).** Research and completion of the thesis required for graduation with Honors in History. Prerequisite: departmental consent.

**HIST 4996: Honors Thesis in History (3).** Continuation of History [HIST] 4995. Prerequisite: departmental consent.

## HONORS-GENERAL COURSES

**GN HON 1010H: Career Explorations (1).** Colloquia in which experts from both the University and

the Columbia communities discuss their specialties and answer students' questions on the nature and current status of their disciplines. Open primarily to freshmen. Graded on an S/U basis only. Honors eligibility required.

**GN HON 1030H: Honors Discussion Groups (1-2).** Informal discussion between students and faculty on various academic topics. Honors eligibility required. Graded S/U only.

**GN HON 1050H: Honors Seminar (1-3).** Freshman-sophomore seminar offering a small group opportunity to write about and discuss basic works chosen by instructor. Honors eligibility required.

**GN HON 1070H: Honors Elective Colloquium (2-3).** Honors eligibility required.

**GN HON 1080H: Honors Internship (1-3).** Independent study under the supervision of a regular faculty member. Prerequisite: written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required.

**GN HON 1090H: Independent Study-Service Learning (1-3).** Students participate in community service activities, attend regular meetings, conduct research, submit four journals, a short bibliography and a research paper on their service in the community. Honors eligibility required.

**GN HON 2015H: Theory and Practice of Tutoring Writing Seminar (3).** (same as English [ENGLSH] 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semesters. Prerequisites: English [ENGLSH] 1000; instructor's consent.

**GN HON 2021: MU Community Engagement Project (2-3).** The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**GN HON 2021H: MU Community Engagement Project - Honors (2-3).** The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development. Honors eligibility required.

**GN HON 2022: HCCIP Head Start (3).** Students provide individualized attention to high-risk, low-income pre-school children 3-5 hours per week directing enrichment activities.

**GN HON 2022H: HCCIP Head Start - Honors (3).** Students provide individualized attention to high-risk, low-income pre-school children 3-5 hours per week directing enrichment activities. Honors eligibility required.

**GN HON 2024: HCCIP Public Health (3).** HCCIP Public Health course enhances and supports the service learning experience by exploring areas of public health and volunteerism for students considering health-related careers. Students work 3-5 hours per week on service projects.

**GN HON 2024H: HCCIP Public Health - Honors (3).** HCCIP Public Health course enhances and supports the service-learning experience by exploring areas of public health and volunteerism for students considering health-related careers. Students work 3-5 hours per week on service projects. Honors eligibility required.

**GN HON 2027: Honors College Community Involvement Program (3).** Course offers students the opportunity to become involved in the community, study service ethics, citizenship and leadership, and participate in the FIG program.

**GN HON 2027H: Honors College Community Involvement Program - Honors (3).** Course offers students the opportunity to become involved in the community, study service ethics, citizenship and leadership, and participate in the FIG program. Honors

eligibility required.

**GN HON 2029: HCCIP Literacy Project (3).** A service-learning outreach program designed to assist members of the community and offer students problem solving and leadership. Graded on A/F basis only.

**GN HON 2029H: HCCIP Literacy Project - Honors (3).** A service-learning outreach program designed to assist members of the community and offer students problem solving and leadership. Graded on A/F basis only. Honors eligibility required.

**GN HON 2085H: Honors Problems (1-3).** Independent study under the supervision of a regular faculty member. Prerequisite: written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required.

**GN HON 2111H: The Ancient World (3).** The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius, and of the biblical period, the authors of the Book of Job and the Gospel of Mark. Honors eligibility required.

**GN HON 2112H: The Middle Ages and the Renaissance (3).** The literature, art and philosophy which reflect the interaction of biblical thought with the classical past, and ultimately an emerging humanism, form the contents of the second semester. Readings include selections from such central figures as Aquinas, Chaucer, Dante, and Shakespeare. Special lectures are presented on the art, architecture and music of these eras. Honors eligibility required.

**GN HON 2113H: The Early Modern World: The 17th-19th Centuries Enlightenment (3).** The third segment of the Sequence treats the cultural developments in the West from the Baroque to the Enlightenment through Romanticism. The works of Cervantes, Descartes, Milton, Voltaire, Kant, Austen, Goethe, and Dickinson are among those studied. The music and visual arts of these periods are also included. Honors eligibility required.

**GN HON 2114H: The Modern Era (3).** The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period. Honors eligibility required.

**GN HON 2117H: The Emerging Canons of the Americas (3).** Students will explore the issues of canonicity and the emerging works of Native American, Caribbean, Afro-Latin American, Asian American and Latino writers comparatively on the conceptions of colonialism, power and resistance, cultural and racial identity, hybridity, tradition and change. Honors eligibility required.

**GN HON 2120H: Honors Humanities Colloquium (2-3).** Honors eligibility required.

**GN HON 2230H: Honors Social Science Colloquium (2-3).** Honors eligibility required.

**GN HON 2243H: Human Sciences Sequence I: Personal Identity (3).** Part of the Honors College sequence on human nature, this course focuses on behavioral scientific studies of personal identity. Will draw on classic and modern works that investigate the self, its development, and its relationships to others. Honors eligibility required.

**GN HON 2244H: Human Sciences Sequence II: Identity in Groups (3).** Part of the Honors College sequence on human nature, this course focuses on behavioral scientific studies of identity in relation to groups. Will draw on classic and modern works that examine how people identify and are identified with groups, and the effects of those processes. Honors eligibility required.

**GN HON 2245H: Human Sciences Sequence III: Identity in Modern Nations (3).** Part of the Honors College sequence on human nature, this course focuses on social scientific studies of modern society and the individual's role in it. Will draw on classic and modern works that investigate the rise of modern

society and its influences on its members. Honors eligibility required.

**GN HON 2246H: Human Sciences Sequence IV: Globalization and Social Identity (3).** Part of the Honors College sequence on human nature, this course focuses on social scientific studies of the forces of globalization and their influences on the individual. Will draw on classic and modern works that investigate the interdependencies of modern global society. Honors eligibility required.

**GN HON 2310H: Honors Behavioral Science Colloquium (2-3).** Honors eligibility required.

**GN HON 2450H: Hrs Biological, Physical, Math (Computer Sci) Science Colloquium (2-3).** Honors eligibility required.

**GN HON 2461H: The Honors College Science Sequence: The Warm Little Pond (3).** Inquiry-based exploration of the physical and biological sciences as they relate to 1) life in a particular, assessable ecological system and 2) the existence of life on Earth and its prospects for existence elsewhere in the universe. Honors eligibility required.

**GN HON 2462H: The Honors College Science Sequence: The Warm Little Planet (3).** The Warm Little Planet is a companion course to Honors [GN\_HON] 2461H, "The Warm Little Pond." Beginning with observations of the physical universe on an astronomical scale, students will construct models for the interaction between the physical and biological worlds and assess the possibility for life on other planets. Honors eligibility required.

**GN HON 2950H: Honors Preceptorship (2-3).** Active participation in a professor's research for up to six hours a week. Prerequisite: written description of the work with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required.

**GN HON 3028: Civic Leaders Internship (3-6).** Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies. Prerequisite: consent and application required.

**GN HON 3028H: Civic Leaders Internship - Honors (3-6).** Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies. Prerequisite: consent and application required. Honors eligibility required.

**GN HON 3070H: Honors Electives Colloquium (2-3).** Honors eligibility required.

**GN HON 3120H: Honors Humanities Colloquium (2-3).** Prerequisite: junior standing. Honors eligibility required.

**GN HON 3210H: Honors Behavioral Colloquium (2-3).** Prerequisite: junior standing. Honors eligibility required.

**GN HON 3230H: Honors Social Science Colloquium (2-3).** Prerequisite: junior standing required. Honors eligibility required.

**GN HON 3450H: Honors Biological, Physical, Math (Computer Sci.) Science Colloquium (2-3).** Prerequisite: junior standing required. Honors eligibility required.

**GN HON 4070: Advanced Honors Elective Colloquium (2-3).** These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged. Limited to juniors and seniors.

**GN HON 4950H: Honors Preceptorship (2-3).** Active participation in a professor's research for up to six hours a week. Prerequisite: written description of the work with professor's approval submitted in advance to Director of the Honors College. Prerequisite: junior standing required. Honors eligibility required.

## HOSPITALITY MANAGEMENT COURSES

**HSP\_MGMT 1043: Introduction to Hospitality Management (3).** A basic course in hospitality

management operations. Review development of the industry, current trends and an analysis of the various types of operations in the hospitality industry. Restricted to students with 75 hours or less.

**HSP\_MGMT 1133: Hospitality Law (3).** Law as it relates to the hospitality field; theories of recovery/liability; lawsuits and their prevention; familiarization with legal arguments, lawyers, litigation and threats of litigation. May be taken concurrently with Hospitality Management [HSP\_MGMT] 1043.

**HSP\_MGMT 1505: Fundamentals of Sport Venue Management (3).** Familiarization of the history of sport venues, types of sport venues, governance, the operations of various departments commonly found in a sport venue, design and flow of sport venues, and the concept of the Total Guest Experience. Graded A-F only.

**HSP\_MGMT 1723: Private Club Management and Operation (3).** Clubs as a legal entity. Organizational structure, creed, charter, and by-laws; athletic activities, master and club calendars; food and beverage departments, budgets, taxes, and the future of clubs are discussed. Field trips to local area clubs are planned.

**HSP\_MGMT 1991: Food Service Sanitation Management (1).** Basic principles of food service sanitation safety. Meets Standards for National Sanitation Certification. Graded on S/U basis only.

**HSP\_MGMT 1995: Culinary Fundamentals (3).** Basic principles of food purchasing and selection, scientific principals and culinary fundamentals of food products in commercial food service operations. Prerequisite: Hospitality Management [HSP\_MGMT] 1991.

**HSP\_MGMT 2123: Food Service Operational Fundamentals (2).** A basic training and directed work experience in selected entry-level positions, allowing students to develop skills sets in service, point of sale systems, food production, inventory and storage, performance evaluation, professionalism, and positive work relations in both the "Front" and "Back of House". Prerequisites: Hospitality Management [HSP\_MGMT] 1991; concurrent enrollment with HSP\_MGMT 2143 for Food and Beverage Management Emphasis students.

**HSP\_MGMT 2143: Introduction to Food Production and Service Fundamental (2).** This course provides students with information on the basic principles of effective food production and service management. The primary focus is on service management, menu planning, development and maintenance of quality standards throughout the food manufacturing cycle, and determination of recipe and total food costs. Prerequisites: Hospitality Management [HSP\_MGMT] 1043; concurrent enrollment with HSP\_MGMT 2123 for Food and Beverage Management Emphasis students.

**HSP\_MGMT 2385: Problems in Hospitality Management (cr.arr.).** Supervised study in a specialized phase of hospitality management. Prerequisite: Hospitality Management [HSP\_MGMT] major or Hospitality Management [HSP\_MGMT] major and departmental consent. Open only to Freshman and Sophomore students.

**HSP\_MGMT 2401: Topics in Hospitality Management (cr.arr.).** Instruction in specific subject matter areas in the field of hospitality management. Open only to Freshman and Sophomore students. Instructor's consent required.

**HSP\_MGMT 2550: Practicum in Sport Venue Management (3).** 200 hours of practical experience in a minimum of 4 components/functions of a sport venue. Prerequisite: Hospitality Management [HSP\_MGMT] 1505. Restricted to Hospitality Management Majors only. Graded S/U basis only.

**HSP\_MGMT 3153: Food Service Operations Management (3).** In-depth study of management of systems/techniques utilized to control food, beverage and labor costs in hospitality industry with emphasis on computer applications/problems solving. Prerequisites: Hospitality Management [HSP\_MGMT] 1043, 2143.

**HSP\_MGMT 3193: Hotel Organization and Structure (3).** Analysis of the operating and functional departments in a modern hotel and the study of the interrelationships among the departments; five-day off-campus seminar. Prerequisites: Hospitality Management [HSP\_MGMT] 1043 and instructor's consent

**HSP\_MGMT 3233: Professional Beverage Management (3).** This course provides an overview and analysis of the bar and beverage industry. Students will learn and explore the managerial and operational elements of professional beverage management. An emphasis will be placed on the legal aspects of beverage services, as well as provide training on responsible service of alcohol. In addition, sensory analysis will be used to pair food and beverages. The course will also give a better understanding of world beverages and the differences within each area. Students will apply knowledge and techniques of beverage service to menu and operational development.

**HSP\_MGMT 3343: Hotel Operations and Management (3).** An in-depth study of management processes in non-food functions of hotels. Prerequisites: Hospitality Management [HSP\_MGMT] 1043.

**HSP\_MGMT 3385: Advanced Problems in Hospitality Management (cr.arr.).** Advanced study in a selected field of Hospitality Management. Prerequisite: Hospitality Management [HSP\_MGMT] major; open only to junior and senior students; instructor's consent required.

**HSP\_MGMT 3401: Advanced Topics in Hospitality Management (cr.arr.).** Instruction in specific subject matter areas in the field of hospitality management. Open only to Juniors and Senior students; instructor consent required.

**HSP\_MGMT 3410: Conference and Meeting Management (3).** An overview of convention and meeting planning to include group business market, the role of the event planner, the various techniques and services used to meet their needs, and technology used in the convention and meeting industry. Prerequisite: Hospitality Management [HSP\_MGMT] 1043 (concurrent enrollment is allowed).

**HSP\_MGMT 3415: Current Issues in Meeting and Event Management (1).** A 1-credit guest speaker lecture class which provides a variety of professional topics for students who focus on convention and event management area. Prerequisite: Hospitality Management [HSP\_MGMT] 1043 (concurrent enrollment is allowed).

**HSP\_MGMT 3510: Guest Service Management: Delivering the Fan Experience (3).** Deliver the total sport fan experience through customer service from "driveway to driveway." Leadership in delivering customer service and meeting guest expectations. Service compliance standards, communication with patrons, and proper use of technology. Prerequisite: Hospitality Management [HSP\_MGMT] 1043. Instructor's consent required. Graded A/F only.

**HSP\_MGMT 3515: Sport Venue Operation Management (3).** Management of the departments commonly found in sport venues: box office operations, food & beverage, maintenance & housekeeping, engineering, sales & sponsorship; technology, event production & game day operations; public vs. private events; crowd control; and legal compliance. Prerequisite: Hospitality Management [HSP\_MGMT] 1505. Graded A/F only.

**HSP\_MGMT 3777: Management of Gaming Operations (3).** Exams the history and development of gaming operations including legal, economic and psychological forces. Prerequisite: Students must be age 21 or older.

**HSP\_MGMT 4191: Seminar in Professional Development (1).** Readings and discussion related to professional development for the industry. Prerequisites: Hospitality Management [HSP\_MGMT] 1043.

**HSP\_MGMT 4243: Strategic Management in the Hospitality Industry (3).** Applies functions and tools of business management to the hospitality field. Prerequisite: Hospitality Management [HSP\_MGMT] 3143, 3153 and Accountancy [ACCTCY] 2036

**HSP\_MGMT 4253: Hospitality Human Resources Management (3).** Recruitment, training, management of personnel required for operations in a hospitality business at all employment levels. Prerequisite: Hospitality Management [HSP\_MGMT] 1043 or instructor's consent. Restricted to Hospitality Management Majors during early registration.

**HSP\_MGMT 4273: Hospitality Sales and Marketing Management (3).** Marketing of hospitality services: human factors, consumer demand, planning, professional considerations. Discussion of traditional and current marketing methods. Prerequisites: Hospitality Management [HSP\_MGMT] 1043 and completion of a minimum of 45 hours. Restricted to Hospitality Management majors during early enrollment.

**HSP\_MGMT 4320: Destination Management (3).** An overview of the optimal planning, development, and marketing of destination image and position in the context of the overall management plan. Prerequisites: Hospitality Management [HSP\_MGMT] 1043 (concurrent enrollment is allowed).

**HSP\_MGMT 4343: International Hotel Management (3).** This is an international hotel management course, which covers cultural aspects of hotel management, and current trends in the hotel management worldwide. Prerequisites: Hospitality Management [HSP\_MGMT] 1043.

**HSP\_MGMT 4353: Hotel Finance Management (3).** This is a finance management course designed for students who may pursue a management career in the hotel industry. Prerequisites: Hospitality Management [HSP\_MGMT] 1043, 3343.

**HSP\_MGMT 4390: Optimization and Management of Food and Agricultural Systems (3).** (same as Food Science [F\_S] and Agricultural System Management [AG\_S\_M] 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function. Prerequisite: Mathematics [MATH] 1100.

**HSP\_MGMT 4520: The Business of Sport Venue Management (3).** Financial and accounting practices, understanding the economic impact of events on the community, HR and labor relations, venue sales & marketing, contracts, working with promoters, tenant and vendor relations, negotiations and conflict resolution as related to sport venues. Prerequisites: Hospitality Management [HSP\_MGMT] 1505, 3515, 4253, 4273, Accountancy [ACCTCY] 2036 or Finance [FINANC] 2000. Instructor's consent required. Graded A/F only.

**HSP\_MGMT 4525: Sport Venue Design and Risk Management (3).** The study of sport venue design and flow, creating and understanding computer-aided drawings (CADD). Emergency planning and preparedness strategies to include crowd control, law enforcement coordination, first responders and security & safety. Prerequisites: Hospitality Management [HSP\_MGMT] 1505, 3515. Instructor's consent required. Graded A/F only.

**HSP\_MGMT 4940: Field Training in Hospitality Management (cr.arr.).** Advanced study, observation and employment in an area of hospitality. Written reports, faculty evaluation. Prerequisites: junior or senior standing and instructor's consent.

**HSP\_MGMT 4941: Internship in Hospitality Management (cr.arr.).** Combines study, observation and employment in an area of hospitality. Written reports, faculty evaluation. Prerequisites: Completion of at least 75 hours.

**HSP\_MGMT 4963: Recent Trends in Hospitality Management (1-2).** For upper-level and graduate students who wish additional knowledge and understanding in specific subject matter areas.

**HSP\_MGMT 4980: Special Events Management (3).** An overview of managing special events to include event design feasibility studies, legal compliance, promotion, safety and security, logistic, staffing, financial control and technology. Prerequisite: Hospitality Management [HSP\_MGMT] 3410

and 3420.

**HSP\_MGMT 4985: Commercial Food Production Management (5).** Identifies and applies the skills necessary to plan, produce, and serve meals to customers in a commercial setting. Prerequisites: Hospitality Management [HSP\_MGMT] 2123 and 3153.

**HSP\_MGMT 4994: Lodging Management Leadership (3).** Capstone course for Hospitality majors focusing on lodging management. Applies previously learned hospitality theories and principles to solving problems found in the lodging industry. Prerequisites: Hospitality Management [HSP\_MGMT] 4253.

## HUMAN DEVELOPMENT AND FAMILY STUDIES COURSES

**H D FS 1520: Drop-In Child Care Programs (3).** Examination of appropriate planning for and experience in a drop-in child care program. Prerequisites: Human Development and Family Studies [H D FS] 3420 or equivalent and instructor's consent.

**H D FS 1600: Foundations of Family Studies (3).** Introduction to family studies discipline and profession. Introduces historical changes in families, diversity by race, ethnicity, class and sexual orientation, and interaction of families with neighborhoods, schools, the workplace, and larger systems.

**H D FS 1600H: Foundations of Family Studies - Honors (3).** Introduction to family studies discipline and profession. Introduces historical changes in families, diversity by race, ethnicity, class and sexual orientation, and interaction of families with neighborhoods, schools, the workplace, and larger systems. Honors eligibility required.

**H D FS 1610: Intimate Relationships and Marriage (3).** Examination of issues pertaining to intimate and marital relationships such as relationship foundation and dissolution processes, love, sex, behavioral scripts, and conflict. Diversity related to race, ethnicity, gender, and sexual orientation is explored.

**H D FS 2085: Problems in Human Development and Family Studies (cr.arr.).** Graded on S/U basis only.

**H D FS 2200: Research Methods in Human Development and Family Studies (3).** Introduction to research methods in the social sciences. Emphasis on both qualitative and quantitative methods, as well as applied research and program evaluation. Prerequisite: sophomore standing.

**H D FS 2300: Multicultural Study of Children and Families (3).** Study of cultural variation in family life around the world and within America (e.g.: African-American, Hispanic American). Attention is paid to the external conditions that affect the internal workings of these families.

**H D FS 2400: Principles of Human Development (4).** Concepts and principles basic to an understanding of human development and learning throughout the life span. Prerequisite: English [ENGLSH] 1000.

**H D FS 2400H: Principles of Human Development - Honors (4).** Concepts and principles basic to an understanding of human development and learning throughout the life span. Prerequisite: English [ENGLSH] 1000. Honors eligibility required.

**H D FS 2450: Human Sexuality Across the Life Span (3).** An introductory survey of human sexuality including gender, love and intimacy, sexual expression and variation, sexual orientation, contraception, pregnancy and birth, sexually transmitted infections, sexual coercion, and sex in society. Sexuality within the context of intimate relationships across the life course will be emphasized.

**H D FS 3085: Problems in Human Development and Family Studies (cr.arr.).** Independent work on special problems in human development and family studies. Prerequisite: instructor's consent. Graded on S/U basis only.

**H D FS 3090: Research Experience in Human Development and Family Studies (1-6).** Student training and engagement in research with a H D FS

faculty member. Students learn about the research process and methods, and develop research skills (e.g., data collection, entry, coding, analysis) through hands-on work. Prerequisite: Human Development and Family Studies [H D FS] 2200; instructor's consent. Graded on S/U basis only. May be repeated for credit.

**H D FS 3420: Early and Middle Childhood (3).** Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for more than one of the following: Psychology [PSYCH] 2410, Human Development and Family Studies [H D FS] 3420, or Education, School and Counseling Psychology [ESC PS] 2500. Restricted to Education, HDFS and Pre-HDFS majors during preregistration period.

**H D FS 3430: Adolescence and Young Adulthood (3).** Physical, intellectual, and psychosocial maturation of adolescents and young adults within the context of life long developmental sequelae. Restricted to HDFS and Pre-HDFS majors during pre-registration period.

**H D FS 3440: Adulthood and Aging (3).** Examination of biological, cognitive, psychological and social changes experienced across adulthood.

**H D FS 3500: Infant-Toddler Development and Programs (4).** Applied cognitive, language, and social development of infants and toddlers. Emphasizes development in a child care setting and staff relations. Co-requisites: H D FS 3420.

**H D FS 3510: Curriculum and Activities for the Early Childhood Setting (3).** Development of curriculum for children birth through 5 in preschool setting. Also emphasizes the development of program activities for children birth through 5; and 6 through 10 in after-school care settings. Prerequisites: may be taken concurrently with Human Development and Family Studies [H\_D\_FS] 3420 and 3500 and instructor's consent.

**H D FS 3530: Foundations of Community-Based Programs for Children and Youth (3).** Examines non-academic community-based programming for children and youth. Experience working with these age groups. Prerequisites: Human Development and Family Studies [H D FS] 3420 or equivalent or instructor's consent. Graded on A/F basis only.

**H D FS 3600: Working With Parents (3).** Lecture format presenting stages of parenthood, parenting styles, the impact of relationships and culture on parenting and challenges of parenting. Developing practical field skills working with families in a service learning experience. Prerequisite: Human Development and Family Studies [H D FS] 3420.

**H D FS 3700: Child Development Laboratory (6).** Experience working with young children (ages 2-6 years), and applying developmentally appropriate practice. Focus on general guidance, curriculum planning, family and staff relations. Prerequisites: Human Development and Family Studies [H D FS] 3500 or equivalent and instructor's consent.

**H D FS 3720: Student Teaching Prekindergarten (6).** Experience working with children (2-5 years), using general guidance principles and methods for fostering creativity. Prerequisites: Human Development and Family Studies [H D FS] 3420 or equivalent and instructor's consent.

**H D FS 3730: Field Training Practicum (3).** Field training experiences under supervision. Prerequisite: advisor's consent. May be repeated for credit. Graded on A/F basis only.

**H D FS 3800: Children's Play (3).** This course is an examination of the complex phenomenon of play in children's lives. Emphasis is placed on the value of play in developmental, social, and cultural contexts. Topics include the exploration of play theories and supporting empirical evidence, play materials, various environments, violence and conflict resolution, and therapeutic uses of play. Observation and assessment of children at play and analysis of play environments is required. Prerequisites: Human Development and Family Studies [H D FS] 2400, 3420, Psychology [PSYCH] 2410 or Education, School and Counseling Psychology [ESC PS] 2500 or equivalent, junior

standing. Enrollment is restricted to H D FS and Pre H D FS majors during preregistration period.

**H D FS 3960: Readings in Human Development and Family Studies (cr.arr.).** Readings in recent research; critical discussions.

**H D FS 4001: Topics in Human Development and Family Studies (cr.arr.).** Selected current topics in field of interest.

**H D FS 4085: Problems in Human Development and Family Studies (cr.arr.).** Independent work on special problems in human development and family studies. Prerequisites: instructor's consent. Graded on S/U basis only.

**H D FS 4090: Advanced Research in Human Development and Family Studies (1-6).** Advanced training and engagement in research with a H D FS faculty member. Student develops research skills (e.g., data collection, entry, coding, analysis) and works semi-independently on own research project. Prerequisite: Human Development and Family Studies [H D FS] 2200 and 3090; instructor's consent. Graded on S/U basis only. May be repeated for credit.

**H D FS 4100: Children in Health Care Settings (3).** Overview of the medical conditions and treatments commonly encountered by children and adolescents in health care settings and their typical reactions to them. Introduction to the philosophy and the role of the child life profession. Prerequisites: Human Development and Family Studies [H\_D\_FS] 2200, 2400 and 3420, or equivalent. Restricted to Human Development and Family Studies [H\_D\_FS] and Pre- Human Development and Family Studies [H\_D\_FS] majors during pre-registration period.

**H D FS 4110: Child Life Theory and Practice (3).** Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice. Prerequisites: Human Development and Family Studies [H D FS] 2200, 3420, 3500 or 3700, and instructor's consent.

**H D FS 4130: Child Life Practicum (3).** Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization. Prerequisites: Human Development and Family Studies [H D FS] 3500 and 3700, consent required.

**H D FS 4300: Black Families (3).** (same as Black Studies [BL\_STU] 4300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the Black family. Prerequisites: Human Development and Family Studies [H\_D\_FS] 2200 or equivalent, and junior standing.

**H D FS 4400: Childhood Death and Bereavement (3).** An exploration of issues that arise for children and families when facing life-threatening illness and death. The course also includes an examination of coping and helping strategies for dying and grieving children. Prerequisites: Human Development and Family Studies [H D FS] 2200, 2400, 3420 and instructor's consent. Restricted to HDFS and Pre-HDFS majors during pre-registration period.

**H D FS 4420: Environmental Influences on Lifespan Cognition (3).** This course covers the change and growth of cognition through the lifespan with particular attention to how the environment influences cognition (including perception, language memory, attention executive functions, and problem solving). Prerequisite: Human Development and Family Studies [H D FS] 3420.

**H D FS 4570: Development and Administration of Child Services Programs (3).** The development of leadership and management skills for administering community- and hospital-based programs for children. Includes an overview of office policy and procedure, staff and volunteer management, public relations, budgeting, accounts, accountability, and quality assurance. Prerequisites: Human Development and Family Studies [H D FS] 2200 or equivalent, 3600 or 3700, or instructor's consent.

**H D FS 4610: Stress in Families (3).** Introduction to the study of stressor events in families, such as

poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping. Prerequisites: Human Development and Family Studies [H\_D\_FS] 2200 or equivalent or instructor's consent.

**H D FS 4620: Family Interaction (3).** Analysis of intrafamilial interaction from a systems perspective; includes comparative study of family paradigms, family subsystems, goals, and resources, boundaries, and patterns of feedback. Prerequisites: Human Development and Family Studies [H D FS] 1600 and 2200 or equivalent; or instructor's consent.

**H D FS 4630: The Process of Divorce (3).** Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies are considered. Prerequisites: Human Development and Family Studies [H D FS] 1600, and 2200 or equivalent; or instructor's consent.

**H D FS 4640: Interpersonal Relationships (3).** In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students are introduced to the field of close relationships. Prerequisites: Human Development and Family Studies [H\_D\_FS] 2200 or equivalent and instructor's consent.

**H D FS 4655: History of the Family in Russia (3).** Survey of family relations in Russia from the Kievan period. Materials drawn from child development and family studies, education, history, sociology, and literature. Prerequisite: 3 hours in Social/Behavioral Sciences.

**H D FS 4655H: History of the Family in Russia - Honors (3).** Survey of family relations in Russia from the Kievan period. Materials drawn from child development and family studies, education, history, sociology, and literature. Prerequisite: 3 hours in Social/Behavioral Sciences. Honor eligibility required.

**H D FS 4680: Family Communication (3).** (same as Communications [COMMUN] 4520). Analysis of the functions and processes of communication within families. Prerequisite: junior standing or departmental consent. May be restricted to Communication majors only during early registration.

**H D FS 4700: Children and Families in Poverty (3).** Study of the extent, distribution, and implications of poverty on children and families. Examination of myths and realities, social conditions, policies, and programs that contribute to or reduce poverty and its consequences. Prerequisites: Human Development and Family Studies [H D FS] 1600, 2200, and 3420 or equivalent, or instructor's consent.

**H D FS 4720: Child and Family Advocacy (2-3).** Study of the processes of social policies, legislation, and regulations affecting children and families at the local, state and federal levels. The course emphasizes current issues and need for citizen involvement. There will be sections restricted to Human Development and Family Studies [H D FS] majors and to Education majors. The H D FS section will be for 3 credits and the Education will be for 2 credits. Prerequisites: Human Development and Family Studies [H\_D\_FS] 2200 or equivalent, or instructor's consent.

**H D FS 4800: Program and Curriculum Design for FACS Education in Middle and Secondary Schools (3).** What should a teacher do about planning for student learning in FACS? Includes objectives, lesson designs, resources, learner diversity, thinking skills, reasoning processes, articulation, legislation. Prerequisites: Education, School and Counseling Psychology [ESC PS] 2010 and Special Education [SPC ED] 4020 or equivalent. Admission to Phase II, and instructor's consent.

**H D FS 4820: Assessment in Family and Consumer Sciences Education (2).** What should a teacher do to determine the extent to which program/lesson objectives have been achieved? Includes the selection, design, and use of a wide variety of assessment tools and techniques, and the impact of assessment on the evaluation of learners and program design. Prerequisites: admission into Phase II, Human Development and Family Studies [H D FS] 4800, and instructor's consent.

**H D FS 4830: Methods of Teaching FACS in Middle and Secondary Schools (3).** What should a teacher do to help students achieve learner objectives? Includes classroom management strategies, choosing and using instructional methods to stimulate thinking skills and reasoning processes, communication skills, professionalism, and public relations. Prerequisites: admission into Phase II, and instructor's consent.

**H D FS 4940: Field Experience in Family and Consumer Sciences (1).** Students will observe and assist in FACS classroom. Prerequisite: to be taken concurrently with Human Development and Family Studies [H D FS] 4800, and instructor's consent.

**H D FS 4941: Field Experience in Family and Consumer Sciences (1).** Students will be involved in real-world experiences in a FACS classroom. Prerequisites: to be taken concurrently with Human Development and Family Studies [H D FS] 4830; requires instructor's consent.

**H D FS 4942: Student Teaching FACS in Middle and Secondary Schools (cr.arr.).** What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher. Prerequisites: Human Development and Family Studies [H D FS] 4800, 4820, 4830, English [ENGLSH] 1000, admittance to Phase III, and instructor's consent.

**H D FS 4970: Families and Lifespan Development Capstone (4).** Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Prerequisites: Human Development and Family Studies [H\_D\_FS] 2200 or equivalent, senior standing and instructor's consent. Graded on A/F basis only.

**H D FS 4971: Advanced Child Development Laboratory (12).** Practical experience working with young children (up to 10) in out-of-home care facilities. Program planning for children and working with parents. Lab hours required. Prerequisites: Human Development and Family Studies [H D FS] 2200, 3500 and 3700 or equivalent and instructor's consent.

**H D FS 4993: Internship in Human Development and Family Studies (cr.arr.).** Internships or field training experiences under supervision. Graded on S/U basis only. Prerequisite: Human Development and Family Studies [H\_D\_FS] 2200 or equivalent and instructor's consent.

## INDUSTRIAL AND MANUFACTURING SYSTEMS ENGINEERING COURSES

**IMSE 1000: Introduction to Industrial Engineering (1).** Introduction to industrial engineering profession, the IMSE department, and the core topics of industrial engineering. Introduction to problem solving, ethics and industrial engineering design and analysis techniques.

**IMSE 1010: Experimental Course (cr.arr.).** For freshman-level students. Content and credit to be listed in the Schedule of Courses.

**IMSE 1087: Undergraduate Seminar (0).** Seminars are held monthly to provide a forum for departmental communication of upcoming opportunities (jobs, speakers, deadlines, etc.), speakers from industry to provide educational context, and student interaction. Required every semester of enrollment for graduation. Graded on S/U basis only.

**IMSE 2030: Fundamentals of Systems Design and Analysis (3).** Develop an understanding of a systems approach to the design and operation of modern industrial organizations: systems structure and function, system specification, structured problem solving and system design methodology.

**IMSE 2110: Probability and Statistics for Engineers (3).** Introduction to data analysis, probability concepts, random variables, parameter estimation and hypothesis testing. Prerequisite: Mathematics [MATH] 1500.

**IMSE 2210: Linear Algebra for Engineers (3).** Study of quantitative methods necessary for analysis, modeling and design of optimal industrial systems. Prerequisite: Computer Science [CMP SC] 1001, 1040, 1050 and Mathematics [MATH] 1700.

**IMSE 2410: Introduction to Information Technologies (1).** A survey of current technologies and their use. Different technologies will be reviewed. Examples: web search strategies, common application tools, searching and sorting on the WWW, upcoming trends and directions in information technologies. This is a web-based self-study course with instructor's guidance.

**IMSE 2710: Engineering Economic Analysis (3).** Fundamentals of engineering economic decision making. Includes time value of money, breakeven analysis, capital budgeting, replacement, after-tax analysis, inflation, risk, sensitivity analysis and multi-attribute analysis.

**IMSE 2810: Performance Measurement and Ergonomics (3).** Design of man-machine systems considering capabilities and limitations of the human component. Method of measuring human performance in man-machine systems; includes lab. Prerequisite: Industrial and Manufacturing Systems Engineering [IMSE] 2110.

**IMSE 3001: Topics in Industrial and Manufacturing Systems Engineering (0-4).** Current and new technical developments in industrial engineering. Prerequisite: instructor's consent. May be repeated to 6 hours.

**IMSE 3030: Manufacturing and Supply Systems (3).** Provide a structured approach for the design and optimization of a system throughout its lifecycle: techniques following the logical sequence of strategic analysis, system design, implementation, and monitoring. Prerequisite: Industrial and Manufacturing Systems Engineering [IMSE] 2030.

**IMSE 3810: Ergonomics and Workstation Design (3).** Ergonomics and human factors theories applied to the design of man-machine systems. Discussion of ergonomic methods for measurement, assessment, and evaluation, with major topics including workstation design, environmental stresses, and workplace safety. Includes lab. Prerequisites: Engineering [ENGINR] 1200.

**IMSE 4001: Topics in Industrial and Manufacturing Systems Engineering (3).** Current and new technical developments in industrial engineering.

**IMSE 4085: Problems in Industrial Engineering (1-4).** Supervised investigation in industrial engineering presented in form of an engineering report.

**IMSE 4110: Engineering Statistics (3).** Understanding and application of statistical analysis techniques. Emphasis on hypothesis testing, regression analysis, analysis of variance (ANOVA) and design of experiments (DOE). Prerequisites: Grade of C- or better in Industrial and Manufacturing Systems Engineering [IMSE] 2110.

**IMSE 4210: Linear Optimization (3).** Theory and application of linear optimization. Prerequisite: grade of C- or better in Industrial and Manufacturing Systems Engineering [IMSE] 2210.

**IMSE 4230: Operations Research Models (3).** Formulates probabilistic models and determines optimal control policies for queueing and inventory systems. Introduces Markov chains and dynamic programming. Prerequisites: grade of C- or better in Industrial and Manufacturing Systems Engineering [IMSE] 2110 and 2210.

**IMSE 4280: Systems Simulation (3).** Discrete-event stochastic systems modeling and experimentation using simulation software. Statistical design and analysis including distribution fitting and alternative comparison methodologies. Prerequisites: grade of C- or better in Industrial and Manufacturing Systems Engineering [IMSE] 4110, Computer Science [CMP SC] 1040 or 1050.

**IMSE 4310: Integrated Production Systems Design (3).** Design and operation of production systems, including lean production concepts, just-in-time/kanban, facility layout and material flow issues.

Prerequisites: Industrial and Manufacturing Systems Engineering [IMSE] 4210, 4280.

**IMSE 4330: Material Flow and Logistics System Design (3).** Modeling and analysis of structural and operational issues associated with material-flow system design including facility location, warehouse/inventory systems, and distribution/transportation systems. Prerequisites: Industrial and Manufacturing Systems Engineering [IMSE] 4210, 4280.

**IMSE 4350: Production and Operations Analysis (3).** Quantitative methods for forecasting, scheduling, and production control in manufacturing and service systems. Use of Enterprise Resource Planning (ERP) systems. Prerequisite: Industrial and Manufacturing Systems Engineering [IMSE] 4210 and 4230.

**IMSE 4385: Lean Six Sigma Green Belt Project (1).** Application of the Lean Six Sigma methodology in an industry-based project. Prerequisite: Industrial and Manufacturing Systems Engineering [IMSE] 4310

**IMSE 4410: Management Information Systems Design (3).** MIS concepts and management issues, HTML for web pages and eShop (front-office operations), back-office operations using relational databases, introduction to SQL. Prerequisite: Computer Science [CMP SC] 1040 or 1050 and junior standing required.

**IMSE 4420: Web-Based Information Systems (3).** Data models, design of databases using E-R, UML (Access/Oracle), web databases, web servers and interfaces (Visual Basic, JavaScript), E-commerce infrastructure (PDM, STEP, XML), data mining for management information and services. Prerequisites: Industrial and Manufacturing Systems Engineering [IMSE] 4410 and instructor's consent.

**IMSE 4550: Computer Aided Design and Manufacturing (4).** Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods. Prerequisites: Junior Standing.

**IMSE 4570: Computer Integrated Manufacturing Control (3).** Implementation of computer integrated manufacturing (CIM) and automation at the shop floor level. Covers essential components of machine sensing and actuation (including programmable robots), information representation and processing, data communication and networking. Prerequisite: Junior Standing.

**IMSE 4610: Engineering Quality Control (3).** Analysis of quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. Overview of Six Sigma and DMAIC methodology. Prerequisite: Industrial and Manufacturing Systems Engineering [IMSE] 4110.

**IMSE 4750: Entrepreneurial Innovation Management: Enterprise Conception (3).** (same as Management [MANGMT] 4750). Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course. Prerequisite: sophomore standing.

**IMSE 4755H: Entrepreneurial Innovation Management: Enterprise Conception-Honors (3).** Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course. Prerequisite: sophomore standing. Honors eligibility required.

**IMSE 4760: Entrepreneurial Innovation Management: Enterprise Design (3).** (same as Management [MANGMT] 4760). Expand on Industrial Manufacturing and Systems Engineering [IMSE] 4750 business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes. Prerequisite: Industrial Manufacturing and Systems Engineering [IMSE] 4750.

**IMSE 4765H: Entrepreneurial Innovation Management: Enterprise Design-Honors (3).** (same

as Management [MANGMT] 4765H). Expand on Industrial Manufacturing and Systems Engineering [IMSE] 4755H business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes. Prerequisite: Industrial Manufacturing and Systems Engineering [IMSE] 4755H. Honors eligibility required.

**IMSE 4770: Entrepreneurial Innovation Management: Enterprise Operations (3).** (same as Management [MANGMT] 4770). Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery. Prerequisite: Junior Standing

**IMSE 4775H: Entrepreneurial Innovation Management: Enterprise Operations-Honors (3).** Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery. Honors eligibility required. Prerequisite: Junior Standing.

**IMSE 4970: Capstone Design I (1).** Overview of professional engineering issues such as ethics, team dynamics, communication, and project management. Includes team-based industrial assessments to develop skills in problem/opportunity identification. Prerequisite: Senior Standing.

**IMSE 4980: Capstone Design II (3).** Industry-based team design experience structured to integrate material presented throughout the Industrial and Manufacturing Systems Engineering [IMSE] curriculum. Must immediately follow Industrial and Manufacturing Systems Engineering [IMSE] 4970. Prerequisite: Industrial and Manufacturing Systems Engineering [IMSE] 3810, 4310, 4970.

**IMSE 4990: Undergraduate Research in Industrial Engineering (0-6).** Independent investigation or project in industrial engineering. May be repeated to 6 hours.

**IMSE 4995: Undergraduate Research Industrial Engineering - Honors (0-6).** Independent investigation or project in industrial engineering. Prerequisite: honors student in Industrial Engineering. May be repeated to 6 hours.

## INFORMATION, SCIENCE AND LEARNING TECHNOLOGY COURSES

**IS LT 1111: Information Use and Student Success (1).** In this course, students will learn to frame meaningful questions, gain knowledge and skills to succeed academically, understand the structure and content of information resources, evaluate information, and use information resources as genuine learning tools.

**IS LT 4360: Introduction to Web Development (3).** Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A/F basis only.

**IS LT 4361: Introduction to Digital Media (3).** Hands-on approach to multimedia production techniques. Develops understanding of image software, video software, scanners, digital cameras, digital video cameras, and graphics tablets. Graded on A/F basis only.

**IS LT 4364: Flash Authoring (3).** Teaches skills required to plan, develop and evaluate a multimedia project using digital authoring software. Emphasizes instructional design and user interface issues. Course is production-based. Graded on A/F basis only.

**IS LT 4370: Intermediate Web Development (3).** Development of design and web authoring skills. Interactivity through use of cgi scripts and javascript. Design capabilities using Style Sheets. Gain expertise required for the production of HTML documents incorporating these advanced techniques. Prerequisite: Information Science and Learning Technology [IS LT] 4360 or instructor's consent.

## INFORMATION TECHNOLOGY COURSES

**INFOTC 1001: Topics in Information Technology (3).** Topics may vary from semester to semester. May be repeated upon consent of department.

**INFOTC 1610: Introduction to Entertainment Media (3).** This course is an introduction to the basic fundamentals of entertainment products such as postproduction technology, camera and lighting technology, audio creation and mixing technology, and broadcast technology. Computer programs designed for visual special effects are used.

**INFOTC 2001: Topics in Information Technology (3).** Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A/F basis only.

**INFOTC 2600: Digital Multimedia (3).** This course introduces broad views of concepts, software, hardware, and solutions in entertainment media applications. It will examine career options in fields such as information technology, news, film production and postproduction, website design, advertising, or communication.

**INFOTC 2610: Audio/Video I (3).** This is an introductory course on digital audio and video editing. Background presented in the course will include an overview of the techniques used in modern Non-Linear video editing, and understanding of block editing, and why it is essential when using modern digital technology. The course is hands-on with students at workstations, learning the software directly at the keyboard, and working on assignments in a lab context.

**INFOTC 2620: Computer Modeling and Animation I (3).** Introduction to the field of computer modeling and animation with an emphasis on tools. Learn programming methods for developing customized modeling and animation algorithms. Prerequisites: Computer Sciences [CMP SC] 1050, and 2050 concurrently. Graded on A/F basis only.

**INFOTC 2810: Fundamentals of Network Technology (3).** This course includes an overview of networking and the common wireless standards. Prerequisites: Computer Sciences [CMP SC] 1050. Graded on A/F basis only.

**INFOTC 2910: Cyber Security (3).** This course covers numerous platform-independent security topics including threats, problem ports and services, theory and practice of defense in security, intrusion detection, data security, securing remote access, user education and support, designing a secure network and security management. Prerequisites: Computer Sciences [CMP SC] 1050, Information Technology [INFOTC] 2810. Graded on A/F basis only.

**INFOTC 3001: Topics in Information Technology (3).** Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A/F basis only.

**INFOTC 3610: Audio/Video II (3).** This course presents broad professional techniques for completing an off-line edit and the progression to online and finishing, adding depth to topics introduced in A/V I. Students will gain experience in editing techniques involving dialogue, action, documentaries, music videos, and multi-camera projects. The course also introduces special effects, audio finishing, clip and media management, and use of various media formats. Prerequisites: Information Technology [INFOTC] 2610 and co-requisites Computer Sciences [CMP SC] 2050.

**INFOTC 3620: Computer Modeling and Animation II (3).** This course covers advanced methods for modeling and animation with an emphasis on computer science theory and virtual reality. Prerequisites: Information Technology [INFOTC] 2620 and Computer Science [CMP SC] 2050. Graded on A/F basis only.

**INFOTC 3630: Introduction to Game Design (3).** This class will focus on the theory, design, and implementation of games. Students will learn about designing and implementing vital components for modern game engines, with respect to data structures, algorithms, content, development tools, and

optimization strategies. In addition, students will use the Valve Source Engine (used to power Half-Life 2) to develop their own mod. The final project is a fully functional game. Prerequisite: Information Technology [INFOTC] 2620, Computer Science [CMP SC] 2050.

**INFOTC 3640: Digital Effects (3).** This course is an introduction to the fundamentals of digital motion picture effects technology. This course is designed for a student interested in pursuing a career in information technology, news, film production and film postproduction, website design, or communication. Prerequisites: Information Technology [INFOTC] 1610 or 2610.

**INFOTC 3850: Computer System Administration (3).** This course will cover network management tools, network maintenance, data management, remote access management, management tasks, responsibilities and ethics, required plans and policies, design of a well-managed network. Some work will be done in both Windows and Linux environments. Prerequisites: Computer Science [CMP SC] 2050, junior standing. Graded on A/F basis only.

**INFOTC 4001: Topics in Information Technology (3).** Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A/F basis only.

**INFOTC 4390: Database Administration (3).** This course is designed to give a firm foundation in Database Administrators' tasks. The primary goal is to give necessary knowledge and skills to setup, maintain and troubleshoot an Oracle database. This is an instructor-led course featuring lecture and hands-on exercises. Online demonstration and written practice sessions reinforce the concepts and skills introduced. The course defined objectives are designed to support preparation for the Oracle Certified Professional examination. Prerequisites: CMP SC 4380.

**INFOTC 4500: Team-Based Mobile Device Application Development (3).** This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Prerequisites: Computer Science [CMP SC] 2050 (for CMP SC/INFOTC majors) and instructor's consent. Graded on A/F basis only.

**INFOTC 4630: Game Design II (3).** This course explores 1) the manual and procedural development of static and dynamic game content, 2) programming for gameplay, interactivity, UI, game Artificial Intelligence, and 3) algorithms, ADTs, and research vital to game design. Prerequisite: Information Technology [INFOTC] 3630.

**INFOTC 4640: Digital Effects II (3).** This course builds on fundamentals of digital motion picture effects technology learned in Digital Effects I. Computer programs designed for digital visual special effects in film and broadcast are integrated throughout the course. Prerequisites: Information Technology [INFOTC] 3640.

**INFOTC 4650: Shader Programing (3).** The focus of this course is modern computer graphics algorithms and programming, with an emphasis on games, shader languages, (GLSL and Cg) and Graphical Processor Units (GPUs). Prerequisites: Computer Science [CMP SC] 2050, Information Technology [INFOTC] 2620.

## INTERDISCIPLINARY STUDIES COURSES

**INTDSC 1001: Proseminar in Interdisciplinary Studies (1).** Lecture/discussion survey of time-management, note taking techniques, in the context of the three courses that are part of a Freshman Interest Group. Regular use of library, electronic mail and computing facilities is stressed. Elective credit only; students cannot receive credit for Interdisciplinary Studies [INTDSC] 2001 and Interdisciplinary Studies [INTDSC] 1001 or 1150. Graded on S/U basis only.

**INTDSC 1020: University Freshmen Seminar (1).** (same as Student Success Center [SSC] 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual

and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities. Prerequisite: Restricted to first time college student. No credit for students who have earned credit for Agriculture, Food and Natural Resources [AFNR] 1115, Interdisciplinary Studies [INTDSC] 1001, Information Science and Learning Technology [IS LT] 1110, Education Leadership and Policy Analysis [ED LPA] 3100 or an equivalent first year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in Student Success Center [SSC] 1020 and Student Success Center [SSC] 1150 in the same semester.

**INTDSC 1940: Internship (0-1).** Limited to freshmen/sophomores who are "undecided" or otherwise not accepted into a major. Graded on S/U basis only.

**INTDSC 2001: Proseminar in Interdisciplinary Studies (1).** Lecture/discussion survey of a range of issues of special importance for transfer students new to the University. Elective credit only; no credit for Interdisciplinary Studies [INTDSC] 1001 and/or Student Success Center [SSC] 1150. Graded on A/F basis only.

**INTDSC 2940: Internship in Interdisciplinary Studies (1-6).** Internship limited to students pursuing the BA in Interdisciplinary Studies degree. Graded on S/U basis only.

**INTDSC 2960: Readings in Interdisciplinary Studies (1-6).** Independent readings with supervisory faculty member. Open only to Interdisciplinary Studies majors. May be repeated up to a maximum of 6 hours.

**INTDSC 4940: Internship in Interdisciplinary Studies (1-6).** Internship limited to students pursuing the BA in Interdisciplinary Studies degree. Graded on S/U basis only. Departmental Consent Required.

**INTDSC 4960: Readings in Interdisciplinary Studies (1-6).** Independent readings with supervisory faculty member. Open only to Interdisciplinary Studies majors. May be repeated up to a maximum of 6 hours.

**INTDSC 4970: Service Learning Project. (3-6).** Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Restricted to Interdisciplinary [INTDSC], General [G\_STDY] and International [INTL\_S] studies students. Graded A-F only.

**INTDSC 4971: Capstone Internship in Interdisciplinary Studies (1-6).** Internship experience which serves as the student's capstone experience. Program advisor must approve internships. Graded on S/U basis only. Section 2 of this course will be designated for Service Learning Capstone experience.

## INTERNATIONAL STUDIES COURSES

**INTL S 2940: Capstone Internship in International Studies (1-6).** Internship limited to students pursuing the AB in International Studies Degree. Graded on S/U basis only. May be repeated to a maximum of six hours.

**INTL S 2960: Capstone Readings in International Studies (1-6).** Independent readings with supervisory faculty member. Open only to international studies majors. May be repeated up to a maximum of 6 hours.

**INTL S 4290: Pre-Departure Seminar for the TaLK Program (3).** Prior to beginning the TaLK Program in Korea, students will explore Korean language, culture and educational system through seminars and workshops provided by the Asian Affairs Staff and guest speakers. Course is by instructor

consent only. Graded A-F only.

**INTL S 4940: Internship in International Studies (1-6).** Internship limited to students pursuing the AB in International Studies degree. Graded on S/U basis only. May be repeated to a maximum of six hours.

**INTL S 4960: Readings in International Studies (1-6).** Independent readings with supervisory faculty member. Open only to International Studies majors. May be repeated up to a maximum of 6 hours.

**INTL S 4970: Special Readings in International Studies (1-6).** Independent readings with supervisory faculty member; this course serves as the students' capstone experience. Open only to International studies majors.

**INTL S 4971: Capstone Internship in International Studies (1-6).** Internship experience which serves as the student's capstone experience. Program advisor must approve internships. Graded on S/U basis only. Section 2 of this course will be designated for Service Learning Capstone experience.

## ITALIAN COURSES

**ITAL 1100: Elementary Italian I (5-6).** Intensive approach to beginning language. Designed to give students an overview of the grammar and syntax of Italian. Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meets A&S or Journalism foreign language requirements.

**ITAL 1200: Elementary Italian II (5-6).** Continues basic grammar and syntax of Italian. Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meet A&S or Journalism foreign language requirements. Prerequisite: grade of C- or better in Italian [ITAL] 1100 or its equivalent.

**ITAL 1200H: Elementary Italian II - Honors (5-6).** Continues basic grammar and syntax of Italian. Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meet A&S or Journalism foreign language requirements. Prerequisite: grade of C- or better in Italian [ITAL] 1100 or its equivalent. Honors eligibility required.

**ITAL 2001: Undergraduate Topics in Italian-General (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. Prerequisite: departmental consent for repetition.

**ITAL 2004: Undergraduate Topics in Italian-Social Science (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. Prerequisite: departmental consent for repetition.

**ITAL 2005: Undergraduate Topics in Italian-Humanities/Fine Arts (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. Prerequisite: departmental consent for repetition.

**ITAL 2160: Intermediate Composition and Conversation (3).** Reviews main grammar components of Italian. Emphasis is on acquiring the communicative and compositional skills required to study and discuss Italian literature. Prerequisite: Italian [ITAL] 1200.

**ITAL 2310: Italian Civilization (3).** Open to any student interested. No knowledge of Italian required. Prerequisite: sophomore standing.

**ITAL 2850: Italian Cinema (3).** (same as Film Studies [FILM\_S] 2850). A course which concentrates on the development of Italian Cinema, primarily since the Post-WWII era, and the ways in which it reflects major economic, social and political events occurring in Italy. No knowledge of Italian required. Prerequisite: sophomore standing.

**ITAL 3001: Topics in Italian-General (1-3).** Organized study of selected topics. Subjects and

earnable credit may vary from semester to semester. Prerequisite: departmental consent for repetition. No knowledge of Italian required.

**ITAL 3005: Topics in Italian-Humanities/Fine Arts (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: departmental consent for repetition. No knowledge of Italian required.

**ITAL 3150: Advanced Italian Conversation (3).** This course will develop the student's ability to speak and understand the oral expression of Italian. Focus will be on learning new idiomatic expressions and an acquisition of new vocabulary. Prerequisite: Italian [ITAL] 2160.

**ITAL 3160: Advanced Italian Composition (3).** An advanced grammar course that endeavors to a) develop writing skills in connection with a variety of text types; b) refine study skills; and c) improve style through the study of contemporary Italian culture. Prerequisite: Italian [ITAL] 2160.

**ITAL 3310: 20th Century Italian Fiction in Translation (3).** This course is designed to present American students with a selection of Italian novels aimed at introducing them to some key issues in the historical, social, and literary developments of Italian life from the turn of the century to the 1960s. Prerequisite: sophomore standing or English [ENGLISH] 1000.

**ITAL 3420: Introduction to Italian Literature (3).** This course introduces students to the literacy terminology that will enable them to study Italian literature. Prerequisite: Italian [ITAL] 2310 recommended; basic reading knowledge of a Romance Language is also recommended.

**ITAL 3430: Survey of Italian Literature (3).** Designed to expose students to the rich variety of Italian letters. Emphasis will be placed on textual analysis as well as on authors, themes and stylistic features. Prerequisite: Italian [ITAL] 2310 recommended; basic reading knowledge of a Romance Language is also recommended.

**ITAL 3820: Films of Federico Fellini (3).** (same as Film Studies [FILM\_S] 3820). In studying the filmic career of one of the supreme stylists of the cinematic world, students will view films from each phase of Fellini's career. Prerequisite: Italian [ITAL] 2850 or English [ENGLISH] 1810 or 1820; instructor's consent.

**ITAL 4070: Intensive Beginning Italian (3).** Designed for rapid acquisition of a reading knowledge of Italian. Cannot be taken to fulfill undergraduate language requirement. Prerequisites: instructor's consent.

**ITAL 4960: Special Readings in Italian (1-3).** Independent study through readings, conferences, reports.

## JAPANESE COURSES

**JAPNSE 1100: Elementary Japanese I (6).** Five hours of classroom instruction, with one hour lab work weekly.

**JAPNSE 1200: Elementary Japanese II (6).** Five hours of classroom instruction, with one hour lab work weekly. Prerequisite: C- or better in Japanese [JAPNSE] 1100, or equivalent.

**JAPNSE 2001: Topics in Japanese-General (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester.

**JAPNSE 2005: Topics in Japanese - Humanities (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. No knowledge of Japanese required. No language credit.

**JAPNSE 2160: Japanese Conversation and Composition (3).** Prerequisite: C- or better in Japanese [JAPNSE] 1200, or equivalent.

**JAPNSE 2310: Japanese Civilization I (3).** Survey of Japanese culture and arts before 1868. May be taken independently of Japanese [JAPNSE] 2320. No knowledge of Japanese required. No foreign language

credit.

**JAPNSE 2320: Japanese Civilization II (3).** Survey of Japanese culture and arts after 1868. May be taken independently of Japanese [JAPNSE] 2310. No knowledge of Japanese required. No foreign language credit.

**JAPNSE 2330: The World of Japanese Business (3).** Designed to assist the student to achieve successful business contacts with Japanese counterparts by understanding the characteristics of Japanese business in cultural, economical, and practical contexts and by learning useful Japanese terms and expressions in business. Prerequisite: sophomore standing.

**JAPNSE 3085: Problems in Japanese (1-3).** Supervised study in Japanese language and/or culture. Prerequisite: instructor's consent.

**JAPNSE 3160: Intermediate Japanese Composition and Conversation (3).** Further develops oral command of Japanese as well as listening comprehension and further essay writing skills. Prerequisite: C- or better in Japanese [JAPNSE] 2160.

**JAPNSE 3320: Classical Japanese Literature (in translation) (3).** This course studies Classical Japanese Literature preceded by a brief historical survey of Japanese literature. Analyzes such works as "The Tale of Genji", "Essays in Idleness", "The Pillow Book", "Hojoki" and NO drama. Readings and lectures in English. Prerequisite: sophomore standing.

**JAPNSE 3360: Modern Japanese Literature (in Translation) (3).** Surveys Japanese literature from 1868 to present. Analyzes works by such authors as Soseki, Tanizaki, Kawabata, Mishima, Oe, Murakami, and others. Readings and lectures in English. Prerequisite: sophomore standing.

**JAPNSE 3370: Intermediate Readings in Japanese (3).** Develops reading and speaking skills and acquisition of more Kanji, vocabulary, and complex structures. Prerequisite: C- or better in Japanese [JAPNSE] 3160, or equivalent, or instructor's consent.

**JAPNSE 3380: Intermediate Japanese II (3).** Continues development of intermediate reading, listening, speaking, and writing skills achieved in Japanese [JAPNSE] 3370, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multi-media materials also help students gain greater familiarity with Japanese culture. Encourages development of student autonomy in language learning with the introduction and use of appropriate reference materials. Prerequisite: Japanese [JAPNSE] 3370.

**JAPNSE 3850: Traditional Japanese Theatre (3).** Study of the history, scripts, and performance techniques of Japanese theatre from 14th century through late 19th century. Examines major plays (in English translations) and the culture that created them. Looks at staging and performance techniques of traditional puppet theatre. Course included stage performances and performances on campus and/or in the community. Prerequisite: Sophomore standing or consent of instructor.

**JAPNSE 3880: Japan and its Cinema (3).** Survey and analysis of selected Japanese films from the 1940s to present. Films will be viewed and discussed in terms of history, techniques, artistry, and social impact. English subtitles. No foreign language credit. Prerequisite: sophomore standing or instructor's consent.

**JAPNSE 4005: Topics in Japanese - Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken Japanese [JAPNSE] 3370 or equivalent. Prerequisites: instructor's consent, sophomore standing.

**JAPNSE 4160: Advanced Japanese I (3).** Continues development of reading, listening, speaking, writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature, exercises using authentic multimedia materials. Encourages development of student

autonomy in language learning with introduction and use of appropriate reference materials. Prerequisites: Japanese [JAPNSE] 3380 or equivalent, or instructor's consent.

**JAPNSE 4180: Advanced Japanese II (3).** This course continues the development of reading, listening, speaking, and writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multimedia materials also help students gain greater familiarity with Japanese culture. The course encourages the development of student autonomy in language learning with the introduction and use of appropriate reference materials. Prerequisite: Japanese [JAPNSE] 4160.

## JOURNALISM COURSES

**JOURN\_0900: News Practicum (3).** Instruction in fundamentals of newswriting for students entering the graduate program without an undergraduate degree in journalism.

**JOURN 1000: The News Media: Journalism and Advertising in a Democratic Society (3).** This course surveys the fields of journalism and advertising and discusses their role in a democratic society.

**JOURN 1010: Career Explorations in Journalism (1).** Colloquium in which experts discuss their specialities and answer students' questions on the nature and current status of their disciplines. Open primarily to freshmen. Graded on S/U basis only.

**JOURN 1010H: Career Explorations in Journalism - Honors (1).** Colloquium in which experts discuss their specialities and answer students' questions on the nature and current status of their disciplines. Open primarily to freshmen. Graded on S/U basis only. Honors eligibility required.

**JOURN 1100: Principles of American Journalism (3).** Course designed to acquaint students with concepts and functions of journalism in American society. Stresses the basic issues and problems facing journalists and the mass media. Prerequisites: Restricted to first-time college students with a high school core GPA of 3.0 or higher and 15 college credits (dual, AP, IB or other), or current students with 15 completed credits and UM GPA of 2.75. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students only.

**JOURN 1940: Pre-Sequence Internship (0-1).** Internship for Journalism students who have not yet entered their emphasis areas. Used to satisfy employer requirements. Prerequisite: journalism students only; instructor's consent required. Graded on S/U basis only.

**JOURN 2000: Cross-Cultural Journalism (3).** Cross-Cultural Journalism provides journalistic tools for the coverage of diverse ethnic, gender, ability and ideological groups inside and outside the United States. The critical role of diverse voices in a democracy will be discussed. Prerequisites: sophomore standing required; Journalism [JOURN] 1100 and UM GPA of 2.8. Should be taken concurrently with JOURN 2100 or 2150. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism Students Only.

**JOURN 2100: News (3).** Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. Prerequisite: sophomore standing; English [ENGLSH] 1000 with "B-" grade or higher, Journalism [JOURN] 1100 and 2.8 UM GPA. Should be taken concurrently with Journalism [JOURN] 2000. May not be taken concurrently with Journalism [JOURN] 2150. Restricted to Pre-Journalism, Journalism, and Science and Agricultural Journalism students only.

**JOURN 2100H: News (3).** Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. Prerequisite: sophomore

standing, English [ENGLSH] 1000 with "B-" grade or higher, Journalism [JOURN] 1100 and 2.8 UM GPA. Should be taken concurrently with Journalism [JOURN] 2000. May NOT be taken concurrently with [JOURN] 2150. Restricted to Honors-eligible Pre-Journalism, Journalism and Science and Agricultural Journalism students only.

**JOURN 2150: Fundamentals of Multimedia Journalism (3).** This course deals with the challenges faced by journalists and other communicators working with still photos, audio, video and print. Students learn the basics and ethics of cross-platform, multimedia storytelling. Prerequisites: sophomore standing and a UM GPA of 2.8. May not be taken concurrently with Journalism [JOURN] 2100. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students only. Graded on A/F basis only.

**JOURN 3000: History of American Journalism (3).** American mass media from colonial days to present in the context of social, economic and political change.

**JOURN 4000: Communications Law (3).** Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**JOURN 4050: Communications Practice (1-3).** Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean. Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required.

**JOURN 4056: Intersession Colloquium (1).** Lecture portion of any course the student plans to take later during an intersession. Prerequisite: Dean's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4058: New York Program: Journalism Theory and Practice (2-3).** Interdisciplinary course offering on-site study at national media venues in New York. Journalism alumni working in Manhattan provide weekly discussions on contemporary practices, job networks and work experiences. Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required.

**JOURN 4116: Managing and Leading People (1).** Dramatic changes in technology and in the media's role in covering technologies requires new management and leadership techniques and paradigms based on new management theories. Students will write case studies examining these changes and applying these new theories. Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required.

**JOURN 4120: New Media Basics (1).** Students will learn how to use the Internet to communicate with others, find human and electronic sources for stories and publish on the World Wide Web. Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required.

**JOURN 4126: Digital Audio and Visual Basics for Journalists (1).** Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals. Restricted to Journalism and Science and Agricultural Journalism majors only

**JOURN 4130: Account Services (1).** Designed for advanced strategic communication students preparing for careers in account services. Section topics vary. Restricted to Strategic Communications students only.

**JOURN 4136: Creative Techniques (1).** Designed for advanced strategic communication students preparing for careers in creative work. Section topics vary. Restricted to Strategic Communications students only.

**JOURN 4138: Public Relations Techniques (1).** Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary. Restricted to Strategic Communications

students only.

**JOURN 4140: Interactive Techniques (1).** Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary. Restricted to Strategic Communications students only.

**JOURN 4146: Strategic Communication Techniques (1).** Designed for advanced strategic communication students. Section topics vary. Restricted to Strategic Communications students only.

**JOURN 4148: Interviewing Essentials (1).** This class allows students to focus on the journalistic interviewing process, from spot news interviews to the sort of interviews required for personality, sports and in-depth work.

**JOURN 4150: Using Infographics (1).** An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics. Prerequisites: instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4152: Concepts in Participatory Journalism (1).** Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Prerequisite: Journalism [JOURN] 2100, 2150. Graded on A/F basis only.

**JOURN 4198: Area Seminar (3).** Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4200: Principles of Strategic Communication (3).** Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field. Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required.

**JOURN 4206: Strategic Writing I (3).** Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages. Prerequisites: Journalism [JOURN] 4200, 4226, 4952. Restricted to Strategic Communications students only.

**JOURN 4208: Strategic Writing II (3).** Advanced course in the creation of advertising and public relations materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining. Prerequisite: Journalism [JOURN] 4206. Restricted to Strategic Communications students only.

**JOURN 4216: Media Sales (3).** Focus of this course is to familiarize students with how to sell a variety of media, including newspaper, radio, television, outdoor, new media, and others. Prerequisites: Journalism [JOURN] 4206. Restricted to Strategic Communications students only.

**JOURN 4218: Mojo Advertising Staff (3).** Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative media and research. Other electives required based on position. Application required. Prerequisites: Journalism [JOURN] 4206 or 7206. Restricted to Strategic Communications students only.

**JOURN 4220: Creative Portfolio (3).** Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity. Prerequisites: core courses and Journalism [JOURN] 4208. Restricted to Strategic Communications students only.

**JOURN 4226: Strategic Design and Visuals I (3).** Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts. Prerequisite: junior standing. Restricted

to Strategic Communications students only.

**JOURN 4226H: Strategic Design and Visuals I - Honors (3).** Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts. Restricted to Strategic Communication students only with junior standing or higher. Honors eligibility required.

**JOURN 4228: Strategic Design and Visuals II (3).** Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line. Prerequisite: Journalism [JOURN] 4206. Restricted to Strategic Communication students only.

**JOURN 4236: Psychology in Advertising (3).** Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on the increasing use of psychographics (the "lifestyle" factor) to understand consumer wants and buying behavior. Prerequisite: Journalism [JOURN] 4200, 4952, 4226.

**JOURN 4238: Broadcast Advertising (3).** Broadcast advertising production. Emphasis on equipment, directing, script/storyboard preparation and commercial analysis. Students become familiar with procedures, techniques and facilities used in basic radio and television production. Prerequisites: Journalism [JOURN] 4206. Restricted to Strategic Communications students only.

**JOURN 4240: Direct and Mail Order Advertising (2).** Direct mail advertising and mail order promotion, retail and national; mailing lists, copy, production, postal regulations, strategy. Prerequisite: Journalism [JOURN] 4206. Restricted to Strategic Communications students only.

**JOURN 4248: Media Strategy and Planning (3).** Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting effective media strategies, creative problem solving and selection of appropriate media. Prerequisite: Journalism [JOURN] 4200, 4952, 4226. Restricted to Strategic Communications students only.

**JOURN 4250: Management of Strategic Communication (3).** How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths. Prerequisites: Journalism [JOURN] 4200/7200, 4226/7226 and 4952/7952. Restricted to Strategic Communications students only.

**JOURN 4256: Public Relations (3).** Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations. Prerequisite: Journalism [JOURN] 4200. Restricted to Strategic Communications students only.

**JOURN 4258: Global Communication (3).** Understanding global communication systems with an emphasis on planning and executing strategic communication campaigns. Particular attention will be paid to cultural, political and economic differences as they affect marketing and development communication. Prerequisites: Journalism [JOURN] 4200, 4226, 4952. Restricted to Strategic Communications students only.

**JOURN 4262: Interactive Advertising I (3).** Course covers every step from integrating Internet efforts into the overall strategic communication plan to building a website that works. Designed for those with an interest in interactive advertising. Prerequisite: Journalism [JOURN] 4200, 4226 and 4952. Graded on A/F basis only. Restricted to Strategic Communication students only.

**JOURN 4263: Interactive Advertising II (3).** Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed for those who want a career in interactive advertising. Prerequisite: Journalism [JOURN] 4262. Restricted to Journalism Strategic Communication students only. Graded on A/F basis

only.

**JOURN 4268: Strategic Communication Practicum (3).** Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all journalism disciplines will apply knowledge and skills on a variety of platforms. Prerequisite: Journalism [JOURN] 4206 for Advertising students, JOURN 4306 for Broadcast students, JOURN 4450 for News-Editorial and Magazine students, JOURN 4556 for Photojournalism students. Restricted to Strategic Communication students only.

**JOURN 4270: Public Relations Writing (3).** Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Prerequisites: Journalism [JOURN] 4206 and 4256. Graded on A/F basis. Restricted to Strategic Communication students only.

**JOURN 4300: Broadcast News I (2-3).** Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories. Prerequisite: Journalism [JOURN] 2100.

**JOURN 4301: Topics in Journalism (1-3).** Selected current topics in journalism. Specific topics to be announced at time of registration.

**JOURN 4306: Broadcast News II (3).** Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms. Prerequisite: Journalism [JOURN] 4300.

**JOURN 4308: Broadcast News III (3).** Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories. Prerequisite: Journalism [JOURN] 4306.

**JOURN 4310: News Producing (3).** Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer. Prerequisite: Journalism [JOURN] 4308.

**JOURN 4320: Advanced Broadcast Reporting (3).** In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA. Prerequisites: Journalism [JOURN] 4308.

**JOURN 4328: Advanced News Communication (1).** This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts. Prerequisite: graduate standing and Journalism [JOURN] 4306.

**JOURN 4330: From Murrow to Moore: What Good Journalists Read (3).** Introduces undergraduates to seminal works in broadcast and print Journalism that influences contemporary professional practices. Prerequisite: junior standing or instructor's consent. Graded on A/F basis only. Restricted to Journalism and Science and Agricultural Journalism majors only. Junior Standing required.

**JOURN 4350: Problems in Journalism (1-3).** Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A/F graded or S/U graded basis only. Restricted to Journalism and Science and Agricultural Journalism majors only. Junior Standing required.

**JOURN 4400: Introduction to News Editing (2).** Introduces the fundamentals of editing stories and writing headlines for publication online and in print, including an emphasis on style and grammar. Emphasized editing for an online audience. Prerequisite:

Journalism [JOURN] 2100.

**JOURN 4406: News Editing (3).** Laboratory work on the Columbia Missourian plus lectures on ethics, page design and news decision making. Prerequisite: Journalism [JOURN] 4400.

**JOURN 4408: Magazine Editing (3).** Review of grammar, punctuation, style rules: measuring articles, copy fitting; writing captions, titles; editing, proof-reading, condensing, rewriting magazine articles. Prerequisites: Journalism [JOURN] 4450/7450. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4410: Intermediate Writing (3).** In-depth research and writing techniques. Students produce articles for the Missourian and school-produced magazines or other publications. Prerequisites: Journalism [JOURN] 4450 or equivalent and instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4412: Lifestyle Journalism (3).** In-depth research and writing techniques focused on lifestyle journalism. Students produce articles for the Missourian and school-produced magazines or other publications. Prerequisites: Journalism [JOURN] 4450 or equivalent and instructor's consent. Substitutes for JOURN 4410. Restricted to Journalism and Science and Agricultural Journalism majors only. Graded on A/F basis only.

**JOURN 4414: Field Reporting on the Food System and Environment (3).** [same as Science and Agricultural Journalism [SCLAG\_J] 4414.] Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Prerequisite: instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only. Graded on A/F basis only.

**JOURN 4416: Science, Health and Environmental Writing (3).** Advanced course in the reporting of science, health and environment. Write for publication. Prerequisite: Journalism [JOURN] 4450 and instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4418: Critical Reviewing (3).** A combination of theory and practice that covers the philosophy and craft of reviewing the arts, including books, movies, television, dance, painting, sculpture and architecture. Students must attempt to publish reviews and essays locally, regionally and nationally. Reviews published in VOX Magazine. Prerequisites: Journalism [JOURN] 0900 or 2100 and instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4420: Editorial Writing (3).** Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages. Prerequisite: Journalism [JOURN] 4450. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4422: Sports Journalism (3).** A review of everything from "How to Watch Sports" to the history of sports writing. Prerequisites: Journalism [JOURN] 4450/7450 or 4804/7804 or 4306/7306. Restricted to Journalism and Science and Agricultural Journalism students only. Course graded on A/F basis only.

**JOURN 4426: Religion Reporting and Writing (3).** (same as Religious Studies [REL\_ST] 4418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture. Prerequisite: Journalism [JOURN] 4450 or its equivalent in professional writing experience and instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4428: Health Reporting Skills (2-3).** This course focuses on research and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Prerequisites: Journalism [JOURN] 4450, 4306 or 4804. Graded on A/F basis

only. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4430: Computer-Assisted Reporting (3).** How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4436: Investigative Reporting (3).** Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions. Prerequisites: Journalism [JOURN] 4450 and instructor's consent.

**JOURN 4438: Business and Economics Reporting (3).** Advanced reporting course concentrating on writing and reporting about business and the economy. Emphasis on sources, records, documents and writing techniques. Prerequisites: Journalism [JOURN] 4408 and 4410 or 4506. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4440: Mapping for Stories and Graphics (2).** Learn mapping software to discover information for news stories and lay the foundation for compelling news information graphics. Students will learn how to create maps for print, broadcast and online. Prerequisites: Journalism [JOURN] 2100 and instructor's consent. Graded on A/F basis only. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4450: News Reporting (3).** Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions. Prerequisites: Journalism [JOURN] 2100.

**JOURN 4460: Advanced News Reporting (3).** Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems. Prerequisite: Journalism [JOURN] 4450.

**JOURN 4462: Emerging Technologies in Journalism (1-3).** This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. Prerequisite: junior standing; restricted to Journalism and Science and Agricultural Journalism students only. May be repeated for credit. Graded on A/F basis only

**JOURN 4464: Magazines Across Platforms (3).** The class covers content creation, storytelling, presentation and innovation for the Web and tablets. Students will explore magazine production methods, print-to-Web interaction, mobile initiatives and iPad app builds. They will learn to work as digital editors for Vox magazine. Prerequisites: Journalism [JOURN] 4450 and consent of instructor required. Restricted to Journalism and Science Agricultural Journalism students only. Graded on A/F basis only.

**JOURN 4480: Will Write for Food (and Wine) (3).** (Same as Science and Agricultural Journalism [SCLAG\_J] 4480) Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Prerequisites: Junior standing, instructors consent and Journalism [JOURN] 4450. Restricted to Journalism and Science Agricultural Journalism students only. Graded on A/F basis only.

**JOURN 4500: News Design (3).** Continuation of desk editing with emphasis on page design, graphics and typography. Prerequisite: Journalism [JOURN] 4406, 4408 or instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4502: Multimedia Planning and Design (3).** Class covers the basics of web design

- Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages. Prerequisites: One of the following: Journalism [JOURN] 4802, 4508, 4406, 4506, 4226, 4300, 4506; instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4506: Magazine Design (3).** Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4508: Information Graphics (3).** Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software. Prerequisite: Journalism [JOURN] 4450 or the professional equivalent, or instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4510: Visual Communication (3).** How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4550: Basic Photography and Photo Editing (3).** A basic survey for non-photojournalism majors and others with no prior experience who desire a working knowledge of photojournalistic theory and practice. Prerequisite: instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4554: Visual Editing for Multimedia (3).** This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation of digital editing, photojournalism, photo editing, videography, and multimedia production. Prerequisite: Journalism [JOURN] 4804 or 4550 or 4306 or 4406 or 4506 and instructor's consent; restricted to Journalism and Science and Agricultural Journalism students only. Graded on A/F basis only.

**JOURN 4556: Fundamentals of Photojournalism (3).** A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession. Prerequisite: instructor's consent.

**JOURN 4558: Advanced Techniques in Photojournalism (3).** Advanced techniques and problem solving in photojournalism. Stresses lighting techniques—available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports. Prerequisite: Journalism [JOURN] 4556. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4560: Staff Photojournalism (3).** A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories. Prerequisite: Journalism [JOURN] 4558. Restricted to Journalism and Science Agricultural Journalism majors only.

**JOURN 4562: Photojournalism Business Practices (2).** Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Prerequisites: Journalism [JOURN] 4558/7558 and 4566/7566 or consent of instructor; junior standing; restricted to Journalism and Science and Agricultural Journalism students only. Graded on A/F basis only

**JOURN 4564: Micro-Documentary Photojournalism and Videography (3).** This course extends student's understanding and abilities to produce short-form video journalism. They will produce, from concepts to web publication, two five-minute

non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Prerequisites: Journalism [JOURN] 4558/7558 or 4306/7306 or 4804/7804 or instructor's consent. Restricted to Journalism and Science and Agricultural Journalism students only. Graded on A/F basis only.

**JOURN 4566: Electronic Photojournalism (3).** Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Prerequisite: Journalism [JOURN] 4556 and instructor's consent. Graded on A/F basis only.

**JOURN 4568: History of Photojournalism (3).** Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**JOURN 4650: International Issues Reporting (3).** An advanced professional seminar on how to recognize, report and write about the domestic influence of international political, economic and cultural problems and trends. Prerequisites: Journalism [JOURN] 4450.

**JOURN 4656: International News Media Systems (3).** A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed. Prerequisite: junior standing in Journalism or Science and Agricultural Journalism.

**JOURN 4658: International Journalism (3).** An examination of the gathering, editing and dissemination of international news. The impact of social, economic, cultural and political structures on news media performance is evaluated. Prerequisites: junior standing. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4660: Media Forces Shaping the European Union (3).** Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4662: Global News Across Platforms (3).** Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce an international magazine, radio program, and website while working under weekly deadlines. Restricted to Journalism and Science and Agricultural Journalism majors. Instructor's consent required.

**JOURN 4670: Newspaper Photo Desk Management (3).** Survey of management of photographic journalism, art illustration and design in newspapers; includes work on graphics desk of Columbia Missourian. Prerequisites: Journalism [JOURN] 4560 or 4226 or 4408 and instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4700: Participatory Journalism (3).** An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of "news." Students will work with the community on behalf of the Missourian. All interest areas welcome. Prerequisites: Journalism [JOURN] 4450, 4802, or 4300 and instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4706: The Community Newspaper (3).** The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state. Prerequisites: Journalism [JOURN] 2100. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4710: Newspaper Management (3).** Department-by-department organization, business practices, personnel, rate structures, equipment, production, laws and regulations of concern to newspaper management. Cases examine critical newspaper management issues.

**JOURN 4716: Women and the Media (2).** (same as Women's and Gender Studies [WGST] 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills. Prerequisite: instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required.

**JOURN 4718: Law and the Courts (3).** Lectures, readings, discussions, and writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers with the cooperation of the Missouri Bar. Prerequisites: Journalism [JOURN] 2100. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4720: Internet Law (3).** This course will focus on how to avoid legal pitfall while doing e-mail or e-commerce or browsing the Web and how to use the law to your benefit. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4728: Confronting Controls on Information (3).** A review of actions by government, society and the communications media calculated to limit or alter the content of information in the United States and elsewhere around the world. Prerequisite: instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4730: Journalism and Conflict (3).** (same as Peace Studies [PEA\_ST] 4830). Introduction to the basic principles of conflict theory and negotiation, including the sources of conflict, why conflict escalates and what the conditions are for de-escalation, all with a special emphasis on the implications for the working journalist.

**JOURN 4734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models (3).** The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom. Prerequisites: Junior Standing. Restricted to Journalism and Science and Agricultural Journalism students only. Graded on A/F basis only.

**JOURN 4736: Changing Media Business Models (3).** Analysis of the economic changes in news media industry. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4738: General Semantics in Journalism (1-3).** The everyday usefulness of the methods of science as applied to language and the practice of journalism. The course deals with the general effect of language habits on journalists and their readers/listeners. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4802: Fundamentals of TV, Radio and Photojournalism (3).** Skills, theory and ethics of broadcast news and photojournalism for non-broadcast majors. Prerequisites: Journalism [JOURN] 2100 with instructor's consent. Graded on A/F basis only. Restricted to Journalism and Science and Agricultural Journalism majors only. Sophomore standing required.

**JOURN 4804: Convergence Reporting (3).** Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Prerequisites: Journalism [JOURN] 2150, Graded on A-F basis only. Restricted to Convergence, Print and Digital and Photojournalism students, and Science and Agricultural Journalism students with junior standing.

**JOURN 4806: Convergence Editing and Producing (3).** Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple

outlets. Prerequisites: Journalism [JOURN] 4804 or 4450, or by consent of instructor. Graded on A/F basis only. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4810: Advanced Global Converged News (3).** Internet news services offers real-world newsroom experience synthesizing worldwide news coverage and revealing alternative perspectives on current events. Prerequisite: instructor consent; junior or higher standing. Graded on A/F basis only. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4812: Online Audience Development (3).** Experience in developing online audiences gained through hands-on work at an Internet site. Prerequisite: junior standing; instructor's consent. Graded on A/F basis only. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4940: Internship in Journalism (1-3).** Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Prerequisite: Journalism students only. Graded on S/U basis only.

**JOURN 4950: Understanding Audiences (3).** Focuses on the recipients of journalistic efforts by teaching students to identify, analyze and address media audiences. Students will learn a variety of research methods and gain hands-on experience with audience analysis through team-based practical projects. Prerequisites: Journalism [JOURN] 2000 and junior standing.

**JOURN 4952: Strategic Communication Research I (3).** Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research. Restricted to Strategic Communication students only. Junior standing or higher required.

**JOURN 4970: Strategic Campaigns (3).** This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities. Prerequisite: Journalism [JOURN] 4206 or 7206. Restricted to Strategic Communication students only.

**JOURN 4974: Advanced Internet Applications for Radio/TV News (3).** Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service. Prerequisite: Journalism [JOURN] 4306.

**JOURN 4976: Seminar in Radio/TV News (3).** Seminar in network and local news process, in coverage of major issues and social problems, in relationships of radio-TV news and government institutions. Prerequisite: instructor's consent.

**JOURN 4978: Media Management and Leadership (3).** Dramatic changes in technology and the media's role in converging technologies require new management and leadership techniques and paradigms. Students will write case examining these changes. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4980: The Picture Story and Photographic Essay (3).** Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final portfolio will show journalistic strength and versatility in black and white, and color. Prerequisite: Journalism [JOURN] 4560.

**JOURN 4984: Magazine Staff (3).** A laboratory course exploring the role of editorial staff in the magazine editing process. As staff for school-produced magazines, students plan, edit, write display type, proofread and coordinate with writers, photographers and designers. Prerequisites: Journalism [JOURN] 4410, 4408 and instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4986: Advanced Writing (3).** For those who wish to emphasize writing as a career. In addition to writing assignments, students discuss writings of well-known magazine and book authors. Prerequisites: Journalism [JOURN] 4450, 4410 and instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4988: Advanced Magazine Design (3).** Class critiques of spreads, sequences, and magazines are implemented by students who make typographic specifications and design individual spreads, and complete magazines for actual printed production. Prerequisite: Journalism [JOURN] 4506. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4990: Journalism and Democracy (3).** This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society. Prerequisite: Journalism [JOURN] 4450 and second-semester senior standing. Undergraduates only. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4992: Reporting, Editing and Marketing of Converged Media (3).** Capstone course bring together the reporting, editing, management and marketing skills gained in previous convergence courses. Students plan, produce, promote and evaluate longform, creative journalistic content. Prerequisite: Journalism [JOURN] 4806, senior standing and instructor's consent. Graded on A/F basis only. Restricted to Journalism and Science and Agricultural Journalism majors only.

**JOURN 4994: Magazine Publishing (3).** The audience, economics, job opportunities and content of the American magazine. Deals with general audience and specialized magazines, business and institutional magazines, news magazines, etc. Case histories of individual magazines, guest lecturers from various fields. Prerequisites: Journalism [JOURN] 4408 and 4410 or 4508. Graded on A/F basis only. Restricted to Journalism and Science and Agricultural Journalism majors only.

## KOREAN COURSES

**KOREAN 1100: Elementary Korean I (6).** Introductory course on Korean language. Five hours classroom instruction with one hour lab weekly.

**KOREAN 1200: Elementary Korean II (6).** Five hours classroom instruction with one hour lab work weekly. Prerequisite: C- or better in Korean [KOREAN] 1100.

**KOREAN 2160: Korean Language III (3).** Korean III continues to build on the skills students acquired in the first-year series with increasing work in authentic materials and situations in conversation and reading that encourage students to understand the use of language in its social and cultural context. Prerequisite: Korean [KOREAN] 1200

**KOREAN 2310: Korean Civilization I (3).** Focuses on understanding traditional Korean people and culture through examining social, political, economic, and belief systems. Considers literature, art, folklore, and history up to the late 19th century. May be taken independently of Korean [KOREAN] 2320.

**KOREAN 2320: Korean Civilization II (3).** Considers the situation and culture of Korea at the end of the Chosun Kingdom, and the period of modernization beginning about 1876. Investigates how modernization has changed Korea by looking at attitudes, behaviors, values, philosophies, and trends of Korea in the 20th and 21st centuries. May be taken independently of Korean [KOREAN] 2310.

**KOREAN 2330: Study Tour of Korea (3).** Study tour allows students to experience firsthand important cultural, historical, and education aspects of Korea. Visit key landmarks, museums, and other sites. Provides information and insight needed to cultivate greater understanding of Korea. Graded on A/F basis only.

**KOREAN 3001: Topics in Korean-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing and instructor's consent; departmental consent for repetition.

**KOREAN 3005: Topics in Korean - Humanities (3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing and instructor's consent; departmental consent for repetition.

**KOREAN 3160: Intermediate Korean Language II (3).** Continues to build on the skills students acquire in the third semester of Korean language with increasing work in authentic materials and situations in conversation and reading. Encourages students to understand the use of language in its social and cultural context. Prerequisite: Korean [KOREAN] 2160, or instructor's consent.

**KOREAN 3800: Korean Economic Development and US-Korean Free Trade Agreement (3).** Covers introductory theories of economic development and overviews Korean historical economic development plans. Aids with understanding how South Korea achieved high levels of economic development and what policies the South Korean Government implemented to spur growth. US -Korea Free Trade Agreement is a good example of how trade promotes the achievement of development goals.

**KOREAN 3890: Korean Society Through Cinema (3).** Examines the way in which Korean film reveals the cultural, political, and ideological orientation of the society in which it is created and circulated. Compares films from North and South Korea, considering modernity, gender, nation-hood, and class. Prerequisite: sophomore standing. Graded on A/F basis only.

**KOREAN 4001: Topics in Korean-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing and instructor's consent; departmental consent for repetition.

**KOREAN 4005: Topics in Korean - Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing and instructor's consent; departmental consent for repetition.

**KOREAN 4220: Korean Unification (3).** Explores many different topics related to Korean Unification. Studies North Korean ideology, political system, economic system, military, and negotiating behavior. Examines Unification policies of Korea as well as past efforts toward Unification. Considers various scenarios of unification. Studies unification attitudes and values of Korean people including Anti-American values, and the roles of neighboring countries. Junior Standing Required.

## LABOR STUDIES COURSES

**LAB ST 4301: Topics in Labor Studies (3).** Organized study of selected topics in labor studies. Subjects may vary from semester to semester. May be repeated to a maximum of six credit hours. Graded on A/F basis only.

## LATIN COURSES

**LATIN 1100: Elementary Latin I (5).** Forms, grammar, syntax.

**LATIN 1100H: Honors Elementary Latin (5).** Beginning Latin for Honors Eligible students. Honors eligibility required.

**LATIN 1200: Elementary Latin II (5).** Continuation of Latin 1100. Prerequisite: a grade of C or higher in Latin [LATIN] 1100.

**LATIN 1200H: Honors Elementary Latin II (5).** Continuation of Latin 1100H. Prerequisite: a grade of C or higher in Latin [LATIN] 1100. Honors eligibility required.

**LATIN 2000: Latin Reading (3).** Readings in Latin prose and poetry. Prerequisite: grade of C or higher

in Latin [LATIN] 1200.

**LATIN 2000H: Latin Reading - Honors (3).** Readings in Latin prose and poetry. Prerequisite: grade of C or higher in Latin [LATIN] 1200. Honors eligibility required.

**LATIN 4300: Latin Poetry (3).** Readings in selections from the Latin poets. Prerequisite: Latin [LATIN] 2000 or equivalent.

**LATIN 4350: Latin Prose (3).** Selections from various Latin prose writers; some composition at instructor's discretion. Prerequisite: Latin [LATIN] 2000.

**LATIN 4500: Latin Stylistics (1-3).** Study and writing of connected prose compositions. Prerequisite: two years classical Latin or equivalent.

**LATIN 4505: Topics in Latin (3).** Topics course involving Latin texts. Prerequisite: Latin [LATIN] 4300 or equivalent. May be repeated for credit.

**LATIN 4510: Age of the Scipios (3-6).** Critical readings in and integrated analyses of the culture of the second century B.C. Prerequisite: two years Classical Latin or equivalent.

**LATIN 4520: Age of Cicero (3).** Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic. Prerequisite: two years Classical Latin or equivalent.

**LATIN 4530: Vergil (3).** Readings, discussion, and literary analysis of Vergil's Aeneid. Prerequisite: two years of Classical Latin or equivalent.

**LATIN 4540: Augustan Literature (3).** Critical readings in and integrated analyses of the culture of Augustan Rome. Prerequisite: two years Classical Latin or equivalent.

**LATIN 4550: Latin Epigraphy (3).** Introduction to the study of Latin inscriptions and their contributions to ancient culture. Prerequisite: two years Classical Latin or equivalent.

**LATIN 4560: Neronian Literature (3-6).** Critical readings in and integrated analysis of the culture of the age of Nero. Prerequisite: two years Classical Latin or equivalent.

**LATIN 4570: Age of Pliny and Tacitus (3-6).** Critical readings in and integrated analyses of the ages of Domitian and Trajan. Prerequisite: two years Classical Latin or equivalent.

**LATIN 4580: The Theodosian Age (3).** A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian. Prerequisite: two years of Classical Latin or equivalent.

**LATIN 4590: Medieval Latin (3).** Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field. Prerequisite: two years of Classical Latin or equivalent.

**LATIN 4600: Survey of Latin Literature (3).** Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres. Prerequisite: two years Classical Latin or equivalent.

**LATIN 4960: Special Readings in Latin (1-3).** Readings in authors and texts not covered in other courses. Prerequisites: two years Classical Latin or equivalent.

## LEARNING, TEACHING, & CURRICULUM COURSES

**LTC 1100: Orientation (1).** This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options. Graded on S/U basis only.

**LTC 1110: Orientation: Art Education (1).** This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Art Education. Graded on S/U basis only.

**LTC 1115: Orientation: Social Studies (1).** The course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing Social Studies education. Graded on S/U basis only.

**LTC 1120: Orientation: Math Education (1).** This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Math Education. Graded on S/U basis only.

**LTC 1130: Orientation: Middle School Education (1).** This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Middle School Education. Graded on S/U basis only.

**LTC 1140: Orientation: Music Education (1).** This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Music Education. Graded on S/U basis only.

**LTC 1150: Learning Strategies for College Students (3).** Students' learning strategies are assessed, and their needs are given greatest emphasis. Learning through reading and listening are given major consideration as are the corollary skills of vocabulary expansion, studying and note taking.

**LTC 1155: Orientation: Science Education (1).** This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Science Education. Graded on S/U basis only.

**LTC 1160: Orientation: Special Education (1).** This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Special Education. Graded on S/U basis only.

**LTC 1170: Orientation: English/Language Arts (1).** This course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing English/Language Arts education. Graded on S/U only.

**LTC 1180: Orientation: Early Childhood Education (1).** The course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing Early Childhood education. Graded on S/U basis only.

**LTC 1190: Orientation: Elementary Education (1).** The course familiarizes and orients students with MU resources, college of Education programs, expectations and career options, emphasizing Elementary Education. Graded on S/U basis only.

**LTC 1200: Elements of Health Education (2).** Health needs of university students and school-age children are investigated by knowledge and decision-making activities concerning personal and community health problems.

**LTC 1300: First Aid (2).** Study of the theory and practice of first aid procedures. Certification available.

**LTC 1320: Scuba Theory (3).** The curriculum of the class includes bio-physics, hydrostatic pressures, physiology, fundamentals of compressed gases, environmental conditions, mechanics, first aid as it relates to diving, and planning speciality dives such as decompression, night, cave, ice, salvage and wreck diving.

**LTC 2040: Inquiring into Schools, Community and Society I (3).** This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

**LTC 2044: Inquiry into Schools, Community and Society: Field (1).** This field experience course supports the Inquiring into Schools, Community and Society (ISCS), component of Phase I. Graded on S/U basis only.

**LTC 3600: Aiding: Nursery/Day Care Programs (1-2).** Instructionally related duties in the preschool classroom during semesters and summer. Student works 30 hours with supervision for each credit.

Prerequisite: instructor's consent.

**LTC 3610: Aiding: Kindergarten (1-2).** Instructionally related activities in kindergarten classroom during semesters and summers. Student works 30 hours with supervision for each credit. Graded on an S/U basis only. Prerequisites: instructor's consent.

**LTC 3620: Aiding: Primary Grades (1-2).** Instructionally related activities in primary grades. Student works 30 hours with supervision for each credit. Graded on an S/U basis only. Prerequisite: instructor's consent.

**LTC 3630: Aiding: Intermediate Grades (1-2).** Instructionally related activities in intermediate grade classrooms. Student works 30 hours with supervision for each credit. Graded on an S/U basis only. Prerequisite: instructor's consent.

**LTC 3640: Aiding: Secondary Schools (1-2).** Instructionally related clinical/administrative and monitorial activities in the secondary classroom during semesters and summer. Student works 30 hours with supervision for each credit. Graded on a S/U basis only. Prerequisite: instructor's consent.

**LTC 4010: Student Teaching (cr.arr.).** Hours, credit must be arranged with director of student teaching. Must apply during February for following year. Prerequisites: special methods courses in area of specialization.

**LTC 4030: Physical Education Activities for the Elementary School (2).** This course is designed to be part of a larger whole in the education of teacher candidates. The focus of this course is incorporation of wellness/fitness into as many facets of the teachers daily schedule as possible.

**LTC 4085: Problems in Curriculum and Instruction (1-3).** Studies professional programs and issues in health or physical education. Prerequisite: instructor's consent.

**LTC 4091: Early Childhood Seminar I (2).** Strategies for effectively observing and assessing young children and strategies for building positive family and community relationships, which support children's development and learning. Prerequisite: Admission to Phase II required.

**LTC 4110: Working with Infants and Toddlers (2-3).** Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development. Prerequisite: course in child development and admission to Phase II; admittance to College of Education required.

**LTC 4120: Emergent and Developing Literacy in Early Childhood (5).** Strategies for assessing and supporting young children's literacy development. Must take concurrently with Learning, Teaching and Curriculum [LTC] 4200, 4210 and K-3 field experience. Prerequisite: admittance to College of Education required.

**LTC 4124: Emergent and Developing Literacy Early Childhood Field Experience (2).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4120 component of Phase II. Field experience expectations are delineated in the LTC 4120 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4130: Teaching and Learning Math, Science and Social Studies w/ Young Children (8).** Strategies for assessing and supporting young children's math, science and social studies learning. Must take concurrently with a K-3 field experience. Prerequisite: completion of ECE Language/Literacy block; admittance to College of Education required.

**LTC 4134: Teaching & Learning Math, Sci & Soc Studies w/Young Children Field Experience (3).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4130 component of Phase II. Field experience expectations are delineated in the LTC 4130 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4140: Early Childhood Seminar II (3).** Reflection on the relationship of theory and practice in ECE. Consideration of various topics including

historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum. Prerequisites: Completion of first two semesters of Phase II.

**LTC 4160: Motor Development in Young Children (2).** For Early Childhood majors. Study of young children's motor development. Must be taken as part of the LTC ECE Motor/Art/ Music block. Prerequisite: Admission to Phase II.

**LTC 4170: Pre-Kindergarten Student Teaching (6).** Application of knowledge of child development in working with children aged 2-6 and their families. Emphasis on planning and implementing developmentally appropriate practice. Prerequisite: admission to Phase II and completion of Literacy Block; admittance to College of Education required.

**LTC 4194: Elementary Education Field Experience I (1-3).** Seminars and diverse 1-5 grade classroom experience focus is on the learner and learning in the elementary school. Prerequisites: Educational, School and Counseling Psychology [ESC\_PS] 2010, 2014 or Learning, Teaching Curriculum [LTC] 4085, 2040, 2044. Must be in Phase II. Graded on a S/U basis only.

**LTC 4200: Young Children's Emergent Language (2).** For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers. Must take with Learning, Teaching and Curriculum [LTC] 4120, 4210, and K-3 field experience. Prerequisite: admittance to Phase II; admittance to College of Education required.

**LTC 4210: Children's Literature (2).** For Early Childhood and Elementary Education majors. Surveys the field of children's literature. Must be taken with Learning, Teaching and Curriculum [LTC] 4120, 4200, and K-3 field experience. Prerequisite: admittance to Phase II; admittance to College of Education required.

**LTC 4211: Essential Literacy: Reading (3).** A study of children's reading development encompassing writing, Children's Literature, and emergent language. Prerequisite: admittance into Phase II.

**LTC 4220: Emergent Literacy (3).** Emergent reading. Instructional methods, diagnostic procedures, and materials appropriate for learners in elementary grades 1-3. Prerequisite: completion of Phase I.

**LTC 4221: Essential Literacy: Writing (2).** A study of children's writing development encompassing reading, Children's Literature, and emergent language. Prerequisite: Admittance into Phase II.

**LTC 4231: Advanced Applications of Literacy (3).** Provides pre-service teachers with information about the current reading curriculum and practices in their on-site program. Topics will include assessment, diversity, children's literature, technology, planning and delivering instruction, professional development and management (classroom, behavior and lesson). Prerequisite: Admittance to Phase II of the Elementary Education Program; Education and graduate students only. Graded on A/F basis only.

**LTC 4240: Art for Children (2).** This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom; admittance to College of Education required.

**LTC 4241: Inquiry into Literacy Applications (3).** Provides pre-service teachers with opportunities to study literacy topics from a broad perspective. Topics will enable students to integrate literacy theory with field-based practice in relevant and meaningful ways through writing, discussion and self-reflection. Prerequisite: Admittance to Phase II of the Elementary Education Program. Education and graduate students only. Graded on A/F basis only.

**LTC 4250: Music for Children (2).** Preparation of early childhood and elementary education students with the skills, knowledge, and philosophical foundations necessary to integrate music into the early childhood and elementary curricula. Prerequisite: Music

for Non-Majors [MUSIC NM] 1608, 1612, 1618 or competency test; admittance to College of Education required.

**LTC 4260: Elementary Social Studies (3).** To develop knowledge of social studies and the skills to teach social studies in the elementary school. The course is designed to provide the student with the skills to plan, implement, and evaluate both the teaching and learning processes for the elementary social studies classroom. Prerequisites: acceptance into Phase II, admittance to College of Education required.

**LTC 4280: Teaching Science in Elementary Schools (3).** Concepts, materials, methods in the elementary school program. Prerequisite: Admittance to Phase II and College of Education required.

**LTC 4294: Elementary Education Field Experience II (1-3).** Seminars and diverse 1-5 grade classroom experiences focus is on the teacher and instruction in the elementary school. Prerequisites: Education, School and Counseling Psychology [ESC PS] 2010, 2014; Learning, Teaching and Curriculum [LTC] 2040, 2044, 4194, must be enrolled in Phase II. Graded on S/U basis only.

**LTC 4300: Learning and Teaching Number and Operation in the Elementary School (3).** The purpose of this course is to (a) develop a deeper understanding of number and operation, (b) connect the mathematical knowledge of number as described in (a) to the learning and teaching of number in elementary school. Prerequisites: acceptance into Phase II.

**LTC 4310: Learning and Teaching Geometry in the Elementary School (3).** The purpose of this course is to (a) develop a deeper understanding of geometry and measurement, (b) critically examine content and issues of the complexities in teaching and learning fundamental concepts of geometry and measurement in elementary schools. Prerequisite: acceptance into Phase II.

**LTC 4320: Middle School Social Studies I (3).** Curriculum decision making, instructional planning, techniques and strategies, materials selection, approaches to assessment in middle level social studies, all based upon early adolescent growth and development principles. Prerequisite: admittance to the College of Education required.

**LTC 4324: Middle School Social Studies Field I (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4320 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4320 course syllabi. Phase II admittance required. Graded on S/U basis only.

**LTC 4334: Middle School Social Studies Field Experience II (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4550 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4550 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4340: Middle School Science I (3).** Concepts, materials, methods in middle school program. Prerequisite: Admittance to Phase II and the College of Education required.

**LTC 4344: Middle School Science Field I (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4340 component of Phase II. Field experience expectations are delineated in the LTC 4340 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4350: Middle School Science II (3).** Concepts, materials, methods in the middle school program. Prerequisite: Admittance to phase II and College of Education required.

**LTC 4354: Middle School Science Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4350 component of Phase II. Field experience expectations are delineated in the LTC 4350 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4360: Intro. Teaching Mathematics in Middle and Secondary Schools (3).** Introduction to

teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding. Prerequisites: professional standing, Mathematics [MATH] 1360; admittance to College of Education required.

**LTC 4364: Intro. Teaching Math in Middle and Secondary School Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4360 component of Phase II. Field experience expectations are delineated in the LTC 4360 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4370: Teaching and Modeling Middle School Mathematics (3).** Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding. Prerequisite: Learning, Teaching and Curriculum [LTC] 4360/7360 and at least 18 hours of required mathematics; admittance to College of Education required.

**LTC 4374: Teaching and Modeling Middle School Mathematics Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4370 component of Phase II. Field experience expectations are delineated in the LTC 4370 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4380: Teaching Middle School Language Arts I (3).** Integrates an understanding of literacy (highlighting reading) with content area demands, literature and other media texts, evaluation and inquiry within a context of diversity. Prerequisite: Admittance to Phase II of College of Education.

**LTC 4384: Teaching Middle School Language Arts I Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4380 component of Phase II. Field experience expectations are delineated in the LTC 4380 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4390: Teaching Middle and Secondary English/Language Arts II (3).** Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking. Prerequisites: Admittance to Phase II of College of Education.

**LTC 4394: Teaching Middle School Language Arts II Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4390 component of Phase II. Field experience expectations are delineated in the LTC 4390 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4400: Teaching Middle and Secondary English/Language Arts III (3).** Prepare prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts. Prerequisites: Learning, Teaching and Curriculum [LTC] 4380/7380 and 4390/7390; admittance to Phase II of College of Education.

**LTC 4404: Teaching Middle School Language Arts III Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4400 component of Phase II. Field experience expectations are delineated in the LTC 4400 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4410: Teaching, Engaging and Assessing Middle-Level Students (3).** In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs. Prerequisite: admittance to College of Education required.

**LTC 4414: Teaching, Engaging & Assessing Mid-Level Students Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4410 component of Phase II. Field experience expectations are delineated in the LTC 4410 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4420: Adolescent Literacy (3).** Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts. Prerequisite: admittance to College of Education required.

**LTC 4424: Middle School Literacy Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4420 component of Phase II. Field experience expectations are delineated in the LTC 4420 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4460: Teaching English to Speakers of Other Languages (3).** (Same as English [ENGLSH] and Linguistics [LINGST] 4650.) Linguistic and pedagogical principles of teaching English to speakers of other languages. Prerequisite: English [ENGLSH] 4600 and English [ENGLSH] 4610 or equivalent. Acceptance into Phase II of LTC. Graded A-F only.

**LTC 4470: Teaching Secondary English/Language Arts I (3).** Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on Young Adult Literature and critical thinking. Prerequisite: Admittance to Phase II of College of Education.

**LTC 4474: Teaching Secondary English/Language Arts I Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4470 component of Phase II. Field experience expectations are delineated in the LTC 4470 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4480: Teaching Middle and Secondary English/Language Arts II (3).** Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking. Prerequisite: admittance to Phase II of College of Education.

**LTC 4484: Teaching Secondary English/Language Arts II Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4480 component of Phase II. Field experience expectations are delineated in the LTC 4480 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4490: Teaching Middle and Secondary English/Language Arts III (3).** Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts. Prerequisites: Learning, Teaching and Curriculum [LTC] 4470/7470 and 4480/7480; admittance to Phase II of College of Education.

**LTC 4494: Teaching Secondary English/Language Arts III Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4490 component of Phase II. Field experience expectations are delineated in the LTC 4490 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4500: Emergent Language in Early Childhood (3).** Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**LTC 4510: Assessment in Early Childhood Education (3).** A study of formal and informal assessment instruments and procedures used to measure progress and determine developmentally appropriate

curriculum for children in early childhood settings.

**LTC 4520: Literature in the Elementary School (3).** Surveys the field of literature for children and adolescents, with emphasis on selected readings of various types of literature. Prerequisites: junior standing or instructor's consent.

**LTC 4530: Introduction to Social Studies (3).** Will introduce prospective teachers to the profession of social studies teaching; to the bases for making curriculum choices in social studies and the process of choosing content; and the process of planning curriculum and instruction in social studies classrooms. Prerequisites: acceptance into Phase II and to the College of Education required.

**LTC 4534: Secondary Social Studies I Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4530 component of Phase II. Field experience expectations are delineated in the LTC 4530 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4540: Teaching of Reading (3).** Materials, methods used in teaching reading in elementary grades. Prerequisites: Educational, School and Counseling Psychology [ESC\_PS] 2400 and professional standing.

**LTC 4541: Teaching Social Studies (3).** Is designed for the secondary social studies teachers to develop knowledge of social studies and the skills to teach social studies. The student will plan, implement and evaluate both the teaching and learning processes for secondary social studies classrooms. Prerequisites: acceptance into Phase II and to College of Education required. Graded on A-F basis only.

**LTC 4544: Secondary Social Studies II Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4541 component of Phase II. Field experience expectations are delineated in the LTC 4541 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4550: Assessment in Social Studies (3).** Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals. Prerequisites: acceptance into Phase II and to College of Education required.

**LTC 4554: Secondary Social Studies III Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4550 component of Phase II. Field experience expectations are delineated in the LTC 4550 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4560: Teaching Reading in the Content Areas (2-3).** For secondary school teachers. Specific ways teachers can help students improve reading skills in content areas and ways reading can be taught in reading classes. Prerequisite: Phase II admittance. Restricted to College of Education Majors with 60+ credit hours.

**LTC 4570: Organization of Public School Art (2).** Purposes, practices of art experiences in elementary and secondary schools. Designed for teachers, supervisors, administrators.

**LTC 4571: Introduction to Teaching Mathematics in Middle and Secondary Schools (3).** Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding. Prerequisites: professional standing, Mathematics [MATH] 2300.

**LTC 4574: Intro. Teaching Math in Middle and Secondary School Field Experience (1).** Field experience supporting the Learning, Teaching and Curriculum [LTC] 4571 component of Phase II. Field experience expectations are delineated in the LTC 4571 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4580: Social Studies in the Elementary School (3).** Problems in preparation, teaching of

units with suitable materials, techniques. Prerequisites: Educational School, and Counseling Psychology [ESC\_PS] 2400, professional standing.

**LTC 4581: Teaching Mathematics in Secondary Schools: Algebra (3).** Major issues/topics of the course are: exploration of curriculum, teaching strategies, and assessment for algebra and pre-calculus/calculus. Lesson planning, integration of appropriate models, mathematical connections, calculators and computer technology will be developed. Prerequisite: Learning, Teaching and Curriculum [LTC] 4571/7571; admittance to College of Education required.

**LTC 4584: Teaching Math in Secondary Schools: Algebra Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4581 component of Phase II. Field experience expectations are delineated in the LTC 4581 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4587: Seminar in Curriculum and Instruction (1-3).** Seminar in Curriculum and Instruction

**LTC 4590: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics (3).** Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics. Prerequisite: Learning, Teaching and Curriculum [LTC] 4571/7571; admittance to College of Education required.

**LTC 4594: Teach Math in Sec Sch: Focus on Geometry/Probability (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4590 component of Phase II. Field experience expectations are delineated in the LTC 4590 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4600: Diagnosis and Remediation of Learning Problems in Math - Middle (3).** The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies.

**LTC 4610: Teaching Techniques and Curriculum in Elementary School Math (3).** The mathematics program in the elementary school from viewpoint of goals, content, techniques and evaluation.

**LTC 4620: Information Literacy in Teaching and Learning (3).** Discusses the nature, value, and power of information as product and process; organization, retrieval, and evaluation of information; explores the Internet and information superhighway; develops skills for resource based learning for classroom instruction; policy issues.

**LTC 4630: Health Education in the Elementary School (3).** Defines teacher's role in school health program; investigates health needs of school children; focuses on teaching strategies, health resources and development of elementary school health education curricula and materials.

**LTC 4631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci. Inq.,Curr., Assm., & Teach I (3).** An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning. Prerequisite: professional standing; admittance to College of Education required.

**LTC 4634: Teaching Middle and Secondary Science I Field (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4631 component of Phase II. Field experience expectations are delineated in the LTC 4631 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4640: Motor Development in Early Childhood (3).** Motor development of infants and children with emphasis on: study of interaction between biological and environmental factors affecting development, motor assessment techniques, and designing programs to enhance motor development. Prerequisite: Educational, School and Counseling Psychology

[ESC\_PS] 2400.

**LTC 4641: Teaching Middle and Secondary Science II (3).** An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning. Prerequisite: professional standing and Teaching Science in the Secondary School, Part I; admittance to College of Education required.

**LTC 4644: Teaching Middle and Secondary Science II Field (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4641 component of Phase II. Field experience expectations are delineated in the LTC 4641 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4650: Education in Human Sexuality (3).** The biological, psychosocial and educational aspects of human sexuality with special emphasis on instructional activities related to interpersonal communication, decision-making ability and clarification of values, course is designed for both teachers and health-care personnel. Prerequisite: Learning, Teaching and Curriculum [LTC] 1310 or equivalent.

**LTC 4651: Teach.Sci.Second.Sch.:Phil.,Hist.,Sci. Inq.,Curr.,Assm., & Tech III (3).** An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning. Prerequisite: professional standing and Teaching Science in the Secondary School, Parts I and II; admittance to College of Education required.

**LTC 4654: Teach Sci Second Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4651 component of Phase II. Field experience expectations are delineated in the LTC 4651 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4660: Drug Education (3).** The psychosocial, legal and pharmacological aspects of the recreational use of over-the-counter and street drugs are investigated with emphasis being placed on personal decision making, principles of school and community drug education, rehabilitation and community health services.

**LTC 4670: Teaching Music I (3).** Study of skills, knowledge, and philosophical foundations necessary to teach general music to children in grades pre-K, including methods, philosophies, and teach and learner behaviors. Prerequisite: junior standing; music education majors or instructor's consent; admittance to College of Education required.

**LTC 4674: Teaching Music I Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4670 component of Phase II. Field experience expectations are delineated in the LTC 4670 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4680: Teaching Legal Rights and Responsibilities of Citizenship (2).** An introductory course for teachers and undergraduate students dealing with the teaching of the basic legal concepts which underlie effective citizenship.

**LTC 4681: Teaching Music II (2).** Study of a broad repertoire of music literature and instructional materials, including critical evaluation and analysis for use in the general music classroom. Prerequisite: Learning, Teaching and Curriculum [LTC] 4670/7670; admittance to College of Education required.

**LTC 4684: Teaching Music II Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4680 component of Phase II. Field experience expectations are delineated in the LTC 4680 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4690: Teaching Music III (3).** A study of various strategies for the successful teaching of Middle and high school music programs. Prerequisite: Learning, Teaching and Curriculum [LTC] 4680/7680; admittance to College of Education required.

**LTC 4694: Teaching Music III Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4690 component of Phase II. Field experience expectations are delineated in the LTC 4690 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4730: Overview of Art Education (3).** This is the first of a three course sequence and serves as the foundation for inquiries of methodological and philosophical approaches to the teaching of the visual arts at the elementary and secondary level. Prerequisite: admittance to College of Education required.

**LTC 4734: Overview of Art Education Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4730 component of Phase II. Field experience expectations are delineated in the LTC 4730 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4740: Inquiry into Art Education: Pre-School Through Middle School (3).** The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting. Prerequisite: admittance to College of Education required.

**LTC 4744: Inquiry into Art Education: Pre-School Through Middle School Field Experience (1).** This field experience supports the Learning, Teaching Curriculum [LTC] 4740 component of Phase II. Field experience expectations are delineated in the LTC 4740 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4750: Inquiry into Art Education: Secondary (3).** The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism. Prerequisite: admittance to College of Education required.

**LTC 4754: Inquiry into Art Education: Secondary Field Experience (1).** This field experience supports the Learning, Teaching and Curriculum [LTC] 4750 component of Phase II. Field experience expectations are delineated in the LTC 4750 course syllabi. Phase II admittance required. Graded on a S/U basis only.

**LTC 4960: Special Readings in Curriculum and Instruction (1-3).** Directed study of literature and research reports in education.

**LTC 4971: Internship and Capstone Seminar (cr.arr.).** Internship is a full-semester experience in the public schools, including a capstone seminar addressing problems of practice (integrating subjects, reading and writing across the curriculum, meeting all students' needs), and evaluation of the interns preparation for entering the profession. It is offered each Fall and Spring for 10-16 credit hours. Admittance to College of Education required. Prerequisites: Education, Leadership and Policy Analysis [ED LPA] 4060/7060 and admittance into Phase III.

#### LEARNING, TEACHING, & CURRICULUM - VOCATIONAL COURSES

**LTC\_V 1050: Principles of Sales (3).** Provide the student with the concepts, tools and skills to become a professional salesperson. Emphasis is placed upon participation and performance of sales skills.

**LTC\_V 1070: Keyboarding and Word Processing Concepts (3).** Instruction in mastering the keyboard and operative parts of a microcomputer. Preparation of business communications: reports; and legal, medical; and government documents. Special emphasis on developing high standards of keyboarding speed and accuracy.

**LTC\_V 1110: Principles of Retailing (3).** Examines problems, opportunities and trends in retailing. Problems and cases deal with store organization, budgeting, control, personnel and operation.

**LTC\_V 1210: Introduction to Microcomputers (1).** An overview of the hardware and software components of a microcomputer system.

**LTC\_V 2050: Merchandising (3).** Develop basic competencies essential to successful merchandising. Studies skills essential in merchandising, and analysis of merchandising functions and activities.

**LTC\_V 2110: Business and Interpersonal Communications (3).** Study of communication theory and principles as applied to business situations and practices; development of communications skills in the area of communication such as speaking, writing, listening, and nonverbal communication.

**LTC\_V 2150: The Virtual Workplace (3).** Encompasses the management of alternative work environments and the unique situations that arise by addressing the use of email, computerized meetings, virtual office design, web page issues for business, and other technology for virtual work.

**LTC\_V 3110: Field Experiences in PAVTE (1-4).** Supervised observational and instructionally related activities within one of the PAVTE program areas at the secondary or postsecondary level. Student participates 30 clock hours for each semester hour of credit. Graded on S/U basis only.

**LTC\_V 3150: Directed Occupational Experience (1-4).** Reports based on employment experience in selected occupations combined with related conferences and/or seminars. May repeat until four semester hours accumulated.

**LTC\_V 3510: Human Relations in Organizations (3).** Principles, theory, processes and problems of effective human relations in marketing organizations

**LTC\_V 4085: Problems in Curriculum and Instruction - CTE (cr.arr.).** Study of professional programs and issues or technical problems related to the field of career and technical education.

**LTC\_V 4387: Seminar in Career and Technical Education (1-3).** Seminar experiences for students within one of the career and technical education areas. Prerequisite: instructor's consent.

**LTC\_V 4510: Coordination of Cooperative Occupational Education (3).** Problems and procedures in the operation of cooperative occupational education programs. Especially designed for those who can qualify as coordinators of occupational education programs of a cooperative nature.

**LTC\_V 4550: Utility Software for Microcomputers (2).** An introduction to major types of microcomputer utility programs, including desktop publishing, presentation, spreadsheet, and data base. Prerequisite: Learning, Teaching and Curriculum - Vocational [LTC\_V] 1210 or equivalent.

**LTC\_V 4570: Vocational Guidance (2-3).** Problems, methods, procedures involved in assisting individuals in choosing, preparing for, entering upon, progressing in their vocation. For teachers, counselors, school administrators.

**LTC\_V 4610: Field Study in Occupational Education (1-4).** Directed observation in a cross section of business and industry combined with reports, weekly seminars and/or conferences. May repeat until four semester hours accumulated.

**LTC\_V 4650: Document Planning and Design (3).** Using the hands-on approach, students will develop skills in the planning, design layout, and creation of various business documents, as well as the ability to evaluate various types of documents. Prerequisite: Learning, Teaching and Curriculum -Vocational [LTC\_V] 4550 or equivalent.

**LTC\_V 4710: Business Software Applications (3).** Advanced concepts, features, and applications central to the major types of business software--spreadsheets, database management, word processing, graphics, and communications. Prerequisite: Learning, Teaching and Curriculum -Vocational [LTC\_V] 4550/7550 or equivalent.

**LTC\_V 4750: Occupational Analysis (2).** Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**LTC\_V 4770: Methods in Vocational Education for the Disabled and Disadvantaged (3).** (same as

Special Education [SPC\_ED] 4390). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**LTC\_V 4780: Development & Assessment of Vocational-Technical Curriculum (3).** Curriculum development/assessment course focused on competencies, curriculum selection, organization, development, and assessment in the context of the Missouri Vocational Instructional Management System. Prerequisite: Educational, School and Counseling Psychology [ESC\_PS] 2400 and junior standing.

**LTC\_V 4790: Laboratory Planning and Management (3).** This course is designed to acquaint the student with the procedures, techniques and skills necessary for proper organization, management, care, and utilization of career and technical education facilities, programs, equipment, and materials. Prerequisites: Learning, Teaching and Curriculum -Vocational [LTC\_V] 1210 and 4550.

**LTC\_V 4801: Topics in Career and Technical Education (cr.arr.).** Topics in the field of career and technical education and the CTE program areas.

**LTC\_V 4810: Technology and Industry Education Methods (3).** Develops specialized organization and administration capabilities for Industrial and Technology Education. Topics include managing activities, individualized instruction, nontraditional students, students with disabilities, and emerging technologies. Prerequisite: professional standing, senior status.

**LTC\_V 4830: Curriculum Content in Marketing Education (3).** Curricular development process, knowledge of core area and competencies of Marketing Education Program. Selection of instructional material. Prerequisite: Educational, School and Counseling Psychology [ESC\_PS] 2400.

**LTC\_V 4840: Methods of Teaching Marketing Education (3).** Instructional materials, methods and techniques used to teach the marketing education curriculum. Includes evaluating delivery of instruction. Prerequisite: Learning, Teaching and Curriculum -Vocational [LTC\_V] 4780 and 4830.

#### LINGUISTICS COURSES

**LINGST 1060: Human Language (3).** (same as Anthropology [ANTHRO] 1060, Communication Science and Disorders [C\_S\_D] 1060, English [ENGLSH] 1060) General introduction to various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**LINGST 2001: Topics in Linguistics-General (cr. arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: consent of chair.

**LINGST 2040: Anthropological Linguistics (3).** (same as Anthropology [ANTHRO] 2040). Language in relation to other aspects of human behavior. Introduction to description and analysis of the basic units of language. Emphasis on non-Indo-European and preliterary languages. Prerequisites: sophomore standing recommended.

**LINGST 2700: Elementary Logic (3).** (same as Philosophy [PHIL] 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations. Prerequisite: grade of C or higher in Mathematics [MATH] 1100/1120 or equivalent.

**LINGST 2820: Introduction to Cognitive Science (3).** (same as Psychology [PSYCH] 2820 and Philosophy [PHIL] 2820). Cognitive science is the interdisciplinary study of the mind. After an overview of the foundations of cognitive science as a whole, we will see what particular sectors of it have to say about mental capacities such as vision, language, categorization, and social cognition. Prerequisites: Psychology [PSYCH] 1000: sophomore standing required.

**LINGST 3001: Topics in Linguistics-General (cr. arr.)**. Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: consent of chair.

**LINGST 3010: American Phonetics (3)**. (same as Communication Science and Disorders [C\_S\_D] 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**LINGST 3210: Anatomy and Physiology of the Speech Mechanism (3)**. (same as Communication Science and Disorder [C\_S\_D] 3210). Introduction to anatomical and functional aspects of the speech mechanism.

**LINGST 3220: Speech Acoustics (2)**. (same as Communication Science Disorders [C\_S\_D] 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems. Prerequisites: Must be taken concurrently with Communication Science and Disorders [C\_S\_D] 3210.

**LINGST 3470: Culture as Communication (3)**. (same as Anthropology [ANTHRO] 3470, Communication [COMMUN] 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction. Prerequisites: sophomore standing.

**LINGST 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean (3)**. (same as Spanish [SPAN] 3710 and French [FRENCH] 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in context of ethnic, cultural, and national identity (taught in English). Prerequisite: sophomore standing.

**LINGST 3721: Spanish Phonetics (3)**. (same as Spanish [SPAN] 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish. Prerequisite: Spanish [SPAN] 2160 or equivalent.

**LINGST 4001: Topics in Linguistics-General (cr. arr.)**. Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: consent of chair.

**LINGST 4100: Philosophy of Language (3)**. (same as Philosophy [PHIL] 4100). Examination of contemporary views of the relationship between language, minds, and the world. Prerequisite: Philosophy [PHIL] 2700 or instructor's consent. Some work in Philosophy [PHIL] 1000, 3000 or 3200 recommended.

**LINGST 4110: Formal Logic (3)**. (same as Philosophy [PHIL] 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems. Prerequisite: Philosophy [PHIL] 2700.

**LINGST 4200: Introduction to Old English (3)**. (same as English [ENGLSH] 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge. Prerequisite: junior standing.

**LINGST 4400: Language and Culture (3)**. (same as Anthropology [ANTHRO] 4400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis. Prerequisite: Anthropology [ANTHRO] / Linguistics [LINGST] 2040 or instructor's consent.

**LINGST 4412: Gender, Language and Communication (3)**. (same as Communications [COMMUN] 4412 and Anthropology [ANTHRO] 4412). Relationships among gender, language, nonverbal communication, and culture. Prerequisite: junior

standing or departmental consent.

**LINGST 4415: Language and Discourse (3)**. (same as Communication [COMMUN] 4415). Analysis of the rules of social interaction and the functions of language in discourse.

**LINGST 4420: Historical Linguistics (3)**. (same as Anthropology [ANTHRO] 4420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics. Prerequisites: junior/senior standing or instructor's consent.

**LINGST 4600: Structure of American English (3)**. (same as English [ENGLSH] 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax. Prerequisite: junior standing.

**LINGST 4610: History of the English Language (3)**. (same as English [ENGLSH] 4610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**LINGST 4620: Regional and Social Dialects of American English (3)**. (same as English [ENGLSH] 4620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English. Prerequisite: Linguistics [LINGST] 4600 and 4610 or equivalent.

**LINGST 4630: Phonology (3)**. (same as English [ENGLSH] 4630). Survey of the sound patterns of English, with some comparison to other languages. Prerequisite: Linguistics [LINGST] 4600 or another introductory course in linguistics or phonetics.

**LINGST 4640: Syntax (3)**. (same as English [ENGLSH] 4640). Study of the properties of phrase and sentence-level grammar, emphasizing English, with some comparison to other languages. Prerequisite: Linguistics [LINGST] 4600 or another comparable linguistics course.

**LINGST 4650: Principles of Teaching English as a Second Language (3)**. (same as English [ENGLSH] 4650 and Learning, Teaching and Curriculum [LTC] 4460). Linguistic and pedagogical principles of teaching English to speakers of other languages. Prerequisite: Linguistics [LINGST] 4600 and 4610 or equivalent.

**LINGST 4710: History of the French Language (3)**. (same as French [FRENCH] 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external, social, political, and historical factors that have affected the development of French, followed by diachronic study of the internal structural features of the language. Prerequisites: French [FRENCH] 3420 and 3430.

**LINGST 4711: History of the Spanish Language (3)**. (same as Spanish [SPAN] 4711). Diachronic analysis of phonological morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects. Prerequisite: reading knowledge of Spanish. Recommended: Spanish [SPAN] 3420 and 3430.

**LINGST 4720: Structure of Modern French (3)**. (same as French [FRENCH] 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French. Prerequisites: French [FRENCH] 3160 or equivalent or instructor's consent.

**LINGST 4721: Structure of Modern Spanish (3)**. (same as Spanish [SPAN] 4721). Synchronic analysis of phonology morphology and syntax of spoken Spanish dialects. Prerequisites: four 3000-level courses in Spanish.

**LINGST 4722: Spanish Across the Continents (3)**. (same as Spanish [SPAN] 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A/F basis only. Prerequisites: four 3000-level courses in Spanish.

**LINGST 4723: Language and Society: Spanish in the U.S. (3)**. (same as Spanish [SPAN] 4723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in Education, services and media. Graded on A/F basis only. Prerequisites: four 3000-level courses in Spanish.

**LINGST 4730: Linguistic Theory and Language Acquisition (3)**. The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English. Prerequisites: Linguistics [LINGST] 4720, 4721, 4600, or 4860.

**LINGST 4810: Psycholinguistics (3)**. (same as Communication Science and Disorder [C\_S\_D] 4810). Examination of the knowledge and processes that underlie the human ability to produce and understand language. Prerequisite: instructor's consent.

**LINGST 4820: Speech Perception (3)**. (same as Communication Science and Disorders [C\_S\_D] 4820). Selected topics in the perceptual processing of spoken language. Prerequisite: senior standing.

**LINGST 4850: Practical Phonetics for Fieldwork (3)**. (same as Anthropology [ANTHRO] 4850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions. Prerequisites: junior standing or instructor's consent.

**LINGST 4860: Techniques in Linguistic Analysis (3)**. (same as Anthropology [ANTHRO] 4860). Problems in analyzing data from various languages. Prerequisites: introductory course in Linguistics or instructor's consent.

**LINGST 4870: Field Methods in Linguistics (4)**. (same as Anthropology [ANTHRO] 4870 and English [ENGLSH] 4670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language. Prerequisites: 9 hours in Linguistics [LINGST] or instructor's consent.

**LINGST 4960: Special Readings in Linguistics (1-3)**. Independent study through readings, conferences, reports. Prerequisites: 9 hours in Linguistics and instructor's consent.

**LINGST 4970: Studies in Linguistics (3)**. Topic varies according to instructor. Prerequisite: 9 hours in Linguistics.

**LINGST 4991: Honors Thesis in Linguistics (3)**. Based on an original research project in theoretical or applied linguistics. Topic, director, and second reader approved by Linguistics Committee, College of Arts & Science. Prerequisite: qualification for Honors degree.

## MANAGEMENT COURSES

**MANGMT 1010: Contemporary Business Practices (1-3)**. Course coverage includes an overview of the accountancy, finance, management and marketing majors and careers in each of these fields as well as the integrated nature of business. Graded on A/F basis only.

**MANGMT 1050: Contemporary Leadership Issues in Business (3)**. Course focuses on contemporary business leadership practices and includes an overview of the accountancy, finance, management and marketing majors and careers in each of these fields. Prerequisite: instructor's consent.

**MANGMT 3000: Principles of Management (3)**. Introduction to the basic concepts of management and organization; their application to operations and personnel management. Prerequisite: Completion of 45 semester hours.

**MANGMT 3000H: Principles of Management - Honors (3)**. Introduction to the basic concepts of

management and organization; their application to operations and personnel management. Prerequisite: Completion of 45 semester hours. Honors eligibility required.

**MANGMT 3100: Job Search Strategies (1).** Provides relevant information and skills to help students interested in careers in business conduct an effective job search. Topics covered include self-assessment, company research, preparing a resume, interview skills, networking skills, and negotiation skills.

**MANGMT 3200: Business and Society (3).** This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business. Prerequisite: Admission to upper level business program.

**MANGMT 3300: Introduction to Business Processes and Technologies (3).** Introduces students to cross-functional business processes including both transactional and decision making forms. Current and emerging technologies used to facilitate efficient and effective action in these processes are explored. Prerequisite: Accountancy [ACCTCY] 2258.

**MANGMT 3540: Introduction to Business Law (3).** The legal aspects of business related to society-introduction to the legal system; constitutional, criminal, tort law; contracts and sales law cases and problems; administrative regulation of business and consumer issues. Prerequisite: completion of 30 semester hours.

**MANGMT 3901: Special Topics in Management (1-3).** Study of a selected topic in management taken as part of an organized short-term study abroad program. Prerequisites: instructor's consent. Some sections of this course may be graded on either on A/F or S/U basis only.

**MANGMT 3975: Current Issues in International Management (1-3).** Study of current issues and practices in international management taken as part of an organized short term study abroad program. Prerequisite: instructor's consent. Graded on S/U basis only.

**MANGMT 4010: Operations Management (3).** Managerial analysis of operating problems, with emphasis on planning and control systems. Prerequisites: Management [MANGMT] 3000. Math Reasoning Proficiency Course.

**MANGMT 4020: Human Resource Management (3).** Introduction to strategies and best practices in attracting, retaining, developing, and compensating employees. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4030: Organizational Behavior (3).** Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior. Prerequisites: Management [MANGMT] 3000.

**MANGMT 4050: Management of Service Operations (3).** Managing services, especially the operation's activity in service firms. Includes determining the service package, forecasting service demand, managing demand, capacity analysis and management, scheduling, cost control, service quality, and human resource management. Standardization, franchising, and service automation addressed. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4060: Project Management Fundamentals (3).** Practical methods and techniques for managing projects with selective attention to human resource issues. Includes project breakdown analysis, task network scheduling, resource allocation, and assessment/evaluation of project performance. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4110: Total Quality Management (3).** Introductory, comprehensive approach to quality planning, analysis, and control. Applications orientation. Integrates customer needs, product and service design and delivery, and continuous improvement into all organizational activities. Examines full range of behavioral, technical, and organizational

aspects relating to quality. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4120: Human Resource Management Law (3).** Analysis and evaluation of legal and administrative regulations of terms of employment; Fair Labor Standards, discriminatory practices, safety and health regulations, other regulations. Prerequisites: Management [MANGMT] 4020.

**MANGMT 4130: Advanced Organizational Behavior (3).** Based upon behavioral science concepts and research findings directed toward understanding and explaining human behavior within organizations. Case studies, individual or team projects. Prerequisites: Management [MANGMT] 4030.

**MANGMT 4140: Business Communication (3).** The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a methods to communicate with important stockholders. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4185: Problems in Management (cr. arr.).** Undergraduate students may select topics for study and investigation. Selected sections of this course may be graded either on A/F or S/U basis only. Prerequisite: instructor's consent.

**MANGMT 4201: Topics in Management (3).** Selected current topics in management. Offered on an experimental, one-semester basis only. Prerequisite: will vary with different topics.

**MANGMT 4201H: Topics in Management (3).** Selected current topics in management. Offered on an experimental, one-semester basis only. Prerequisite: will vary with different topics. Honors eligibility required.

**MANGMT 4210: Management Science (3).** Further development of models and quantitative analysis as applied to production management problems. Management research design and experimentation; computer applications; quantitative case analyses; individual industrial field studies. Corequisite: Statistics [STAT] 3500 and Accountancy [ACCTCY] 2258 or Computer Science [CMP\_SC] 1050, junior standing. Math Reasoning Proficiency Course.

**MANGMT 4220: Compensation Theory and Practice (3).** Examines the empirical research and theory relating to the effect of compensation administration systems upon employee satisfaction and performance. Analysis of financial compensation systems and benefit programs in use in modern organizations. Prerequisite: Management [MANGMT] 4020.

**MANGMT 4310: Production Systems Analysis (3).** Constructive and quantitative analysis of models of inventory and production systems; uncertainty, risk, and policy considerations; systems design/simulation; analysis of networks; management problems in application. Prerequisite: Management [MANGMT] 4010.

**MANGMT 4320: Selected Problems in Human Resource Management (3).** Advanced studies in selected administrative and technical policies, practices in employee relations, with individual and group project work, research. Focuses on policy issues, research findings, advanced techniques. Prerequisites: Management [MANGMT] 4020.

**MANGMT 4330: Organizational Theory (3).** Elements of the managerial process; emphasis on theory of organization structure and design and the impact of technology and culture on organization systems. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4330H: Organizational Theory - Honors (3).** Elements of the managerial process; emphasis on theory of organization structure and design and the impact of technology and culture on organization systems. Prerequisite: Management [MANGMT] 3000. Honors eligibility required.

**MANGMT 4340: Crisis Management (3).** Management strategies for media relations, image and identify building, internal communication, government relations, and crisis communication are explored through case studies, film, literature, and

current popular culture. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4350: Leadership Development (3).** Provides a comprehensive understanding of leadership development within the corporate environment. Examines causes and outcomes of different styles of leadership that are designed to fit the needs of individuals and/or specific situations. Prerequisite: Management 3000 [MANGMT] 3000.

**MANGMT 4420: Collective Bargaining (3).** Content, negotiation, administration of collective labor agreements and settlement of disputes. Prerequisites: Management [MANGMT] 3000.

**MANGMT 4450: Management of Electronic Commerce (3).** An introduction to electronic commerce. Topics covered include definition and scope of e-commerce, tools and technologies used, strategies, and understanding of this dynamic field. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4460: Electronic Commerce Security (3).** Comprehensive introduction to the concepts, technologies, and applications of security in electronic commerce. Topics include security policy, privacy, cryptography, types of attacks, protection, detection and response strategies. Prerequisites: Management [MANGMT] 3000 and Accountancy [ACCTCY] 2258.

**MANGMT 4480: Business Data Communication and Networking (3).** Introduction to fundamental principles of technical and managerial aspects of business data communications and networks. Basic concepts and principles, protocol layers, content distribution, routing, LAN, wireless, security, network management, multimedia networking, and new developments. Prerequisite: Management [MANGMT] 3000 and Accountancy [ACCTCY] 2258.

**MANGMT 4520: Change Management in Business (3).** Provides a comprehensive understanding of the processes of change in the corporate environment. Examines antecedents of change such as acquisitions, mergers, technology and new leadership as well as approaches to managing change using tools from organization development (OD). Prerequisite: Management [MANGMT] 3000.

**MANGMT 4540: Legal Aspects of Business Organization and Operation (3).** Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation. Prerequisite: Management [MANGMT] 3540.

**MANGMT 4560: The Law of Commercial Credit Transactions (3).** Purchase and sale of goods, services and real property-discussion includes drafts, notes, security agreements under the Uniform Commercial Code, and credit financing of real estate. Prerequisite: Management [MANGMT] 3540.

**MANGMT 4620: Web Development Fundamentals (3).** An introduction to the fundamentals of design, technology and project management aspects of developing websites. Some web based programming languages including HTML, CSS, JavaScript and ASP/VBScript and an introduction to Adobe Photoshop and Macromedia Dreamweaver. Prerequisite: Management [MANGMT] 3000 and Accountancy [ACCTCY] 2258.

**MANGMT 4700: Principles of Entrepreneurship (3).** An introductory course designed to provide a solid foundation of the role of entrepreneurship. The focus is on the creation of new ventures, the decisions leading to their development, and the factors that lead to their success. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4710: The Entrepreneurial Process (3).** This course deals with critical thinking, logic, emotional intelligence, ethics and a problem solving/decision making frame in the context of the entrepreneurial business phases: opportunity identification; launch after gathering resources; managing growth and harvesting rewards. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4730: New Business Planning and Management (3).** Analysis of the major functional areas of the start-up firm including accounting, finance, human resources, information systems, logistics, management, marketing, production/operations, purchasing and sales. Focus is also placed on generating ideas, scanning for environmental trends, and critically evaluating opportunities. Prerequisite: Management [MANGMT] 3000.

**MANGMT 4750: Entrepreneurial Innovation Management: Enterprise Conception (3).** (same as Industrial Manufacturing Systems Engineering [IMSE] 4750). Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course. Prerequisite: sophomore standing or instructor's consent.

**MANGMT 4760: Entrepreneurial Innovation Management: Enterprise Design (3).** (same as Industrial Manufacturing Systems Engineering [IMSE] 4760). Expand on Management [MANGMT] 4750 business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes. Prerequisite: MANGMT 4750; sophomore standing or instructor's consent.

**MANGMT 4765H: Entrepreneurial Innovation Management: Enterprise (3).** (same as Industrial Manufacturing Systems Engineering [IMSE] 4765H). Expand on Management [MANGMT] 4750 business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes. Prerequisite: Management [MANGMT] 4750; sophomore standing or instructor's consent. Honors eligibility required.

**MANGMT 4770: Entrepreneurial Innovation Management: Enterprise Operation (3).** (same as Industrial Manufacturing Systems Engineering [IMSE] 4770). Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery. Prerequisite: Junior Standing

**MANGMT 4940: Professional Management Internship (3).** Provides experience with management activities in business organizations (or, occasionally, in a governmental or not-for-profit setting). Students are required to prepare and execute a plan of study approved by the instructor and to complete written assignments detailed in the plan. Course only satisfies a professional elective requirement of the program. Prerequisite: COB student with a management concentration, and Internship Coordinator's consent. Graded on S/U basis only.

**MANGMT 4970: Strategic Management (3).** Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies. Prerequisites: Management [MANGMT] 3000, Marketing [MRKTNG] 3000, Finance [FINANC] 3000 and 100 credit hours earned. Open only to seniors admitted to a professional program in the CoB.

## MARKETING COURSES

**MRKTNG 3000: Principles of Marketing (3).** Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects. Prerequisites: 45 semester hours; Economics [ECONOM] 1014, 1024 or 1051.

**MRKTNG 3000H: Principles of Marketing - Honors (3).** Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects. Prerequisites: 45 semester hours; Economics [ECONOM] 1014, 1024 or 1051. Honors eligibility required.

**MRKTNG 3901: Special Topics in Marketing (1-3).** Study of a selected topic in Marketing in a course taken for credit as part of an organized study abroad

program. May be repeated for credit. Graded on S/U basis only.

**MRKTNG 3942: International Business Internship (1-3).** Internship in an international setting; Marketing Independent Study Coordinator must approve internship plan. Student and mentor reports required. See Marketing website for request form, internship requirements and details. Prerequisite: departmental consent; Marketing [MRKTNG] 3000. Graded on S/U basis only.

**MRKTNG 3975: Current Issues in International Marketing (1-3).** Study of current issues and practices in international marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**MRKTNG 3985: Problems in International Business (3).** Independent study associated with a course taken for credit as part of an organized study abroad program. See Marketing website for request form. Prerequisite: departmental consent; Marketing [MRKTNG] 3000. Graded on S/U basis only.

**MRKTNG 4000: Marketing Management (3).** Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4000H: Marketing Management - Honors (3).** Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics. Prerequisites: Marketing [MRKTNG] 3000 and junior standing. Honors eligibility required.

**MRKTNG 4050: Marketing Research (3).** Procedures for defining marketing research problems; specifying information requirements; collecting, analyzing, interpreting, and presenting data for use in marketing decision making. Utilizes student projects and research-related computer assignments. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000, Statistics [STAT] 3500 and junior standing.

**MRKTNG 4185: Problems in Marketing (1-3).** In-depth independent study of marketing topic(s). Student must have course plan (assignments, evaluation criteria, etc.) approved by faculty sponsor. Contact Marketing Department office for details and enrollment permission. Selected sections of this course may be graded either on A/F or S/U basis only. Prerequisite: departmental consent, Marketing [MRKTNG] 3000, and junior standing.

**MRKTNG 4201: Topics in Marketing (3).** Selected marketing-related topics. Subjects may vary across semesters. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4220: Consumer Behavior (3).** Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4220H: Consumer Behavior - Honors (3).** Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior. Prerequisites: Marketing [MRKTNG] 3000 and junior standing. Honors eligibility required.

**MRKTNG 4250: Retail Marketing (3).** Strategies, policies, tactics, and procedures of marketing

in a retailing environment. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisite: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4250H: Retail Marketing - Honors (3).** Strategies, policies, tactics, and procedures of marketing in a retailing environment. Prerequisite: Marketing [MRKTNG] 3000 and junior standing. Honors eligibility required.

**MRKTNG 4350: Business-to-Business Relationships (3).** Strategies, tactics, and challenges involved in developing, organizing, and managing interfirm relationships in business/ industrial markets. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisite: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4380: Buying and Supply Chain Management (3).** Strategies, tactics, challenges, and issues involved in buying, industrial purchasing, and supply chain management. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4410: Personal Selling (3).** Modern selling methods that focus on solving customer problems rather than using manipulative techniques. Principles underlying the sale process. Practical methods for building long-term customer relationships in business-to-business contexts are emphasized. Graded on A/F basis only. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4420: Sales Management (3).** Methods and tools employed by salespeople and field sales managers; emphasis on underlying behavioral and quantitative theory. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4440: Services Marketing (3).** Challenges, problems, and strategies specific to marketing in service industries. Topics include the unique characteristics of services and managing service-oriented businesses; service design and service recovery; service quality and customer satisfaction service pricing issues and demand management; and management of service customers and employees. Graded on A/F basis only. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4450: Marketing Channels (3).** Development and management of the interorganizational or internal networks through which goods and services are provided to consumer and business markets. Particular emphasis on the relationship between channel activities and the implementation of market strategy. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisite: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4501: Topics in Marketing Strategies (1-3).** Selected topics related to marketing strategy. Subjects may vary across semesters. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000, junior standing.

**MRKTNG 4550: Integrated Marketing Communications (3).** Design, coordination, and management of marketing communications. Focus on the role of

integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisite: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4650: e-Marketing (3).** Strategic and managerial challenges and issues related to use of the Internet and other electronic channels as marketing tools. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisite: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4720: Global Marketing (3).** Strategic and managerial issues associated with international trade and international marketing. During early registration, some section may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4720H: Global Marketing - Honors (3).** Strategic and managerial issues associated with international trade and international marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing. Honors eligibility required.

**MRKTNG 4750: Marketing, Society, and Government (3).** Interface between marketing, society, and government; emphasis on potential conflicts and issues such as competition, externalities, and regulation. During early registration, some sections may be restricted to College of Business students with an emphasis in Marketing, or International Business with emphasis in Marketing. Prerequisite: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4880: Contemporary Issues in Marketing (3).** Selected topical issues, their impact on marketing and marketers, and implications for firms and industries. Emphasis on scanning the external environment, projection of trends, and analysis; strategy development based on environmental analysis. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis on marketing. Prerequisites: Marketing [MRKTNG] 3000 and junior standing.

**MRKTNG 4880H: Contemporary Issues in Marketing - Honors (3).** Selected topical issues, their impact on marketing and marketers, and implications for firms and industries. Emphasis on scanning the external environment, projection of trends, and analysis; strategy development based on environmental analysis. Prerequisites: Marketing [MRKTNG] 3000 and junior standing. Honors eligibility required.

**MRKTNG 4940: Marketing Practicum (3).** Course providing experience within ongoing business. Study plan, meeting, and written assignments required. See Marketing website for application, qualifications, requirements and details. Graded on S/U basis only. Prerequisites: instructor's consent; Marketing and international business-marketing majors only; Marketing [MRKTNG] 3000 and junior standing.

## MATHEMATICS COURSES

**MATH\_0110: Intermediate Algebra (3).** Mathematics [MATH] 0110 is a preparatory course for college algebra that carries no credit towards any baccalaureate degree. However, the grade received in Mathematics [MATH] 0110 does count towards a student's overall GPA. The course covers operations with real numbers, graphs of functions, domain and range of functions, linear equations and inequalities, quadratic equations; operations with polynomials, rational expressions, exponents and radicals; equations of lines. Emphasis is also put on problem-solving. Prerequisites: Elementary College Algebra or equivalent. Placement in Mathematics [MATH] 0110 based on the student's ACT math score or equivalent, in addition to other criteria.

**MATH 1100: College Algebra (3).** A review of exponents, order of operations, factoring, and simplifying polynomial, rational, and radical expressions. Topics include: linear, quadratic, polynomial, rational, inverse, exponential, and logarithmic functions and their applications. Students will solve equations involving these functions, and systems of linear equations in two variables, as well as inequalities. Prerequisite: Mathematics [MATH] 0110 or a sufficient score on the ALEKS exam. This course is offered in both 3 day and 5 day versions. See the math placement website for specific requirements. A student may receive at most 5.0 credit hours among the Mathematics courses 1100, 1120, 1140, and 1160.

**MATH 1140: Trigonometry (2).** Prerequisite: Math [MATH] 1100 or sufficient ALEKS score. A student may receive only 5 credits from among Math [MATH] 1100, Math [MATH] 1140, and Math [MATH] 1160. A Student may receive at most 5.0 credit hours from the Mathematics courses 1100, 1120, 1140, and 1160.

**MATH 1160: Precalculus Mathematics (5).** Review of elementary algebra. Background material for Mathematics 1500, including algebraic, trigonometric, logarithmic, exponential functions. Prerequisites: B+ or better in Math [MATH] 0110 (at MU), or Math 1100, or sufficient ALEKS score. A student may receive at most 5 credits from among Math [MATH] 1100, Math [MATH] 1140, and Math [MATH] 1160. A student may receive at most 5 credit hours from among the Mathematics courses 1100, 1120, 140, and 1160.

**MATH 1300: Finite Mathematics (3).** A selection of topics in finite mathematics such as: basic financial mathematics, counting methods and basic probability and statistics, systems of linear equations and matrices. Prerequisites: Math [MATH] 1100, or Math [MATH] 1160, or both a College Algebra exemption and sufficient ALEKS score. Warning: without a College Algebra exemption, a sufficient ALEKS score will not suffice unless it is a proctored exam (for Math [MATH] 1100 credit).

**MATH 1320: Elements of Calculus (3).** Introductory analytic geometry, derivatives, definite integrals. Primarily for Computer Science BA candidates, Economics majors, and students preparing to enter the College of BUS. No credit for students who have completed a calculus course. Prerequisite: Math [MATH] 1100, or Math [MATH] 1160, or sufficient ALEKS score. A student may receive credit for Math [MATH] 1320 or 1400, but not both. A student may receive at most 5 credit hours among the Mathematics courses 1320 or 1400 and 1500.

**MATH 1360: Geometric Concepts (3).** This course is primarily for education majors. This course covers topics of Euclidean geometry such as the study of points, lines, angles, polygons, circles, congruence, similarity, transformations, symmetry, area, surface area, arc length, and volume. Polyhedra, spheres, cones, and other solids are discussed. The course includes constructions and proofs, and uses inductive and deductive reasoning throughout. Prerequisite: Mathematics [MATH] 1100 or 1120 or equivalent. Math Reasoning Proficiency Course.

**MATH 1400: Calculus for Social and Life Sciences I (3).** The real number system, functions, analytic geometry, derivatives, integrals, maximum-minimum problems. No credit for students who have completed a calculus course. Prerequisite: grade of C- or better in Mathematics [MATH] 1100 or 1160, or sufficient ALEKS score. A student may receive credit for Mathematics [MATH] 1320 or 1400 but not both. A student may receive at most 5 units of credit among the Mathematics [MATH] 1320 or 1400 and 1500. Math Reasoning Proficiency Course.

**MATH 1500: Analytic Geometry and Calculus I (5).** Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. Prerequisite: grade of C- or better in Mathematics [MATH] 1160 or both 1100 and 1140 or sufficient ALEKS score. A student may receive at most 5 units of credit among the Mathematics [MATH] courses 1320 or 1400 and 1500. Math Reasoning Proficiency Course.

**MATH 1500H: Analytic Geometry and Calculus I - Honors (5).** Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. Prerequisites: Mathematics [MATH] 1160 or both 1100 and 1140 sufficient ALEKS score. Honors eligibility required. A student may receive at most 5 units of credit among the Mathematics [MATH] courses 1320 or 1400 and 1500. Math Reasoning Proficiency course.

**MATH 1601: Selected Topics in Mathematics-General (1-3).** The special topics covered may vary from term to term. This course may be repeated. Prerequisite: instructor's consent.

**MATH 1602: Selected Topics in Mathematics-Biological/Physical/Math (1-3).** The special topics covered may vary from term to term. This course may be repeated. Prerequisite: instructor's consent.

**MATH 1700: Calculus II (5).** Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Prerequisite: a grade of C- or better in Mathematics [MATH] 1500. Math Proficiency Reasoning course.

**MATH 1700H: Calculus II - Honors (5).** Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Prerequisite: a grade of C- or better in Mathematics [MATH] 1500. Honors eligibility required. Math Reasoning Proficiency course.

**MATH 1800: Introduction to Analysis I (5).** This course will cover the material taught in a traditional first semester calculus course at a more rigorous level. The focus of this course will be on proofs of basic theorems of differential and integral calculus. The topics to be covered include axioms of arithmetic, mathematical induction, functions, graphs, limits, continuous functions, derivatives and their applications, integrals, the fundamental theorem of calculus and trigonometric functions. Students in this class will be expected to learn to write clear proofs of mathematical assertions. Some previous exposure to calculus is helpful but not required. No credit for Mathematics [MATH] 1800 and 1320, 1400 or 1500. Prerequisites: ACT mathematics score of at least 31 and ACT composite of at least 30 or instructor's consent. Graded on A/F basis only.

**MATH 1900: Introduction to Analysis II (5).** This course is a continuation of Mathematics [MATH] 1800. In this course we shall cover uniform convergence and uniform continuity, integration, and sequences and series. The topics will be covered in a mathematically rigorous manner. No credit for Mathematics [MATH] 1900 and 1700 or 2100. Prerequisite: MATH 1800 or instructor's consent. Graded on A/F basis only.

**MATH 2100: Calculus for Social and Life Sciences II (3).** Riemann integral, transcendental functions, techniques of integration, improper integrals and functions of several variables. No credit for students who have completed two calculus courses. Prerequisites: Mathematics [MATH] 1320 or 1400 or 1500. Math Reasoning Proficiency Course.

**MATH 2140: Geometric Axioms and Structures (3).** Euclidean Geometry, Axiom systems, spherical geometry, finite geometries, and explorations with technology. Prerequisite: Mathematics [MATH] 1340 or 1360.

**MATH 2300: Calculus III (3).** Vectors, solid analytic geometry, calculus of several variables. Prerequisite: grade of C- or better in Mathematics [MATH] 1700. Mathematics Reasoning Proficiency.

**MATH 2300H: Calculus III - Honors (3).** Vectors, solid analytic geometry, calculus of several variables. Prerequisite: grade of C or better in Mathematics [MATH] 1700. Honors eligibility required. Math Proficiency course.

**MATH 2320: Discrete Mathematical Structures (3).** Sets, functions, logic, relations, induction, recursion, counting techniques, graphs, trees, algorithms. Prerequisites: one of Mathematics [MATH] 1700, 2340, or 2140. Math Reasoning Proficiency course.

**MATH 2340: Algebraic Structures (3).** Introduction to axiomatic mathematics with emphasis on

rings and groups. Applications to elementary number theory. Prerequisite: Mathematics [MATH] 1300 and 1320 or instructor's consent.

**MATH 3000: Introduction to Advanced Mathematics (3).** Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers, the real number system, completeness of the real numbers, sequences of real numbers. Prerequisite: Mathematics [MATH] 1700 or permission of the instructor/department.

**MATH 4001: Topics in Mathematics-General (cr. arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: Mathematics [MATH] 2300 and instructor's consent. Departmental consent for repetition.

**MATH 4002: Topics in Mathematics-Biological/Physical/Math (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: Mathematics [MATH] 2300 and instructor's consent. Departmental consent for repetition.

**MATH 4060: Connecting Geometry to Middle and Secondary Schools (3).** Euclidean foundations, logic, Euler Characteristic, congruence, area, Pick's Theorem, volume, Cavalieri's Principle, surface area, similarity, symmetry, transformations, matrices, introduction to spherical geometry. Prerequisites: Mathematics [MATH] 1360 or 1500.

**MATH 4070: Connecting Algebra to Middle and Secondary Schools (3).** A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures. Prerequisite: Mathematics [MATH] 1320, enrollment is restricted to Math Education majors.

**MATH 4080: Calculus Connections (3).** Course topics include: sequences, series, functions, limits, continuity, differentiation, optimization, curve sketching, antidifferentiation, areas of plane regions, lengths of plane curves, areas of surfaces of revolution, and volumes of solids. Prerequisites: Mathematics [MATH] 1160, enrollment is restricted to Math Education majors.

**MATH 4100: Differential Equations (3).** Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems. Prerequisite: Mathematics [MATH] 2300.

**MATH 4110: Advanced Calculus With Applications (3).** Linear mappings, Jacobi matrices and determinants, change of variables, vector fields, line and surface integrals, theorems of Green, Gauss and Stokes, sequences and series of functions, uniform convergence, special functions. Prerequisite: Mathematics [MATH] 2300.

**MATH 4120: Combinatorics (3).** Study of a variety of topics from combinatorial mathematics, especially graph theory and enumerative combinatorics. Topics include graph coloring, matchings and coverings, generating functions, recurrence relations, Polya's Enumeration Theorem, introduction to Ramsey theory. Prerequisites: Mathematics [MATH] 2320, or instructor's consent.

**MATH 4140: Matrix Theory (3).** Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs. Prerequisite: one of Mathematics [MATH] 2300, 2320, 2120 or 2340.

**MATH 4150: History of Mathematics (3).** This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns,

is explored. Pre- or Co-requisite: Mathematics [MATH] 2300 or 2340.

**MATH 4300: Numerical Analysis (3).** Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers. Prerequisites: Mathematics [MATH] 2300 and familiarity with softwares such as Mathematica MatLab or Maple, etc.

**MATH 4310: Numerical Linear Algebra (3).** Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers. Prerequisites: Mathematics [MATH] 2300 and familiarity with software such as Mathematica, MatLab, Maple, etc.

**MATH 4315: Introduction to Mathematical Statistics (3).** (same as Statistics [STAT] 4710). Introduction to theory of probability and statistics using concepts and methods of calculus. Prerequisites: Mathematics [MATH] 2300 or instructor's consent.

**MATH 4320: Introduction to Probability Theory (3).** (same as Statistics [STAT] 4750). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems. Prerequisites: Mathematics [MATH] 2300 or instructor's consent.

**MATH 4325: Linear Programming (3).** Linear dependence and rank in vector spaces in  $R^n$ , Farkas' Lemma, Polyhedral Decomposition. Strong duality and complementary theorems. The simplex method, revised simplex, and sensitivity analysis. Primal Dual simplex method and network simplex methods. Computational Complexity and Karmarkar's Algorithm. Prerequisites: Mathematics [MATH] 4140 or instructor's consent.

**MATH 4330: Theory of Numbers (3).** Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions. Prerequisites: Mathematics [MATH] 2300; recommended 2320 or 2340, and 4940/7940.

**MATH 4335: College Geometry (3).** Euclidean geometry from an advanced viewpoint. Synthetic and coordinate methods will be used. The Euclidean group of transformations will be studied. Prerequisite: Mathematics [MATH] 2300.

**MATH 4340: Projective Geometry (3).** Basic ideas and methods of projective geometry built around the concept of geometry as the study of invariants of a group. Extensive treatment of collineations. Prerequisite: Mathematics [MATH] 2300.

**MATH 4345: Foundations of Geometry (3).** Coordination of affine, projective planes by means of various kinds of algebraic structures: planar ternary rings, Veblen-Wedderburn systems, divisions rings, skew fields, and fields. Prerequisite: Mathematics [MATH] 2300.

**MATH 4350: Introduction to Non-Euclidean Geometry (3).** Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry. Prerequisite: Mathematics [MATH] 2300.

**MATH 4355: Investment Science I (3).** Deterministic cash flow streams. The present value. Bonds, bonds' yield, duration. The term structure of interest rates. Single-period random yield analysis. Random returns. Portfolio mean-variance analysis. Markovitz model. Prerequisites: Mathematics [MATH] 2300 and either Statistics [STAT] 2500 or STAT 4710/MATH 4315, or instructor's consent.

**MATH 4360: Actuarial Mathematics (3).** Basic actuarial methods, mathematical population studies and models of population growth. Compound interest and annuities certain. Values of endowment and annuities, calculation of premiums, surrender values. Stochastic models of populations growth. Prerequisite: Mathematics [MATH] 2300 and either Statistics [STAT] 2500 or STAT 4710/MATH 4315, or instructor's consent. No variable credit.

**MATH 4370: Actuarial Modeling I (3).** This course covers the main probability tools applied to financial risks modeling, and the financial mathematics concepts used in calculating present and accumulated values for various cash flows. It is a helpful tool in preparing for the Society of Actuaries exams P (Probability) and FM (Financial Mathematics), and it is oriented towards problem solving techniques illustrated with previous exam problems. Prerequisites: Mathematics [MATH] 2300, and 4320 or Statistics [STAT] 4750. Students are encouraged to take MATH 4355 prior to this course.

**MATH 4371: Actuarial Modeling II (3).** This course covers the actuarial models and their applications to insurance and other business decisions. It is a helpful tool in preparing for the Society of Actuaries exam M (Actuarial Models), and it is oriented towards problem solving techniques illustrated with previous exam problems. Prerequisites: Mathematics [MATH] 2300 and 4320 or Statistics [STAT] 4750. Students are encouraged to take MATH 4355 prior to this course.

**MATH 4400: Introduction to Topology (3).** Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology. Prerequisite: Mathematics [MATH] 2300.

**MATH 4500: Applied Analysis (3).** Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics. Prerequisite: Mathematics [MATH] 4100.

**MATH 4510: Higher Algebra (3).** Introduction to rings, integral domains, fields, groups. Prerequisites: Mathematics [MATH] 2300 or 2320.

**MATH 4520: Statistical Inference I (3).** (same as Statistics [STAT] 4760). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses. Prerequisite: Mathematics [MATH] 4320.

**MATH 4540: Mathematical Modeling I (3).** Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models. Prerequisites: 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent.

**MATH 4560: Nonlinear Dynamics, Fractals and Chaos (3).** Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science. Prerequisite: Mathematics [MATH] 4100/ 7100, 4140/7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE.

**MATH 4570: Fluid Dynamics (3).** Mathematical theory of fluid dynamics and applications. Prerequisites: Mathematics [MATH] 2300

**MATH 4580: Mathematical Modeling II (3).** Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models. More general classes of problems than in Mathematics 4540 will be considered. Prerequisites: 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent. Mathematics [MATH] 4540 is not a prerequisite.

**MATH 4590: Investment Science II (3).** Derivative securities, forward and future contracts, forward prices, hedging. Mean-variance hedging. Stochastic models of asset dynamics, random walks and binomial models. Capital budgeting, optimal portfolios. Basic option theory, put-call parity. Prerequisite: Mathematics [MATH] 2300 and Statistics [STAT] 2500 or STAT 4710/MATH 4315, or instructor's consent. Recommended: MATH 4355. No variable credit.

**MATH 4700: Advanced Calculus of One Real Variable I (3).** Basic topology of the real line, numerical sequences and series, continuity, differentiability, Riemann integration, uniform convergence, power series. Prerequisite: Mathematics [MATH] 3000.

**MATH 4720: Introduction to Abstract Algebra I (3).** Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields. Prerequisite: Mathematics [MATH] 3000.

**MATH 4800: Advanced Calculus for One Real Variable II (3).** Continuation of Advanced Calculus for functions of a single real variable. Topics include sequences and series of functions, power series and real analytic functions, Fourier series. Prerequisites: Mathematics [MATH] 4700/7700 or permission of the instructor.

**MATH 4900: Advanced Multivariable Calculus (3).** This is a course in calculus in several variables. The following is core material: Basic topology of n-dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc. Prerequisite: Mathematics [MATH] 4700.

**MATH 4920: Introduction to Abstract Linear Algebra (3).** Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms. Prerequisite: Mathematics [MATH] 4720.

**MATH 4940: Introduction to Complex Variables (3).** Complex functions, contour integration, power series, residues and poles, conformal mapping. Prerequisites: Mathematics [MATH] 4110 or 4700.

**MATH 4960: Special Readings in Mathematics (1-3).** Prerequisites: Mathematics [MATH] 2300 and instructor's consent.

**MATH 4970: Senior Seminar in Mathematics (3).** Seminar with student presentations, written projects, and problem solving. May be used for the capstone requirement. Prerequisite: 12 hours of mathematics courses numbered 4000 or above.

**MATH 4980: Mathematics Problem Solving (3).** Creative advanced problem solving bringing together methods such as integration, probability and Euclidian geometry. Prerequisite: Mathematics [MATH] 4140 and another 4000 level Mathematics course, or instructor's consent.

**MATH 4996: Honors in Mathematics (2).** Special work for senior B.A. Honors and B.S. Honors candidates.

## MECHANICAL AND AEROSPACE ENGINEERING COURSES

**MAE 1000: Introduction to Mechanical Engineering (1).** Introduction to the mechanical engineering profession, the Mechanical and Aerospace Engineering Department and curriculum, and the core disciplines of mechanical engineering. Introduction to engineering problem solving, ethics, and design. Restricted to engineering students only.

**MAE 1001: Experimental Course (cr.arr.).** Experimental course. For freshmen-level students. Content and credit hours to be listed in Schedule of Courses.

**MAE 2001: Experimental Course (cr.arr.).** Experimental course. For sophomore-level students. Content and credit hours to be listed in Schedule of Courses.

**MAE 2100: Programming and Software Tools (2).** Introduction to the use of computers, programming, and software. Topics include MATLAB syntax and programming techniques, algorithm design, and programming with Excel spreadsheets. Prerequisite: Mathematics [MATH] 1700. Restricted to Mechanical Aerospace Engineering Students Only.

**MAE 2300: Thermodynamics (3).** (same as Engineering [ENGINR] 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes. Prerequisites: Physics [PHYSICS] 2750.

**MAE 2600: Dynamics (3).** Basic fundamentals of particle and rigid body dynamics; energy and momentum methods. Prerequisite: grade of C or better in Engineering [ENGINR] 1200. Restricted to MAE students only.

**MAE 3100: Computational Methods for Engineering Design (4).** Introduction to numerical methods for linear system analysis, curve-fitting, integration and differentiation, and optimization. The numerical methods are demonstrated through computer implementation and application to engineering design problems. Prerequisites: Mechanical and Aerospace Engineering [MAE] 2100; Math [MATH] 4100 concurrent. Restricted to MAE students only.

**MAE 3200: Engineering Materials (4).** The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials. Prerequisites: Grade of C or better in Engineering [ENGINR] 2200 and Chemistry [CHEM] 1320. Restricted to MAE students only.

**MAE 3400: Fluid Mechanics (3).** A basic course in fluid mechanics. Topics include: fluid properties, hydrostatics, conservation laws, infinitesimal and finite control volume analysis, Navier-Stokes equations, dimensional analysis, internal and external flows. Prerequisites: Mechanical and Aerospace Engineering [MAE] 2600; Engineering [ENGINR] 2300 concurrent. Restricted to MAE students only.

**MAE 3600: Dynamic Systems and Control (3).** Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis. Prerequisites: Mechanical and Aerospace Engineering [MAE] 2600; 3100; Engineering [ENGINR] 2100 concurrent. Restricted to MAE students only.

**MAE 3800: Instrumentation and Measurements Laboratory (3).** Design and reporting of experimental investigations. Topics include instrument design equations, sources of error, and calibration. Survey of instruments to measure: voltage, resistance, current, time, frequency, displacement, velocity, acceleration, strain, force, and torque. Prerequisites: Engineering [ENGINR] 2100; 2200; Mechanical and Aerospace Engineering [MAE] 3600 concurrent. Restricted to MAE students only.

**MAE 3900: Mechanical Design I (3).** Kinematics of machinery, and introduction to finite element analysis. Topics include linkage analysis and design, cam design, and numerical stress analysis. The course involves a major design project. Prerequisites: Engineering [ENGINR] 2200 and Mechanical and Aerospace Engineering [MAE] 2600. May be repeated for credit. Graded on A/F basis only.

**MAE 4001: Topics in Mechanical and Aerospace Engineering (3).** Current and new technical developments in mechanical and aerospace engineering. Prerequisite: instructor's consent. Restricted to MAE students only.

**MAE 4085: Problems in Mechanical and Aerospace Engineering (cr.arr.).** Special design, experimental and analytical problems in mechanical and aerospace engineering.

**MAE 4210: Aerospace Structures (3).** Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together. Prerequisites: Grade of C or better in Engineering [ENGINR] 2200. Graded on A/F basis only.

**MAE 4220: Materials Selection (3).** Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3200. Restricted to MAE students only.

**MAE 4230: Nanomaterials (3).** The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their

technological applications. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3200 or equivalent.

**MAE 4231: Transport Phenomena in Materials Processing (3).** (same as Biological Engineering [BIOL EN] 4231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3200, 3400, 4300 (or equivalent courses); and Mathematics [MATH] 4100. Graded on A/F basis only.

**MAE 4240: Diffraction Methods in Materials Science (3).** Introduction to crystal structure and the use of x-rays and neutrons to study materials aspects including phase analysis, structure determination, residual stress and texture. Prerequisite: instructor's consent. Restricted to MAE students only.

**MAE 4250: Composite Materials (3).** A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3200. Restricted to MAE students only.

**MAE 4260: Experimental Stress Analysis (3).** The course introduces basic concepts of stress and strain using elasticity theory. Single point and full-field experimental methods for stress and strain measurement, such as strain gages and photoelasticity, are discussed. Application of experimental methods in transducer development and design of structures will be covered. Prerequisite: senior standing.

**MAE 4270: Nondestructive Evaluation of Materials (3).** The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail. Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3200. Restricted to MAE students only.

**MAE 4280: Introduction to Finite Element Methods (3).** The application of matrix operations, energy concepts and structural mechanics to the development of the finite element method. Application of finite element method to beams, frames and trusses. Prerequisites: Engineering [ENGINR] 2200 and Mechanical and Aerospace Engineering [MAE] 3100. Restricted to MAE students only.

**MAE 4290: Welding Engineering (3).** Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure to welded joints is also introduced to develop safe and durable welded structures. Prerequisites: senior standing.

**MAE 4300: Heat Transfer (3).** Fundamentals of conduction, convection and radiation. Use of nondimensional parameters. Theory and design of simple heat exchangers. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3400, grade of C or better in Engineering [ENGINR] 2300. Restricted to MAE students only.

**MAE 4310: Intermediate Heat Transfer (3).** Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed. Prerequisite: Mechanical and Aerospace Engineering [MAE] 4300. Restricted to MAE students only.

**MAE 4315: Multiphase Heat Transfer (3).** Fundamentals and application of heat and mass transfer and fluid flow with phase change; melting and solidification, sublimation and vapor deposition, condensation, evaporation, nucleate and film boiling, two-phase flow. Prerequisites: MAE 4300. Graded on A/F basis only.

**MAE 4320: Design of Thermal Systems (3).** Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization. Prerequisite: Mechanical and Aerospace Engineering [MAE] 4300.

**MAE 4340: Heating and Air Conditioning (3).**

General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection. Prerequisites: Mechanical and Aerospace Engineering [MAE] 4300. Restricted to MAE students only.

**MAE 4380: Intermediate Thermodynamics (3).**

Topics from classical and statistical thermodynamics. Prerequisite: Engineering [ENGINR] 2300.

**MAE 4390: Aerospace Propulsion (3).**

Analysis of aircraft engines and spacecraft propulsion systems. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3400.

**MAE 4420: Intermediate Fluid Mechanics (3).**

Topics in potential and viscous flow theory, and computational fluid dynamics. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3400.

**MAE 4430: Introduction to Computational Fluid Dynamics and Heat Transfer (3).**

Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3400, 4300 and 4420.

**MAE 4440: Aerodynamics (3).**

Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3100 and 3400.

**MAE 4450: Gas Dynamics (3).**

One dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3400.

**MAE 4500: Manufacturing Methods (3).**

Introduction to manufacturing processes with emphasis on those aspects most relevant to methods, problems in force analysis, and practicum and experimentation in machine tool applications. Prerequisite: Engineering [ENGINR] 1110; grade of C or better in Mechanical and Aerospace Engineering [MAE] 3200. Restricted to MAE students only.

**MAE 4520: Manufacturing Process Analysis (3).**

Methods and techniques used in process analysis, optimization and control. These include deterministic modeling (slab, upper bound and FEM), physical modeling techniques and statistical process control. Prerequisite: Mechanical and Aerospace Engineering [MAE] 4500.

**MAE 4550: Integrated Production Systems (3).**

(same as Industrial and Manufacturing Systems Engineering [IMSE] 4550).

**MAE 4600: Advanced Mechanics of Materials (3).**

(same as Civil Engineering [CV\_ENG] 4600). Analysis of more complicated problems in stresses, strains. Prerequisite: Engineering [ENGINR] 2200.

**MAE 4620: Aircraft Flight Mechanics (3).**

Analysis of aircraft flight dynamics and aircraft performance. Topics include airplane aerodynamics and propulsion, steady flight, flight performance, aircraft maneuvers, aircraft stability, and an introduction to flight controls. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3600. Graded on A/F basis only.

**MAE 4630: Space Flight Mechanics (3).**

Analysis of spacecraft motion. Topics include orbital dynamics, spacecraft attitude dynamics, satellite trajectory design, and spacecraft control system design. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3600. Restricted to MAE students only.

**MAE 4650: Synthesis of Linkages (3).**

Type, number and dimensional synthesis of linkages to produce a given input-output motion and/or force. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3100.

**MAE 4660: Vibration Analysis (3).** (same as Civil Engineering [CV\_ENG] 4660). Vibration theory

and its application to mechanical systems. Topics include free and forced vibration analysis of single- and multi-degree of freedom systems. Prerequisite: Mechanical and Aerospace Engineering [MAE] 2600 and Mathematics [MATH] 4100.

**MAE 4670: Vehicle Dynamics (3).**

Analysis and prediction of the dynamic behavior of ground vehicles utilizing computer simulation. Mechanics of various suspension systems, tire-roadway interaction, vehicle aerodynamics, vehicle handling and steering characteristics. Special topics including nonholonomic constraint formulation and stability of motion. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3600.

**MAE 4680: Introduction to MEMS (3).**

The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific process will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special attention is on mechanical issues encountered in MEMS design and fabrication.

**MAE 4710: Hydraulic Control System (3).**

Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3400 and 3600. May be repeated for credit. Graded on A/F basis only.

**MAE 4720: Modern Control (3).**

Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3600. Graded on A/F basis only.

**MAE 4730: Mechatronics (3).**

Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time control system programming, and modeling of electronic and mechanical systems. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3600.

**MAE 4740: Digital Control (3).**

Design and analysis of control systems using discrete time methods will be the focus of this course. Multivariable as well as single input single output techniques will be considered for digital control system design and analysis. Co-requisite: Mechanical and Aerospace Engineering [MAE] 4700. Graded on A/F basis only.

**MAE 4750: Classical Control (3).**

Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3600.

**MAE 4800: Thermal and Fluid Science Laboratory (3).**

Continuation of Mechanical and Aerospace Engineering [MAE] 3800 with emphasis on: instruments to measure temperature, pressure fluid flow, fluid velocity, sound, and computer data acquisition. Prerequisite: Mechanical and Aerospace Engineering [MAE] 4300. Restricted to MAE students only.

**MAE 4820: Experimental Methods in Fluid Flow and Heat Transfer (3).**

Laboratory experiments involving fundamental mechanisms and phenomena associated with fluid flow and heat transfer. Current experimental methods and techniques employed. Prerequisites: Mechanical and Aerospace Engineering [MAE] 4800 and 4300.

**MAE 4900: Mechanical Design II (3).**

Application of the fundamentals of stress analysis of structures and materials science to the design, durability, and selection of machine elements, such as fasteners, springs, shafts, and gears. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3900; grade of C or better in MAE 3200. Restricted to MAE students only.

**MAE 4920: Advanced Computational Design (3).** Development and application of modern

simulation-based design methodologies. Topics include structural optimization, multidisciplinary design methods, reliability-based design, non-deterministic methods, design sensitivity analysis, and finite elements in design. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3100. May be repeated for credit. Graded on A/F basis only.

**MAE 4930: Applied Mechanical Optimization (3).**

Introduction to mathematical programming techniques and applications to the design of mechanical systems and components. Prerequisite: Mechanical and Aerospace Engineering [MAE] 3100. Restricted to MAE students only.

**MAE 4940: Aircraft Design (3).**

Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization and trade studies. Fundamental theories for aircraft design including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Prerequisites: Mechanical and Aerospace Engineering 3400, 3600 and 3900. Graded on A/F basis only.

**MAE 4980: Senior Capstone Design (3).**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects. Prerequisites: Mechanical and Aerospace Engineering [MAE] 3600, 4500, 4900; Statistics [STAT] 4710 or Industrial and Manufacturing Systems Engineering [IMSE] 2110. Restricted to MAE students only.

**MAE 4990: Undergraduate Research in Mechanical and Aerospace Engineering (0-6).**

Independent investigation or project in Mechanical Engineering. Prerequisites: senior standing in Mechanical Engineering and instructor's consent.

**MAE 4995: Undergraduate Honors Research Mechanical & Aerospace Engineering (cr.arr.).**

Independent investigation to be presented as an undergraduate honors thesis. Prerequisite: Honors student in Mechanical and Aerospace Engineering.

**MEDICAL PHARMACOLOGY AND PHYSIOLOGY COURSES****MPP 2010: The Science of Sex, Drugs and Rock'n'Roll (1).**

This course will examine the data and theories for how drugs affect the body, for the physiology of reproduction and, for how sound affects the body. These topics will be used to motivate an understanding, and provide training in applying, the key scientific principles. Graded on A/F basis only.

**MPP 3202: Elements of Physiology (5).**

Beginning course for sophomore and above designed to cover the basic functional aspects of major organ systems of the body. Prerequisite: sophomore standing.

**MPP 3290: Undergraduate Research (1-3).**

Laboratory experience and opportunity to explore research in medical pharmacology and physiology.

**MPP 3333: Fundamentals of Human Physiology (3).**

This course presents the basic concepts of physiology using a problem based approach. The major organs systems are discussed with the relevance to everyday physiology as well as clinical and animal applications discussed. May be repeated for credit.

**MPP 3337: Human Physiology Laboratory (2).**

This lab course will involve experiments to illustrate basic physiology concepts.

**MPP 4001: Undergraduate Topics in Medical Pharmacology and Physiology (1-3).**

Selected topics not in regularly offered courses. Prerequisite: instructor's consent.

**MPP 4085: Undergraduate Problems in Medical Pharmacology and Physiology (1-3).**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A/F basis only. Prerequisites: instructor's consent.

**MPP 4204: Medical Pharmacology (5).** Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology. Prerequisites: Biology Science [BIO SC] 3700 or Medical Pharmacology and Physiology [MPP] 3202.

**MPP 4310: Mammalian Cell Function (3).** An overview of the structure and function of mammalian cells including topics in membrane physiology and transport, cell signaling, compartmentalization and metabolism, cell proliferation and differentiation and the structure and function of certain specialized cells (e.g. muscle cells, epithelial cells and neurons). Laboratory and/or discussion sessions will be included as part of the course with laboratory topics to be determined. We will devote approximately 75% of the lecture to generalized cell functions, and 25% to deal with topics concerning specialized cells. Graded on A/F basis only. Prerequisite: instructor's consent. For graduate credit, students will be required to participate in laboratory exercises.

#### MICROBIOLOGY COURSES

**MICROB 2800: Microbiology for Nursing and Health Professions (4).** This course will provide basic principles for understanding microbial growth, function, and control. This includes a survey of microbial cellular structure/functions, immunology concepts, epidemiology, specimen handling, and causes of microbial disease (bacterial, viral, and parasitic). Material is presented in lecture and corresponding laboratory exercises that will allow students to explore the microbial world around them. The overall content is "restricted to Freshman and sophomore Nursing and Health Related Professional students only". Other inquires contact department.

**MICROB 3200: Medical Microbiology and Immunology (4).** Focus on medically important viruses, bacteria, fungi and parasites with emphasis on their disease causing potential and mechanisms. Introduction to cells and molecules of the immune system with emphasis on their role in fighting infectious diseases. Discussion of treatment and prevention strategies. Lecture material will be reinforced with laboratory demonstrations and hands-on exercises. The course is intended for preprofessional students.

**MICROB 4300: Microbial Pathogenesis (3).** This is a team taught, microbial pathogenesis course that covers the concepts of virulence and pathogenicity of bacteria. Topics covered include microbial structure, physiology, and metabolism; mobile genetic elements; antibiotic resistance; microbial gene regulation; microbial toxins; microbial evasion; emerging pathogens; and emerging pathogens. This course is designed for upper level undergraduates and beginning graduate level students.

**MICROB 4303: Medical Virology (3).** Classification of viruses, life cycles, genome organization and expression, host virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy. Prerequisite: Microbiology [MICROB] 3200 or 4300 or equivalent or instructor's consent.

**MICROB 4304: Immunology (3).** This is a comprehensive team-taught, basic immunology course covering cells and organs of the immune system, lymphocyte development, innate immunity, antibody production, antibody-antigen presentation, CD4+ and CD8+ T lymphocyte responses, cytokines, autoimmunity and immunodeficiency among other immunologically relevant topics. Completion of a biochemistry, genetics, or molecular biology course would be helpful. Prerequisites: Microbiology [MICROB] 3200 or Biochemistry [BIOCHEM] 4270 recommended.

**MICROB 4305H: Honors Microbial Pathogenesis (3).** This is a team taught, microbial pathogenesis course that covers the concepts of virulence and pathogenicity of bacteria. Topics covered include microbial structure, physiology, and metabolism; mobile genetic elements; antibiotic resistance; microbial gene regulation; microbial toxins; microbial evasion;

emerging pathogens; and emerging pathogens. This course is designed for upper level undergraduates and beginning graduate level students. Honors eligibility required.

#### MILITARY SCIENCE COURSES

**MIL SC 1100: Foundations of Officership (1).** Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establish framework for understanding officership, leadership, and Army values followed and "life skills" such as physical fitness and time management.

**MIL SC 1110: Introductory Military Science Laboratory I (1).** Field application of skills taught in Military Science 1100, to include leadership, land navigation, tactical skills and basic soldier skills. Prerequisite: Military Science [MIL\_SC] 1100.

**MIL SC 1120: Basic Leadership (1).** Establishes foundation of basic leadership fundamentals such as problem solving, communication, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and an introduction to counseling.

**MIL SC 1130: Introductory Military Science Laboratory II (1).** Field application of skills taught in Military Science 1120, to include leadership, land navigation, tactical skills and basic soldier skills. Prerequisite: Military Science [MIL\_SC] 1120.

**MIL SC 2200: Individual Leadership Studies (2).** Students identify successful leadership characteristics through observation of others and self through experimental learning exercises. Students record observed traits (good and bad) in a dimensional leadership journal and discuss observations in small group settings.

**MIL SC 2210: Intermediate Military Science Laboratory I (1).** Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as squad-level offensive and defensive operations. First aid topics and drill and ceremony are also taught. Prerequisite: Military Science [MIL\_SC] 2200.

**MIL SC 2220: Leadership and Teamwork (2).** Study examines how to build successful teams, various methods for influencing action, effective communication in selling and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback.

**MIL SC 2230: Intermediate Military Science Laboratory II (1).** Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as platoon-level offensive and defensive operations. Practical application of night land navigation. Prerequisite: Military Science [MIL\_SC] 2220.

**MIL SC 3160: Death by a Thousand Cuts: Counterinsurgency/Insurgency the American Experience (3).** This course explores the problem of insurgency and counterinsurgency in terms of what we can learn from these conflicts. It examines counterinsurgency theory and practice, the Philippine Insurrection, Banana Wars, Vietnam War, Afghanistan, and Iraq.

**MIL SC 3161: The American Experience in Vietnam (3).** This course was developed to provide students the opportunity to examine the American experience in the Vietnam War, to search for meanings in this experience, and to arrive at their own conclusions concerning the impact of the war upon the nation. Moreover, it challenges the students to think critically about war and the use of military power to settle differences between nations. May be repeated for credit.

**MIL SC 3162: Counterinsurgency in Asia (3).** This course explores the problem of insurgency and counterinsurgency in Asia in terms of what we can learn from these conflicts. The course examines the insurgency in the Philippine Insurrection 1899-1902, the Vietnam War, the Soviet-Afghan War, in Thailand, Sri Lanka and Malayan Emergency. May

be repeated for credit.

**MIL SC 3230: Leadership and Problem Solving (3).** Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem-solving techniques. Students receive direct feedback on leadership abilities. Prerequisite: departmental consent.

**MIL SC 3240: Leadership and Ethics (3).** Examines the role communications, values, and ethics play in effective leadership. Topics include ethical decision-making, considerations of others, spirituality in the military, and survey Army leadership doctrine. Emphasis on improving oral and written communication ability. Prerequisite: Military Science [MIL\_SC] 3230.

**MIL SC 3250: Leadership and Management (3).** Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration, and developmental counseling techniques. Prerequisite: Military Science [MIL\_SC] 3240.

**MIL SC 3260: Officership (3).** Study includes case study analysis of military law and practical exercises on establishing an ethical command climate, service as an officer; capstone exercise. Leadership lab Students must complete a semester long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills. Prerequisite: Military Science [MIL\_SC] 3250.

**MIL SC 3270: Advanced Transition to Lieutenant I (3).** Independent research, analysis and monthly discussion on related military topics. Personal, academic and professional goals and objectives, development and maintenance of an officer evaluation report support form. Prerequisites: Military Science [MIL\_SC] 1100, 2200, 3230, and 3250 or department head permission.

**MIL SC 3280: Advanced Transition to Lieutenant II (3).** Independent research, analysis and monthly discussion on related military topics. Personal academic and professional goals and objectives, development and maintenance of an officer evaluation report support form. Prerequisites: Military Science [MIL\_SC] 1100, 2200, 3230, and 3250 or department head permission.

#### MUSIC-APPLIED MUSIC COURSES

**MUS APMS 1435: Studio Instruction for Majors (1).** Acceptable as a secondary applied subject on B.S. in music education and B.M. degrees. Materials varies according to educational purpose. May be repeated for credit. Prerequisite: instructor's consent.

**MUS APMS 2455: Studio Instruction (1-5).** Credit accepted toward all undergraduate music and music education degrees. May be repeated for credit. Prerequisite: instructor's consent.

**MUS APMS 3455: Studio Instruction (1-3).** Accepted as upperclass credit only in Music Education, music theory, history, or composition. May be repeated for credit. Prerequisites: 8 hours and 4 semesters of Music-Applied Music [MUS\_APMS] 2455 or equivalent; audition by committee, and instructor's consent.

**MUS APMS 3970: Junior Recital (1).** Preparation and presentation of Junior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**MUS APMS 4455: Studio Instruction (1-5).** For B.M. degrees in performance. Study of pedagogy in studio class. May be repeated for credit. Prerequisite: 8 hours and 4 semesters of Music-Applied Music [MUS\_APMS] 2455; audition; instructor's consent.

**MUS APMS 4970: Senior Recital (1).** Preparation and presentation of Senior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

## MUSIC-ENSEMBLE COURSES

### MUS ENS 1841: Instrumental Ensemble (1).

Provides experience in instrumental performance and repertory. Open to all UMC students by audition. May be repeated for credit. Enrollment in Marching Band is limited to a maximum of five semesters. Prerequisite: Audition. Sections are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Varsity Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band.

**MUS ENS 1842: Choral Ensemble (1).** Provides experience in choral performance and repertory. Open to all UMC students. May be repeated for credit. Prerequisite: audition required for all but Choral Union; sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Chorale, Men's Chorus, Women's Chorus.

**MUS ENS 1846: Chamber Music (1).** Preparation and performance of chamber music. May be repeated for credit. Prerequisites: audition and instructor's consent. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble, Jazz Combo.

**MUS ENS 1865: Opera Workshop (1-2).** Study, preparation and performance of selected operatic or musical theatre work in staged or concert versions. Open to all UMC students by audition. Credit arranged; may be repeated for credit. Prerequisite: audition and instructor's consent.

**MUS ENS 2843: Piano Ensemble (1).** Study, preparation, and performance of ensemble literature for piano. May be repeated for credit. Prerequisite: instructor's consent.

**MUS ENS 4866: Musical Theatre Performance (3).** (same as Theatre [THEATR] 4460). A practical study for the actor of theatrical songs through character analysis, lyric interpretation, and movement. A performance course. Prerequisite: instructor's consent.

## MUSIC-GENERAL COURSES

**MUS GENL 1091: Recital Attendance for Undergraduate Music Majors (0).** Required attendance of fourteen music events from the Music Department listing. 0 credit, graded on S/U basis, and may be repeated until the total degree requirement is satisfactorily met. Undergraduate music majors only. No tuition charged.

**MUS GENL 3005: Topics in Music-Humanities (cr.arr.).** Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent. Prerequisites: junior standing in Music and instructor's consent.

**MUS GENL 3005H: Topics in Music-Humanities - Honors (cr.arr.).** Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent. Prerequisites: junior standing in Music and instructor's consent. Honors eligibility required.

**MUS GENL 3085: Problems in Music (cr.arr.).** Independent investigation leading to a paper or project. May be repeated for credit. Prerequisite: instructor's consent. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**MUS GENL 4005: Topics in Music-Humanities (cr.arr.).** Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent. Prerequisites: junior standing in Music and instructor's consent.

## MUSIC-MUSIC HISTORY AND LITERATURE COURSES

**MUS H&LI 1322: Introduction to Music in the United States (2).** Historical overview of American folk, popular, and fine-art music; emphasis on listening skills.

### MUS H&LI 2307: History of Western Music I

(2). Historical survey of selected European practices up to 1700 following a consideration of the major fine-art traditions of the world. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 1322.

### MUS H&LI 2308: History of Western Music II

(2). Historical survey of Western fine-art music from approximately 1700 to the present. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2307.

### MUS H&LI 4311: Historical Studies in Art Song

(3). Historical survey of works for solo voice and instruments. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4312: Historical Studies in Choral Music

(3). Historical survey of works featuring choral ensembles. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4313: Historical Studies in Opera

(3). Historical survey of opera. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4314: Historical Studies in Large Ensemble Music

(3). Historical survey of works for large instrumental ensembles. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4315: Historical Studies in Chamber Music

(3). Historical survey of works for small ensembles, instrumental and vocal. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4316: Historical Studies in Keyboard Music

(3). Historical survey of works for solo keyboard instruments. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4317: Historical Studies in Jazz and Popular Music

(3). Historical survey of works from the realm of American jazz and popular music. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4318: Studies in World Music (3).

Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2307 and 2308.

### MUS H&LI 4335: Music of the Middle Ages and the Renaissance (3).

Systematic study of European musical practice before 1600. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4336: Music in the Baroque Era (3).

Systematic study of European musical practice from approximately 1600 to 1750. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4337: Music of the Classic Era (3).

Systematic study of European musical practice from approximately 1750 to 1800. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4338: Music of the Romantic Era (3).

Systematic study of European musical practice from approximately 1800 to 1900. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4339: Music of the Modern Era (3).

Systematic study of fine-art musical practice from approximately 1900 to the present. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and/or instructor's consent.

**MUS H&LI 4340: Focal Composers (3).** Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent. Repeatable for up to 6 hours or credit.

### MUS H&LI 4341: Advanced Studies in American Music (3).

Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4342: Contemporary Issues in Musicology (3).

Systematic study of single musicological problem of contemporary relevance. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2308 and instructor's consent.

### MUS H&LI 4350: Introduction to Ethnomusicology (3).

Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques. Prerequisites: grade of C- or better in Music - Courses for Non Majors [MUSIC NM] 2308; instructor's consent.

### MUS H&LI 4376: American Musicals (3).

(same as Theatre [THEATR] 4720). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

### MUS H&LI 4397: Honors in Music History I (3).

Special readings, directed research for graduation with Honors in music history. Prerequisites: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 2307 and 2308.

### MUS H&LI 4398: Honors in Music History II (3).

Continuation of Music History and Literature 4397 leading to Honors thesis in music history. Prerequisite: Grade of C- or better in Music-Music History and Literature [MUS\_H\_LI] 4397.

## MUSIC-INSTRUMENTAL AND VOCAL REPERTORY COURSES

**MUS I VR 3753: Piano Literature I (2).** Survey of keyboard music from ca. 1600 to ca. 1800. Prerequisites: junior standing and instructor's consent.

**MUS I VR 3754: Piano Literature II (2).** Survey of keyboard music from Beethoven's time to the present. Prerequisites: Music- Instrumental and Vocal Repertory [MUS\_I\_VR] 3753 or instructor's consent.

**MUS I VR 4767: Vocal Literature I (2).** Introduction to and study of song literature with emphasis on style and interpretation. Prerequisites: junior standing or instructor's consent.

**MUS I VR 4768: Vocal Literature II (2).** Continuation of Music-Instrumental and Vocal Repertory [MUS\_I\_VR] 4767. Prerequisites: MUS\_I\_VR 4767 or instructor's consent.

**MUS I VR 4776: Orchestral Excerpts (1).** Study and preparation of selected excerpts from the standard audition repertoire, culminating in a mock audition. May be repeated for credit. Prerequisite: instructor's consent.

**MUS I VR 4780: Classical Guitar Repertory I (1).** Survey of guitar repertory and history from 1400 to present. Prerequisite: instructor's consent.

**MUS I VR 4781: Classical Guitar Repertory II (1).** Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice. Prerequisite: Music - Instrumental and Vocal Repertory [MUS\_I\_VR] 4780; instructor's consent.

## MUSIC-INSTRUMENTAL AND VOCAL TECHNIQUES COURSES

**MUS IVT 1610: Group Piano for Music Majors I (1).** Beginning piano for music majors and

concentrations only. Prerequisite: instructor's consent.

**MUS IVT 1611: Group Piano for Music Majors II (1).** Continuation of 1610. Prerequisite: Music-Instrumental and Vocal Techniques [MUS\_IVT] 1610 with a minimum grade of C- or instructor's consent.

**MUS IVT 1620: Jazz Piano Class (1).** Beginning piano technique and study of common jazz piano voicings for accompaniment and solo performance. Prerequisites: Music-Music Courses for Non-Majors [MUSIC\_NM] 1211 or Music - Music Theory [MUS\_THRY] 1220; instructor's consent required.

**MUS IVT 2610: Group Piano for Music Majors III (1).** Continuation of Music-Instrumental and Vocal Techniques [MUS\_IVT] 1611. Prerequisite: MUS\_IVT 1611 with a minimum grade of C- or instructor's consent.

**MUS IVT 2611: Group Piano for Music Majors IV (1).** Continuation of Music-Instrumental and Vocal Techniques [MUS\_IVT] 2610. Prerequisite: MUS\_IVT 2610 with a minimum grade of C- or instructor's consent.

**MUS IVT 2631: Basic Conducting and Score Reading (2).** To develop the basic psychomotor and score reading skills prerequisite to the art of conducting.

**MUS IVT 2632: Rehearsal Clinic: String Orchestra Conducting (2).** To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of string ensembles. Prerequisites: Grade of C- or better in Music-Instrumental and Vocal Techniques [MUS\_IVT] 2631 and either 2640 or 2641; or instructor's consent.

**MUS IVT 2633: Rehearsal Clinic: Choral Conducting (2).** To develop musical and interpersonal skills requisite for successful leadership of a choral ensemble, emphasizing rehearsal strategies and repertoire. Prerequisite: Grade of C- or better in Music-Instrumental and Vocal Techniques [MUS\_IVT] 2631 or instructor's consent. May be repeated once for credit.

**MUS IVT 2634: Rehearsal Clinic: Band Conducting (1).** To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of wind and percussion ensembles. Prerequisites: Grade of C- or better in Music-Instrumental and Vocal Techniques [MUS\_IVT] 2631 or instructor's consent. May be repeated for credit.

**MUS IVT 2637: Woodwinds I (1).** Class instruction in clarinet and saxophone; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in Music or Music Education.

**MUS IVT 2638: Woodwinds II (1).** Class instruction in flute and double reeds; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in Music or Music Education.

**MUS IVT 2640: Strings I (1).** Class instruction in violin and viola; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in Music or Music Education.

**MUS IVT 2641: Strings II (1).** Class instruction in violoncello and string bass; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in Music or Music Education.

**MUS IVT 2645: Brass I (1).** Class instruction in trumpet and horn; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in Music or Music Education.

**MUS IVT 2646: Brass II (1).** Class instruction in trombone, euphonium, and tuba; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in Music or Music Education.

**MUS IVT 2648: Percussion (1).** Class instruction in percussion instruments; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in Music Education.

**MUS IVT 2649: Percussion II (1).** Extension of Music-Instrumental and Vocal Techniques [MUS\_IVT] 2648. Topics include marching percussion, drumset, Latin accessory instruments, and percussion ensemble literature. Prerequisite: MUS\_IVT 2648 or instructor's consent.

**MUS IVT 2661: Keyboard Skills for Piano Majors I (2).** Study of sightreading, harmonization, transposition, figured bass realization, and duet skills. Prerequisites: grade of C- or better in Music - Music Theory [MUS\_THRY] 1221 and 1231; instructor's consent.

**MUS IVT 2662: Keyboard Skills for Piano Majors II (2).** Study of score reading, duet performance, and collaborative experiences with voice and instruments. Prerequisites: grade of C- or better in Music - Instrumental and Vocal Techniques [MUS\_IVT] 2661; instructor's consent.

**MUS IVT 3640: Undergraduate Seminar in Vocal Techniques (1).** Discusses accepted techniques of singing, practical application to posture, breath support, tone placement, musicianship, diction, interpretation, stage deportment. Recognizing and solving specific vocal problems. May be repeated once for credit. Prerequisite: instructor's consent.

**MUS IVT 3642: Seminar in String Techniques (1).** In-depth study of publications, philosophies, repertory, grading, specific problems for the string player. May be repeated once for credit. Prerequisites: Music-Instrumental and Vocal Techniques [MUS\_IVT] 2640 and 2641, or instructor's consent.

**MUS IVT 3643: Symposium in Instrumental Music (2).** Study of procedures, techniques and literature for variable combinations of wind, string, and percussion classes and the administration of instrumental music programs. Prerequisite: junior standing in Music or Music Education or instructor's consent.

**MUS IVT 3644: Jazz Methods and Materials (1).** Training and supervised practice in conducting Jazz Ensembles; study of administration, methods, and materials pertinent to teaching Jazz, Rock, and Commercial Music in high school and college. Prerequisites: junior standing or instructor's consent.

**MUS IVT 3646: Marching Band Techniques (2).** Study of techniques and procedures used in the development of field and street marching. Prerequisite: junior standing in Music or Music Education.

**MUS IVT 3670: Diction in Singing: Italian (1).** Study of the correct principles and application of Italian diction in singing the solo vocal, operatic and choral literature; the International Phonetic Alphabet; spoken language drill, study and recitation of representative literature. Prerequisite: sophomore standing.

**MUS IVT 3671: Diction in Singing: German (1).** Study of the correct principles and application of German diction in singing the solo vocal, operatic and choral literature; the International Phonetic Alphabet; spoken language drill, study and recitation of representative literature. Prerequisite: sophomore standing.

**MUS IVT 3672: Diction in Singing: French (1).** Study of the correct principles and application of French diction in singing the solo vocal, operatic, and choral literature; the International Phonetic Alphabet; spoken language drill, study and recitation of representative literature. Prerequisite: sophomore standing.

**MUS IVT 4645: Jazz Improvisation (2).** Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz. Prerequisites: Music - Music for Non-Majors [MUSIC\_NM] 1211 or Music - Music Theory [MUS\_THRY] 1220, instructor's consent.

**MUS IVT 4661: Piano Pedagogy Survey I (2).** Study of approaches for teaching young beginning and intermediate student; survey of materials and

resources. Prerequisite: instructor's consent.

**MUS IVT 4662: Piano Pedagogy Survey II (2).** Study of approaches for teaching older, more advanced and class piano students; survey of materials and resources. Prerequisite: instructor's consent.

**MUS IVT 4663: Piano Pedagogy Laboratory (1).** Supervised instruction in private and class piano. May be repeated once for additional credit. Prerequisites: Music-Instrumental and Vocal Techniques [MUS\_IVT] 4661 and 4662.

**MUS IVT 4680: Classical Guitar Pedagogy (1).** Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level, and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed. Prerequisite: Audition required and instructor's consent.

## MUSIC-COURSES FOR NON-MAJORS

**MUSIC NM 1005: Topics in Music-Humanities (1-3).** Organized study of selected topics. Subjects vary from semester to semester. May be repeated once for additional credit with departmental consent.

**MUSIC NM 1029: Music Travel Course (1-4).** Study tour designed to broaden perspective of persons interested in music. Stresses relationship of music to art and ideas in a variety of social and cultural contexts. Participant bears cost of course. Prerequisite: instructor's consent.

**MUSIC NM 1085: Problems in Music (cr.arr.).** Independent investigation leading to a paper project. May be repeated for credit. Prerequisite: instructor's consent. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**MUSIC NM 1211: Fundamentals of Music I (2).** Introduction to rhythmic, melodic, harmonic, and structural elements of music. Designed for non-music majors. No credit for music majors or minors.

**MUSIC NM 1212: Fundamentals of Music II (2).** Continuation of Music - Courses for Non-Majors [MUSIC\_NM] 1211. No credit for music majors or minors. Prerequisites: Grade of C- or better in MUSIC\_NM 1211 or instructor's consent.

**MUSIC NM 1300: Experiencing Music Through Concert Attendance (1).** Development of music listening skills through concert attendance, reading and class attendance.

**MUSIC NM 1310: Masterpieces of Western Music (3).** Introduction to the Western fine-art tradition through the study of representative masterworks, emphasis on developing listening skills; directed to non-majors.

**MUSIC NM 1311: Jazz, Pop, and Rock (3).** Historical introduction to jazz (to approximately 1970) and the American popular song, including rock and roll (to approximately 1980); directed to non-majors.

**MUSIC NM 1312: History of Jazz (2).** Historical survey of American jazz from its origin to the present. No credit for students who have taken Music - Courses for Non-Majors [MUSIC\_NM] 1311.

**MUSIC NM 1313: Introduction to World Music (3).** Introduction to the musical traditions of selected non-Western societies; emphasis on developing listening skills; directed to non-majors, but music majors may enroll.

**MUSIC NM 1314: Orchestral Masterpieces (3).** In-depth study of selected symphonic works of masters from Joseph Haydn to Aaron Copland. Students develop critical listening skills to identify orchestral instruments and perceive the structure and character of selected orchestral works. Directed to non-music majors. Graded on A/F basis only.

**MUSIC NM 1315: Musical Profile-Bach (1).** Systematic study of the music of J.S. Bach directed to the general student. Graded on A/F basis only.

**MUSIC NM 1316: Music Profile--Wolfgang A. Mozart (1).** A systematic introduction to the music of Wolfgang Amadeus Mozart. Graded on A/F basis

only.

**MUSIC NM 1317: Musical Profile-Beethoven (1).** Systematic study of the music of Ludwig van Beethoven directed to the general student. Graded on A/F basis only.

**MUSIC NM 1318: Music Profile--Claude Debussy (1).** A systematic introduction to the music of Claude Debussy. Graded on A/F basis only.

**MUSIC NM 1319: Music Profile--Igor Stravinsky (1).** A systematic introduction to the music of Igor Stravinsky. Graded on A/F basis only.

**MUSIC NM 1320: Musical Profile-Copland (1).** Systematic study of the music of Aaron Copland directed to the general student. Graded on A/F basis only.

**MUSIC NM 1340: Music of Love and Death (3).** Exploration of musical expression surrounding love and death in specific works of diverse styles and sociological contexts. Students will learn to listen to and appreciate music with informed ears and minds, develop strong perceptual skills, and cultivate a musical vocabulary.

**MUSIC NM 1341: Drama Through Western Music (3).** Introduction to the musical culture of the theater through the ages by examining specific works of diverse styles and sociological contexts. Students learn to listen to and appreciate music with informed ears and minds, develop perceptual skills, and cultivate musical vocabulary.

**MUSIC NM 1445: Studio Instruction (1).** Acceptable for non-majors and majors requiring a half-hour lesson with instructor's consent. May be repeated for credit.

**MUSIC NM 1608: Beginning Piano Class (1).** For non-music majors only.

**MUSIC NM 1609: Intermediate Piano Class (1).** For non-music majors only. Continuation of Music-Instrumental and Vocal Techniques 1608.

**MUSIC NM 1612: Elementary Folk Guitar Class (1).** Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and folk songs.

**MUSIC NM 1615: Beginning Classical Guitar Class (1).** Beginning Classical Guitar Class

**MUSIC NM 1617: Beginning Drumset (1).** Fundamentals of the drumset, including an historical survey and biographical sketch of several performers. Also can be used as a pedagogical outline for future music teachers.

**MUSIC NM 1618: Basic Music Skills (2).** Development of music reading and performance skills, including study of pitch, rhythm, notation, structure and interpretation of music. Emphasis on performance. No credit for music majors or minors or students who have completed Music - Music Courses for Non Majors [MUSIC\_NM] 1211 or 1212.

**MUSIC NM 1651: Voice Class I (1).** Fundamentals of singing: posture, breath support, control, vocalization, concepts of tone quality, placement and resonance. Literature selected for students with no previous vocal training. Adapted to needs of drama and other interdisciplinary students.

**MUSIC NM 1652: Voice Class II (1).** Continuation of Music-Instrumental and Vocal Techniques 1651. Prerequisite: Music - Courses for Non-Majors [MUSIC\_NM] 1651.

**MUSIC NM 2306: Perceiving Musical Traditions and Styles (3).** An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Prerequisites: open only to Journalism majors with sophomore standing or higher. Graded on A/F basis only.

**MUSIC NM 2306H: Perceiving Musical Traditions and Styles - Honors (3).** An introduction to music from the late Baroque to the present day,

including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Prerequisites: open only to Journalism majors with sophomore standing or higher. Graded on A/F basis only. Honors eligibility required.

**MUSIC NM 2445: Studio Instruction for Non-Majors (1-2).** Acceptable for non-majors only. Prerequisites: audition by examining committee and instructor's consent. May be repeated for credit.

**MUSIC NM 4445: Studio Instruction for Non-Majors (1-2).** Acceptable for non-majors only. Prerequisites: audition by examining committee and instructor's consent. May be repeated for credit.

## MUSIC-MUSIC THEORY COURSES

**MUS THRY 1210: Introduction to Computer Technology and Music (2).** Introduces Finale, music engraving and playback software, and introduces sequencing and other software applications that may impact students while they are in school and as professional musicians.

**MUS THRY 1213: Introduction to Music Theory (2).** Introduction to music notation and to rhythmic, melodic, harmonic, and structural elements of music. Emphasis on written skills, but ear training, sight singing, and keyboard components included as well. Prerequisite: consent required. Placement by exam. Graded on A/F basis only

**MUS THRY 1220: Syntax, Structure and Style of Music I (2).** Review of fundamentals. Study of rhythm, melody, harmonic, structure and stylistic characteristics of various periods. Application through original composition projects. Prerequisites: none for Music majors; others: instructor's consent.

**MUS THRY 1221: Syntax, Structure and Style of Music II (2).** Continuation of Music Theory [MUS\_THRY]1220. Study of smaller forms and introduction to chromatic harmony. Prerequisites: Grade of C- or better in MUS\_THRY 1220 or instructor's consent.

**MUS THRY 1230: Aural Training and Sight Singing I (2).** Development of aural and sight singing skills. Prerequisite or concurrent registration: Music-Music Theory [MUS\_THRY] 1220.

**MUS THRY 1231: Aural Training and Sight Singing II (2).** Continuation of Music Theory 1230. Prerequisite: Grade of C- or better in Music-Music Theory [MUS\_THRY] 1230 and 1221 or 1221 concurrently.

**MUS THRY 2215: Composition I (2).** Fundamentals of composition and writing in small forms. Prerequisites: grade of B- or better in Music Theory [MUS\_THRY] 1220, 1221, 1230, 1231, and instructor's consent.

**MUS THRY 2216: Composition II (2).** Continuation of Music Theory [MUS\_THRY] 2215. Prerequisite: Grade of C- or better in MUS\_THRY 2215.

**MUS THRY 2220: Syntax, Structure and Style of Music III (2).** Chromatic harmony, variation techniques and contrapuntal genres. Study of traditional forms in instrumental, vocal and choral compositions. Applications through original composition projects. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 1221.

**MUS THRY 2221: Syntax, Structure and Style of Music IV (2).** Continued study of chromatic harmony and compositions in larger forms. Application through original composition projects. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2220.

**MUS THRY 2230: Aural Training and Sight Singing III (2).** Continuation of Music Theory [MUS\_THRY] 1231. Further development of aural and sight singing skills with an emphasis on chromatic harmony and decorative pitches. Introduction of structural perception. Prerequisites: Grade of C- or better in MUS\_THRY 1231 and 2220 or 2220 concurrently.

**MUS THRY 2231: Aural Training and Sight Singing IV (2).** Continuation Music Theory [MUS\_THRY] 2230. Prerequisites: Grade of C- or better in MUS\_THRY 2230 and 22210 or 2221 concurrently.

**MUS THRY 3215: Composition III (2).** Further development of creative writing in traditional forms. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2216.

**MUS THRY 3216: Composition IV (2).** Continuation of Music Theory [MUS\_THRY] 3215. Prerequisite: Grade of C- or better in MUS\_THRY 3215.

**MUS THRY 4210: Jazz Harmony and Arranging I (2).** Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups. Prerequisites: Music Theory [MUS\_THRY] 1211 or 1220; instructor's consent required.

**MUS THRY 4211: Jazz Harmony and Arranging II (2).** Continuation of 4210. Study of advanced melodic and harmonic materials commonly used in jazz. Application through arranging projects for small and large jazz groups. Prerequisites: Music-Music Theory [MUS\_THRY] 4210; instructor's consent.

**MUS THRY 4215: Composition V (2).** Writing of works in larger forms for a solo instrument or chamber ensemble. Prerequisite: Grade of C- or better in Music-Music Theory [MUS\_THRY] 3216.

**MUS THRY 4216: Composition VI (2).** Continuation of Music-Music Theory [MUS\_THRY] 4215. May be repeated for additional credit. Prerequisite: Grade of C- or better in MUS\_THRY 4215.

**MUS THRY 4220: 20th Century Composition Techniques (2).** The study and application of analytical procedures to 20th century music literature. Special readings; individual projects. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221 or instructor's consent.

**MUS THRY 4221: Analysis of Music (2).** An analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221 or equivalent.

**MUS THRY 4222: Computer Technology and Music (2).** The introduction of music software for educational and professional use. Music notation software will be learned. Sequencing software will be studied in depth. Hands-on experience with Macintosh computers, multi-timbral synthesizers and various CD-ROMS. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 4220 or instructor's consent.

**MUS THRY 4223: Eighteenth-Century Counterpoint (3).** Study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221 or instructor's consent

**MUS THRY 4225: Sixteenth-Century Counterpoint (3).** Analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221.

**MUS THRY 4227: Orchestration (2).** Study of orchestral instruments and the process of scoring for various orchestral combinations. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221.

**MUS THRY 4229: Band Arranging (2).** Transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221.

**MUS THRY 4230: Choral Arranging (2).** Transcription and arrangement of music suitable for performance by various vocal ensembles. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221.

**MUS THRY 4231: Schenkerian Analysis (3).** Techniques of musical analysis developed by Heinrich Schenker. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221.

**MUS THRY 4232: Rhythmic Analysis of Tonal Music (3).** Introduction to rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221.

**MUS THRY 4233: Acoustics of Music (2).** The study of tuning systems and the properties, production and reception of musical sound. Prerequisites: instructor's consent.

**MUS THRY 4245: Introduction to Electronic Music (2).** Techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics. Prerequisites: Grade of C- or better in Music-Music Theory [MUS\_THRY] 4220 or instructor's consent.

**MUS THRY 4247: Introduction to Digital Synthesis (2).** Introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing. Prerequisite: instructor's consent.

**MUS THRY 4250: Analysis of Musical Styles (2).** Analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or composer. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 4221 or equivalent. Departmental consent for repetition.

**MUS THRY 4252: Keyboard Harmony and Score Reading (3).** Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221; instructor's consent.

**MUS THRY 4267: Advanced Orchestration I (2).** Transcription for full orchestra of large works from different style periods. Scoring of original works for orchestra. Seminar, private lessons. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 4227.

**MUS THRY 4268: Advanced Orchestration II (2).** Survey of original works for orchestra.

**MUS THRY 4271: Pedagogy of Music Theory I (2).** Techniques and materials for teaching basic music theory courses for high schools and colleges. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221.

**MUS THRY 4272: Pedagogy of Music Theory II (2).** Techniques and materials for advanced college courses in music theory. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 4271.

**MUS THRY 4284: Contemporary Analytical Techniques (2).** Study and application of various analytical systems for 20th century compositions. Analysis of music employing contemporary theories. Prerequisite: Grade of C- or better in Music Theory [MUS\_THRY] 2221.

## NATURAL RESOURCES COURSES

**NAT R 1040: Conservation Studies (1).** A one-week field experience in natural resource management issues -- soil and water conservation, air pollution, fish and wildlife habitat requirements, importance of forest ecosystems. Limited to high school students who have completed their junior year and taken the PSAT or equivalent. Graded S/U only.

**NAT R 1060: Ecology and Conservation of Living Resources (3).** Introduction to the principles of resource and conservation describing the foundation of the variety of living resources and conservation practices used to protect and maintain these resources.

**NAT R 1070: Ecology and Renewable Resource Management (3).** Introduction to ecological principles and their relationship to resource use and management. Introduces fisheries and wildlife

management as a profession. Required for Fisheries and Wildlife and Forestry majors.

**NAT R 2002: Topics in Natural Resources - Biological/Physical/Mathematical (cr.arr.).** Organized study of selected topics. Subjects and credit may vary from semester to semester.

**NAT R 2004: Topics in Natural Resources - Social Science (cr.arr.).** Organized study of selected topics. Subjects and credit may vary from semester to semester.

**NAT R 2160: Contemporary Issues in Natural Resources (3).** Natural resources, their management, renewability, and sustainability. Discussion of contemporary issues.

**NAT R 3001: Topics in Natural Resources (cr.arr.).** Organized study of selected topics. Subjects may vary from semester to semester.

**NAT R 3110: Natural Resource Biometrics (3).** Sampling methods and analysis as applied to a variety of natural resources, including fisheries, range, recreation, forests, water and wildlife. Prerequisites: a course in Statistics or instructor's consent.

**NAT R 3220: Public Relations for Natural Resource Managers (3).** Introduction to the practical nature of public relations for those entering natural resources careers, emphasis on communication with target audiences through news media, publications and exhibits.

**NAT R 3290: Hydrologic Measurement Techniques (1).** Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Prerequisite: Mathematics [MATH] 1100 or permission of instructor. Graded on A/F basis only. Course may be repeated for credit.

**NAT R 4000: Problems in Natural Resources (cr.arr.).** Problems in Natural Resources

**NAT R 4001: Topics in Natural Resources (cr.arr.).** Organized study of selected topics. Subjects may vary from semester to semester.

**NAT R 4320: Hydrologic and Water Quality Modeling (3).** (same as Environmental Science [ENV\_SC] 4320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making. Prerequisites: ENV\_SC 1100 or Soil Science [SOIL] 2100 or equivalent.

**NAT R 4325: Introduction to Geographic Information Systems (3).** The course will cover basic theoretical and technical issues in GIS, discuss processing geographic information for research and application, emphasis on the nature of spatial information, data models, input, manipulation and storage, and spatial analytic techniques. Prerequisites: Natural Resources [NAT R] 1070 or Geography [GEOG] 2840; NAT R 1080 and 1090; instructor's consent.

**NAT R 4353: Natural Resource Policy/Administration (3).** Principles of policy formation and analysis; relationship of organizational goals to structure, planning and budgeting. Historical background of present natural resource policies; examines current policy issues. Prerequisites: senior standing or instructor's consent.

**NAT R 4365: GIS Applications (3).** Introduces logical thinking and techniques in applying GIS to practical problems. Covers general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing. Prerequisite: Geography [GEOG] 4840, Natural Resources [NAT R] 1080 and 1090, or instructor's consent.

**NAT R 4385: Landscape Ecology and GIS Analysis I (3).** (same as Geography [GEOG] 4810). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes. Prerequisite:

GEOG 4840, or instructor's consent.

**NAT R 4940: Natural Resources Internship (cr.arr.).** Supervised professional experience with an approved public or private organization. Prerequisite: School of Natural Resources majors only, instructor's consent. Graded on S/U basis only. May be repeated for credit.

**NAT R 4970: Resource Practicum in Natural Resources (3).** Multidisciplinary planning of a natural resource management program. School of Natural Resources majors only. Prerequisite: senior standing or instructor's consent.

## NAVAL SCIENCE COURSES

**NAVY 1100: Introduction to Naval Science (3).** This course serves as an introduction to the organization of the Naval Service, the varied career opportunities available, the long held customs and traditions of the service, and the duties of a Junior Officer.

**NAVY 1200: Seapower and Maritime Affairs (3).** Seminars examine the application of seapower as an instrument of foreign policy by the major nations of the world. Emphasis placed on role of the Navy.

**NAVY 2110: Naval Ship Systems I (3).** Ship construction, stability and damage control, basic thermodynamics, the steam cycle and engineering plant, including introduction to gas turbine, diesel and nuclear powered systems.

**NAVY 2130: Evolution of Warfare (3).** Evolution of strategy, tactics, weapons and leadership from earliest beginning through the Vietnam period. Development of military policy, the impact of warfare on the political, social and economic structure of nations.

**NAVY 2210: Naval Ship Systems II (3).** Naval weapons systems, their employment and control, including the basic fire control problem, with emphasis on new systems.

**NAVY 3120: Marine Navigation (3).** Theoretical and practical application of the principles of marine navigation. Includes fundamentals of dead reckoning, piloting, tides and current, celestial navigation, electronic navigation.

**NAVY 3130: Amphibious Warfare (3).** History and development of amphibious warfare, principles of amphibious warfare techniques; their application in selected examples from modern.

**NAVY 3140: Leadership and Management (3).** This course will provide a basic understanding of the interrelationship between authority, responsibility and accountability within a task oriented organization. Students will learn to apply leadership and management skills to prioritize competing demands and to attain mission objectives; the importance of planning and follow-up; and develop a basic understanding of communication and counseling as it pertains to personnel management. Prerequisites: sophomore standing or by consent of Professor of Naval Science.

**NAVY 3220: Naval Operations (3).** Principles and concepts of naval operations: rules of the road, command and control in naval operations, communications, ASW warfare, international maritime law, and practical solution of relative motion problems. Prerequisite: Naval Science [NAVY] 3120.

**NAVY 4940: Leadership and Ethics (3).** (same as Peace Studies [PEA ST] 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students. Prerequisite: junior standing.

## NUCLEAR ENGINEERING COURSES

**NU ENG 2201: Topics in Nuclear Engineering (3).** Current and new developments in nuclear

engineering. Prerequisites: sophomore standing; Physics [PHYSCS] 1210 and 1220 and Mathematics [MATH] 1100 or 1120 or instructor's consent.

**NU ENG 2303: Harnessing the Atoms in Everyday Life: Fulfill M Curie's Dream (3).** Introduction to applications of nuclear science and technology, utilizing web-based learning scenarios.

**NU ENG 4001: Topics in Nuclear Engineering (2-5).** Current and new developments in nuclear engineering. Prerequisite: instructor's consent. May be repeated for credit.

**NU ENG 4302: Safe Handling of Radioisotopes (1).** Introduction of methods and procedures for safe handling of radioisotopes in the research laboratory. Intensive lecture and laboratory training sessions designed for persons planning to use radioisotopes at the University. Prerequisite: instructor's consent.

**NU ENG 4303: Radiation Safety (3).** (Same as Radiologic Sciences [RA SCI] 4303) Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection. Prerequisite: college physics, calculus based.

**NU ENG 4305: Survey of Nuclear Engineering (3).** Introductory topics in nuclear engineering. Atomic and nuclear physics; nuclear reactor principles under steady-state and transient conditions; heat removal; shielding; instrumentation; power generation; fusion. Prerequisite: concurrent with Mathematics [MATH] 4100.

**NU ENG 4306: Advanced Engineering Math (3).** (same as Chemical Engineering [CH ENG] 4306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques. Prerequisite: Mathematics [MATH] 4100.

**NU ENG 4315: Energy Systems and Resources (3).** (same as Electrical and Computer Engineering [ECE] 4020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies. Prerequisite: Engineering [ENGINR] 2300 or equivalent.

**NU ENG 4319: Physics and Chemistry of Materials (3).** (same as Physics [PHYSCS] 4190 and Biological Engineering [BIOL\_EN] 4480 Chemistry [CHEM] 4490). Undergraduate/graduate level course offered every winter semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid term and one final exam. Graduate students will submit a term paper. Prerequisite: PHYSCS 2760 and Chemistry [CHEM] 1320 or equivalent and instructor's consent.

**NU ENG 4320: Natural Resources and Nuclear Energy (3).** Not for engineering students. Lecture, demonstration; describes physical environment, energy, power plants, nuclear reactors; radioactivity, its biological effects; health physics measures, rad-waste disposal; nuclear safeguards, nuclear explosives, societal implications. Prerequisite: high school algebra.

**NU ENG 4328: Introductory Radiation Biology (3).** (same as Biological Sciences [BIO\_SC] 4328, Radiology [RADIOL] 4328, Veterinary Medicine & Surgery [V\_M\_S] 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man. Prerequisite: junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent.

**NU ENG 4330: Science and Technology of Terrorism and Counter Terrorism (3).** (same as Peace Studies [PEA ST] 4330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different

types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**NU ENG 4331: Nonproliferation Issues for Weapons of Mass Destruction (3).** Nonproliferation and impact on technology and world events. Prerequisites: junior/senior standing or instructor's consent. May be repeated for credit.

**NU ENG 4341: Nuclear Chemical Engineering (3).** Principles and processes of importance in the field of nuclear technology.

**NU ENG 4346: Introduction to Nuclear Reactor Engineering I (3).** (same as Electrical and Computer Engineering [ECE] 4030). Engineering principles of nuclear power systems, primarily for the production of electrical energy. Prerequisites: Engineering [ENGINR] 1200, 2300 or equivalent.

**NU ENG 4349: Nuclear Engineering Materials (3).** Properties of materials for reactor components; radiation damage and corrosion; metallurgy of reactor materials. Prerequisites: upper division or graduate standing in Physical Sciences or Engineering, or instructor's consent.

**NU ENG 4350: Nuclear Forensic Analysis (3).** Principles/applications of nuclear techniques in solution of bioenvironmental problems. Uses of nuclear methods in studies of water/air pollution, biology, medicine, pesticides, geochemistry, ecological transport. Lectures, laboratory. Prerequisites: senior standing or instructor's consent.

**NU ENG 4353: Introduction to Fusion (3).** Basic plasma physics, principles of thermonuclear fusion, plasma confinement and heating, and devices. Prerequisites: senior standing in Engineering or Science or instructor's consent.

**NU ENG 4357: Nuclear Heat Transport (2).** Principles of heat transport in nuclear reactors. Brief review of the theory of flow coast down and convective heat transfer. Heat transfer loop experiments on flow coast down, steady state and transient forced convection heat transfer, boiling heat transfer. Prerequisites: Nuclear Engineering [NU ENG] 4305, 4346 or instructor's consent.

**NU ENG 4365: Nuclear Power Engineering (3).** Nuclear reactor heat generation and removal; nuclear reactor coolants; analysis of nuclear reactor power plants. Prerequisite: Engineering [ENGINR] 2300.

**NU ENG 4369: Principles of Direct Energy Conversion (3).** Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells. Prerequisites: Engineering [ENGINR] 2300, Mechanical and Aerospace Engineering [MAE] 3400, or equivalent.

**NU ENG 4375: Introduction to Plasmas (3).** (same as Electrical and Computer Engineering [ECE] 4550). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications. Prerequisites: ECE 4930 or instructor's consent.

**NU ENG 4379: Particulate Systems Engineering (3).** An introduction to natural and engineered particulate systems. Prerequisites: Chemical Engineering [CH ENG] 3234 or Mechanical and Aerospace Engineering [MAE] 4300 or equivalent.

**NU ENG 4382: Lasers and Their Applications (3).** (same as Electrical and Computer Engineering [ECE] 4570). Introduction to lasers, from both a conceptual viewpoint and from the application of Maxwell's equation, to develop the optical theory for lasers. Prerequisites: Physics [PHYSCS] 2760, and Mathematics [MATH] 4100.

**NU ENG 4391: Nuclear Radiation Detection (3).** (same as Chemistry [CHEM] 4600). Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory. Prerequisites: senior standing or instructor's consent.

## NUCLEAR MEDICINE COURSES

**NUCMED 1000: Orientation to Nuclear Medicine (1).** An overview using a series of short rotations through local nuclear medicine departments and a self-directed review of a current text. Clinical rotations for this course are arranged on an individual basis. Graded on S/U basis only.

**NUCMED 3255: Orientation to Clinical Practice (2).** This course provides an introductory experience to clinical practice. Prerequisite: Must be accepted into Nuclear Medicine Program; junior standing required. Graded on A/F basis only.

**NUCMED 3256: Clinical Nuclear Medicine I (2).** Introductory clinical course for senior level students. Introduces instrumentation, administration, procedures, and laboratory techniques. Includes supervised clinical participation. Prerequisite: Nuclear Medicine [NUCMED] 3263.

**NUCMED 3263: Morphological Correlations in Nuclear Medicine I (3).** Anatomy, physiology, and pathology of the human body as assessed using medicine techniques. The first of two courses that address current clinical applications of nuclear medicine. Prerequisite: Nuclear Engineering [NU ENG] 4303.

**NUCMED 3328: Introductory Radiation Biology (3).** (same as Biological Sciences [BIO SC] 4328, Nuclear Engineering [NU ENG] 4328, Veterinary Medicine & Surgery [V M S] 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man. Prerequisite: junior standing Sciences/Engineering; one course in Biological Sciences & Physics/Chemistry; or instructor's consent.

**NUCMED 4085: Problems in Nuclear Medicine (1-3).** Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**NUCMED 4232: Clinical In Vitro (3).** Detailed review of current regulations and procedures governing the use of open sources of radioactivity in a nuclear medicine setting.

**NUCMED 4268: Clinical Nuclear Medicine II (2).** Continuation of clinical series taught in conjunction with Nuclear Medicine [NUCMED] 3256 and 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures. Prerequisite: NUCMED 3256.

**NUCMED 4269: Clinical Nuclear Medicine III (2).** Final course in clinical series. Seminar discussion of the areas of professional ethics, current medical-legal considerations, and future nuclear medicine applications. Prerequisite: Nuclear Medicine [NUCMED] 3256.

**NUCMED 4299: Morphological Correlations in Nuclear Medicine II (3).** Anatomy, physiology, and pathology of the human body as assessed using nuclear medicine techniques. The second of two courses that address current clinical applications of nuclear medicine. Prerequisite: Nuclear Medicine [NUCMED] 3263.

**NUCMED 4327: Nuclear Medicine Instrumentation (3).** Radionuclide imaging systems and the use of computers. Topics include Anger camera systems, emission tomography, ultrasound, nuclear magnetic resonance, and bone absorptionmetry. Prerequisites: Physics [PHYSCS] 1220 and Mathematics [MATH] 1400.

**NUCMED 4329: Radiopharmaceuticals in Nuclear Medicine (3).** Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals. Prerequisites: Chemistry [CHEM] 1320 and instructor's consent.

**NUCMED 4330: PET in Nuclear Medicine (3).** Overview of special isotope production techniques for positron emitting agents; instrumentation concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. Graded on A/F basis only. Prerequisite: Physics [PHYSCS] 1210 and Nuclear Medicine [NUCMED] 4327 or instructor's consent. May be repeated for credit.

**NUCMED 4940: Clinical In Vivo I (6).** Practical experience in the clinical setting with imaging procedures performed in nuclear medicine.

**NUCMED 4941: Clinical In Vivo II (7).** Practical experience in clinical setting with advanced imaging techniques and instrument quality control. Prerequisite: Nuclear Medicine [NUCMED] 4940. Restricted to undergraduate students.

## NURSING COURSES

**NURSE 1000: Advisory Seminar for Nursing (1).** Orientation to the undergraduate nursing program, professional role development, and introduction to the professional milieu. Graded on an S/U basis only.

**NURSE 2000: Nursing as a Profession (3).** Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic, professional, occupational and social perspectives. Examines nursing as subsystem of the health care system. Prerequisite: sophomore standing. Restricted to pre-nursing and clinical nursing majors.

**NURSE 2100: Psychosocial and Communication Issues in Nursing (2-3).** Reviews psychosocial and communication issues. Focuses on improving interpersonal communication skills and learning how to provide therapeutic interventions to people with selected mental health issues. An experiential model emphasizes personal skill development strategies. Prerequisites: Sophomore Standing. Restricted to pre-nursing majors only.

**NURSE 3002: Topics in Nursing - Biological, Physical, Mathematical (1-4).** Specialized topics in nursing not available through regularly offered courses. Any semesters, no prerequisites. Sections may be offered either on S/U or A/F basis.

**NURSE 3006: Cultural Expeditions in Nursing (3).** Directed field experiences in varied settings exploring local customs and cultural/ethnic diversities influencing health care delivery. Prerequisite: Nursing [NURSE] 3670 and instructor's consent. Graded on S/U basis only.

**NURSE 3080: Communication and Computer Skills (2).** Introduces RN students to MU and MU Sinclair School of Nursing. Provides education in essential competencies needed for success in the RN-BSN Option including writing skills, computer literacy, library and Internet research. Prerequisite: clinical major.

**NURSE 3100: Pharmacology for Nursing (3).** This course will focus on pharmacological classification and the nurse's role in medication administration and patient education. Medication issues with special populations will be addressed. Prerequisites: Anatomy and Physiology or instructor's consent. May be repeated for credit. Graded on A/F basis only.

**NURSE 3170: Nursing Skills, Technologies, and Simulation (4).** Provides laboratory experiences for fundamental to complex nursing skills and procedures. Focuses on application of therapeutic interventions and procedure to provide safe, patient-centered care. Co-requisite: Nursing [NURSE] 3270.

**NURSE 3180: Role Transitions (3).** Explores returning-to-school issues important to adult learners. Links previous basic nursing courses with baccalaureate courses and begins building new knowledge on prior nursing education. Pre/Co-requisite: Nursing [NURSE] 3080.

**NURSE 3200: Pathophysiology and Therapeutics (4).** Focuses on commonly occurring alterations in health as a result of pathophysiological deviations. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Prerequisite: Anatomy and Physiology.

**NURSE 3260: Pathophysiology (3).** Focus is on commonly occurring alterations in health across the life-span. Development concepts, diagnostics, and treatment modalities are integrated throughout course content. Enrollment requires admission to the accelerated BSN option. May be repeated for credit. Graded on A/F basis only.

**NURSE 3270: Foundations of Nursing: Physical Assessment and the Nursing Process (6).** Provides knowledge and skills in physical assessment and applications of nursing process. Foundational knowledge is applied to individual patients in clinical settings. Pre/co-requisite: Nursing [NURSE] 2000, 2900, 3170, 3200, pharmacology.

**NURSE 3300: Pharmacology and Nursing Implications (4).** This course will focus on pharmacological classifications and the nurse's role in medication administration and patient education. Medication issues with special populations will be addressed. Prerequisite courses: Anatomy & Physiology or consent of instructor. Graded A-F only.

**NURSE 3350: Individual Study (0-6).** Independent study for qualified students in specific areas of interest in nursing under faculty guidance. Prerequisite: instructor's consent. Some sections may be graded A/F only or S/U only.

**NURSE 3470: Mental Health Nursing (4-5).** This course teaches behavioral, social, interpersonal, and systems dimensions of mental health nursing. Emphasis is on therapeutic use of self in assisting clients throughout the life cycle with mental health deviations. Prerequisite: Nursing [NURSE] 3270.

**NURSE 3570: Methods of Assisting II (2).** Expands on Methods of Assisting I. Focuses on application of selected complex nursing interventions to provide direct care in selected nursing situations. Prerequisite: Nursing [NURSE] 3170, corequisite: clinical course.

**NURSE 3670: Nursing of Adults I (6).** Application of nursing process to deliver care for hospitalized adults with health deviations. Evidence, technologies, professional standards and collaboration are used to enhance patient-centered, safe and effective care. Prerequisites: Nursing [NURSE] 3170 and 3270.

**NURSE 3750: Nursing of the Childbearing Family (3).** Provides learning experience with childbearing family. Applies nursing process to promote health and well-being for the childbearing family. Prerequisites: Nursing [NURSE] 3260, 3270, and admission to accelerated BSN option. Graded on A/F basis only. May be repeated for credit.

**NURSE 3760: Pediatric Nursing (3).** Provides learning experiences with children and their families from newborn to adolescents. Examines health alterations that interfere with self-care in and for children. Prerequisites: Nursing [NURSE] 3260, 3270, admission to accelerated BSN option.

**NURSE 3870: Gerontological Nursing Care (3).** Emphasis on normal aging processes, health promotion, disease prevention, and management of acute and chronic health problems in the older adult. Prerequisite: Nursing [NURSE] 3270.

**NURSE 3900: Introduction to Nursing Science (3).** Introduces nursing as a science from the perspective of knowledge development. Structures nursing knowledge from a self-care deficit nursing theory perspective. Presents nursing research as a method of knowledge development and validation. Prerequisite or concurrent: Statistics. Must be a clinical nursing major.

**NURSE 4200: Nursing Ethics and Law (3-4).** Analyzes clinical nursing situations using ethical principles and decision-making models. Examines the basic doctrines and principles foundational for providing legally sound nursing practice. Pre/Corequisite: Senior Clinical Major or Nursing [NURSE] 3080.

**NURSE 4270: Nursing of Children (5).** Nursing of children with acute and chronic health and developmental deviations. Self-care and dependent care abilities are emphasized. Content includes health promotion for infants and children. Prerequisites: Nursing [NURSE] 3670 and 3770.

**NURSE 4300: Nursing Issues/Leadership and Management (2).** Examines leadership and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal/political issues and trends related to nursing and contemporary health care. Pre/

Corequisite: Nursing [NURSE] 3670 or 3180 or instructor's consent.

**NURSE 4380: Health Assessment and Pathophysiology (4).** Examines biologic basis for selected commonly occurring diseases throughout the lifespan. Study and performance of health assessments with application of findings to adults and children. Prerequisites: Nursing [NURSE] 4950.

**NURSE 4400: Nursing Leadership and Management (2).** Examines leadership, management, and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal and political issues and trends related to nursing and contemporary health care. Prerequisite: Nursing [NURSE] 3080; Pre/Co-requisite: NURSE 3180. Graded on A-F basis only.

**NURSE 4470: Nursing of Women and Newborns (5).** Focuses on newborn care, women's reproductive and postreproductive health, and health deviation concerns of women and newborns. Emphasizes development, implementation, and evaluation of nursing systems for families and their members. Prerequisite: Nursing [NURSE] 3270.

**NURSE 4600: Women's Health (3).** A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations.

**NURSE 4870: Nursing of Adults II (7).** Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering care for sets of clients. Prerequisites: Nursing [NURSE] 4270, 4370; or pre/corequisite: 4300.

**NURSE 4875: Principles of Public Health Nursing: Population-Based Practice (4).** Focuses on population-based concepts of public health nursing and application to practice through completion of a major project. Designed for practicing public health nurses employed in local public health agencies in Missouri. Prerequisites: RN license and employed in Public Health in Missouri. Course may be repeated for credit. Graded on A/F basis only.

**NURSE 4930: Evidence-Based Nursing Practice (5).** Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes. Prerequisite: Nursing [NURSE] 4950.

**NURSE 4950: Nursing Theory and Research (3).** Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory, primarily Self-Care Deficit Nursing Theory. Pre/corequisite: Nursing [NURSE] 3080.

**NURSE 4970: Nursing in Communities (4-5).** Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations. Prerequisite: Nursing [NURSE] 4270 and 4370; or 3760 or 4580.

**NURSE 4975: The Capstone Experience (1).** Community project-based course that integrates and applies principles previously learned in the RN-BSN curriculum. Open to students who have previously completed Nursing 4875. Prerequisites: Nursing [NURSE] 4875; RN license and employed in Public Health in Missouri. Course may be repeated for credit. Graded on A/F basis only.

## NUTRITIONAL SCIENCES COURSES

**NUTR S 1001: Topics in Nutritional Sciences (cr.arr.).** Supervised study in specialized topic of nutritional sciences.

**NUTR S 1034: Nutrition, Current Concepts and Controversies (3).** Basic nutrition principles and current controversies are presented. Emphasis on role of nutrition in maintaining health as well as exploring

the scientific validity of popular nutrition beliefs. No credit if taken after Nutritional Sciences [NUTR S] 2340.

**NUTR S 1340: Introduction to Exercise and Fitness (3).** This course is a survey of information in the fields of exercise science and physical fitness. It is a required course for students majoring in Nutrition and Fitness, but it is open to non-majors as well. The goal of the course is to provide students with practical information about exercise and how to be physically fit.

**NUTR S 2001: Topics in Nutritional Sciences (cr.arr.).** Supervised study in a specialized topic of Nutritional Sciences.

**NUTR S 2085: Problems in Nutritional Sciences (cr.arr.).** Supervised study in a specialized phase of nutritional sciences. Consent required.

**NUTR S 2222: Landscape of Obesity (3).** The societal, economic, medical, behavioral, and psychological causes and results of the obesity epidemic and potential modes of treatment and prevention. Lecture course. Sophomore Standing Required. Graded A-F only.

**NUTR S 2340: Human Nutrition I (3).** Basic concepts of normal nutrition related to physiological/chemical processes; changing nutrient needs during human life cycle, emphasis on adult; some social/psychological influences on dietary habits. Prerequisites: Organic Chemistry, Medical Pharmacology and Physiology [MPP] 3202 or instructor's consent.

**NUTR S 2340H: Human Nutrition I - Honors (3).** Basic concepts of normal nutrition related to physiological/chemical processes; changing nutrient needs during human life cycle, emphasis on adult; some social/psychological influences on dietary habits. Includes weekly discussion on controversial issues. Prerequisite: Honors eligibility; Organic Chemistry, Physiology, or instructor's consent. Graded A-F only.

**NUTR S 2380: Diet Therapy for Health Professionals (3).** Principles underlying normal nutrition and diet for health and disease. Prerequisites: sophomore standing. Graded on A/F basis only.

**NUTR S 2420: Biology of Healthy Living (2).** (same as Physical Therapy [PH\_THR] 2420 and Biomedical Sciences [BIOMED] 2420). Biology of inactivity as a causal factor in chronic disease.

**NUTR S 2450: Nutrition Throughout the Life Span (3).** Nutritional requirements, challenges, community nutrition programs, and eating patterns throughout the life span with emphasis on health promotion and disease prevention; Role of beliefs, culture, socio-psychological influences, and economic resources in food selection and nutrition/health status. Lecture/discussion course. Prerequisites: Nutritional Sciences [NUTR S] 1034 or 2340 or 2380 or equivalent.

**NUTR S 2460: Eating Disorders (2).** Definition, etiology, treatment, and research related to eating disorders: anorexia nervosa, bulimia nervosa and binge eating disorder/obesity. Graded on A/F basis only. Prerequisites: Nutritional Sciences [NUTR S] 1034 or higher level nutrition course.

**NUTR S 3001: Topics in Nutritional Science (cr.arr.).** Instruction in specific subject matter areas in the field of food science and nutrition.

**NUTR S 3085: Problems in Nutritional Sciences (cr.arr.).** Advanced problems in a selected field of food science and nutrition. Consent required.

**NUTR S 3131: International Nutrition and Exercise Physiology (1-6).** Immersion into and examination of selected cultures - beliefs, practices, policies and social structures around food, physical activity and health. Prerequisite: instructor's and advisor consent. Graded on A/F basis only.

**NUTR S 3280: Food Service I: Introduction to Food Service (3).** Organizational structure and relationships; policy making and implementation; budgeting and cost control; menu as a management tool; sanitation and safety; food preparation; and food delivery systems. Prerequisite: Hospitality

Management [HSP MGMT] 1995.

**NUTR S 3290: Food Service I: Supervised Practice Experience (1).** A practicum designed to expose the student to concepts of quantity food production, evaluation of products and resources, personnel administration and application of food microbiological principles. 4 hours of supervised practice per week. Prerequisites: concurrent enrollment in Nutritional Sciences [NUTR S] 3280; open to students enrolled in the Coordinated Program in Dietetics only.

**NUTR S 3360: Nutritional Assessment Supervised Practice Experience (2).** Supervised practice to develop skills in screening individuals for nutritional risk; use of dietary, anthropometric, laboratory, clinical and sociocultural criteria to assess nutritional status of individuals, 8 hours of supervised practice per week. Prerequisites: concurrently enrolled in Nutritional Sciences [NUTR S] 4360; Open to students enrolled in the Coordinated Program in Dietetics only.

**NUTR S 3370: Nutrition Therapy I: Supervised Practice Experience (3).** Practice and application of principles of nutrition care for selected disease states. 12 hours of supervised practice per week. Prerequisites: Concurrently enrolled in Nutritional Sciences [NUTR S] 4370; Open to students enrolled in the Coordinated Program in Dietetics only.

**NUTR S 3390: Teaching and Counseling Techniques in Nutrition (2).** Principles and theories of learning; Resources, methods and techniques for teaching food/nutrition principles and dietary guidelines; Group dynamics and facilitation; Introduction to counseling theories and methods used in nutrition care of individuals. Lecture course. Prerequisites: Psychology [PSYCH] 1000 and Nutritional Sciences [NUTR S] 2340.

**NUTR S 3400: Teaching & Counseling Techniques in Nutr. Supervised Practice Exp (1).** Skill development and practice in counseling individuals for health promotion and disease prevention and the teaching of food and nutrition topics to groups. 4 hours of supervised practice per week. Prerequisites: concurrent enrollment in Nutritional Sciences [NUTR S] 3390; Open to students enrolled in the Coordinated program in Dietetics only.

**NUTR S 3590: Community Nutrition Supervised Practice Experience (1).** A practicum which explores and applies the concepts and techniques of nutrition programming in a community setting. 4 hours of supervised practice per week. Prerequisites: Nutritional Sciences [NUTR S] 2590; Open to students enrolled in the Coordinated Program in Dietetics only.

**NUTR S 3800: Prevention and Care of Athletic Injury (2).** Theory, practice in prevention, emergency care, rehabilitation of injuries encountered in vigorous games. Prerequisite: Pathology and Anatomical Sciences [PTH AS] 2201.

**NUTR S 3810: Advanced Athletic Training (3).** Advanced study in areas of prevention, evaluation, care, and treatment and rehabilitation of athletic injuries at high school and college level. Graded on A/F basis only. Prerequisite: Nutritional Sciences [NUTR S] 3800 and instructor's consent.

**NUTR S 3900: Field Training in Nutritional Sciences (cr.arr.).** Prerequisites: junior or senior standing and instructor's consent.

**NUTR S 4001: Topics in Nutrition and Exercise Physiology (1-3).** Instruction in specific subject matter areas in the field of nutrition science and exercise physiology.

**NUTR S 4020: Monogastric Nutrition (3).** (same as Animal Science [AN SCI] 4312 and Nutrition [NUTRIT] 7020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A/F basis only. Prerequisite: Animal Science [AN SCI] 3212 and Biochemistry [BIOCHM] 3630.

**NUTR S 4200: Sports Performance and Conditioning (3).** Course utilizes scientific theory and applied instruction to teach procedures, techniques, and modalities used to improve physical sports performance. Prerequisites: Physiology and Anatomy,

Kinesiology. Junior or Senior senior standing required. Graded on A/F basis only.

**NUTR S 4280: Food Service II: Advanced Food Service Management (1).** Issues related to marketing and financial control in the foodservice sector. Lecture course. Prerequisite: Nutritional Sciences [NUTR S] 3280, NUTR S 3290.

**NUTR S 4290: Food Serv. II: Adv. Food Service Manage. Supervised Practice Exp (2).** A practicum tailored to apply marketing and budgetary principles in the foodservice industry. 8 hours of supervised practice per week. Prerequisite: Concurrent enrollment in Nutritional Sciences [NUTR S] 4280; Open to students admitted to the Dietetics program.

**NUTR S 4330: Human Nutrition II Laboratory (2).** A techniques course in nutrition, usually taken concurrently with Nutritional Sciences [NUTR S] 4340. Prerequisites: NUTR S 2340, Biochemistry and instructor's consent.

**NUTR S 4340: Human Nutrition II Lecture (3).** Physiological and biochemical aspects of nutrition; functions of methods of measuring nutritional status; various aspects of applied nutrition. Continuation of Nutritional Sciences [NUTR S] 2340. Prerequisites: NUTR S 2340, Biochemistry or instructor's consent.

**NUTR S 4360: Nutritional Assessment (3).** Introduction to the nutrition assessment process. The identification of dietary, anthropometric, laboratory, clinical and sociocultural parameters used to assess nutritional status of individuals. Lecture course. Prerequisites: Psychology [PSYCH] 1000, Nutritional Sciences [NUTR S] 2340.

**NUTR S 4370: Nutrition Therapy I (3).** In-depth study of physiological/biochemical changes in selected disease states (cardiovascular disease, rehabilitation, diabetes and cancer); development of principles underlying nutrition therapy. Lecture course. Prerequisites: Nutritional Sciences [NUTR S] 4360.

**NUTR S 4380: Nutrition Therapy II (2).** Evaluation, design and monitoring of the nutrition care of complex health disorders such as renal disease, trauma, and multi-system organ failure; emphasis on nutrition support (enteral and parenteral nutrition). Lecture course. Prerequisites: Nutritional Sciences [NUTR S] 4370.

**NUTR S 4381: Nutrition Therapy II: Supervised Practice Experience (4).** Practice in the nutrition care of complex health disorders with emphasis on nutrition support. 16 hours of supervised practice per week. Prerequisites: concurrent enrollment in Nutritional Sciences [NUTR S] 4380; Open to students admitted to Dietetics program only.

**NUTR S 4390: Issues in Dietetic Practice (1).** Lectures and discussions focus on issues and trends in dietetics. Discussions are used to encourage the development of skills and attitudes which foster life-long professional learning. Lecture/discussion course. Prerequisite: Nutritional Sciences [NUTR S] 4950 and 4380; or instructor's consent.

**NUTR S 4590: Community Nutrition (3).** Public health nutrition and chronic disease prevention, food security, nutrition programs and food access, public policy, sustainable agriculture and food production systems, cultural food practices, needs assessment. Prerequisites: Nutrition course or instructor's consent. Graded on A/F basis only.

**NUTR S 4850: Physiology of Exercise (3).** Effects of exercise on the human organism; physiologic capacity and limitation for activity; role of exercise in health and fitness. Prerequisite: Medical Pharmacology and Physiology [MMP] 3202, Pathology and Anatomical Sciences [PTH AS] 2201 recommended.

**NUTR S 4860: Exercise Prescription (3).** Course investigates theory and methods of testing and prescribing exercise for circulatory fitness, body composition, muscle strength, joint and muscle ranges in motion, and posture. Prerequisites: Health Professions [HTH PR] 4250 and Medical Pharmacology and Physiology [MPP] 3202. Graded on A/F basis only.

**NUTR S 4940: Internship in Nutritional Science and Exercise Physiology (1-6).** Combines study, observation and employment in an area of exercise physiology and/or nutrition. Written reports, faculty evaluation. Prerequisites: GPA  $\geq$  2.5; 90 hours including four core courses in nutrition and exercise physiology; instructors consent.

**NUTR S 4950: Capstone: Research in Nutritional Sciences (2).** Introduction to research, including the types of basic, clinical, and outcomes-based research. Defining research problems related to nutrition and exercise sciences, developing hypotheses, reviewing scientific literature, writing research protocols, analyzing data. Lecture course. Prerequisites: Nutritional Sciences [NUTR S] 2340, statistics course, and senior standing or instructor's consent.

**NUTR S 4951: Nutrition Research Communication (1).** Analyze and interpret data; present results of a research study in manuscript and seminar presentation formats. Emphasis on effective communication of nutrition research to scientific and lay audiences. Prerequisite: Nutritional Sciences [NUTR S] 4950 or instructor's consent; Dietetics: 4 hours of SPE per week. Graded on A/F basis only.

**NUTR S 4960: Readings in Nutritional Sciences (cr.arr.).** Prerequisites: 8 hours of course work in field of subject and instructor's consent.

**NUTR S 4970: Nutrition Capstone: Sports Nutrition (2).** Integration of research literature with knowledge from previous coursework, emphasis on sports nutrition research, nutrient requirements of athletes, critical evaluation of ergogenic aids. Prerequisites: Statistics [STAT], Nutritional Sciences [NUTR S] 2340, Physiology, Senior Standing, open to Nutrition and Fitness majors only. Graded on A/F basis only.

**NUTR S 4975: Practice of Dietetics Supervised Practice Experience (10).** Supervised practice in providing quality nutrition services in clinical, community, management and specialty settings. 40 hours of supervised practice per week. Prerequisites: Nutritional Science [NUTR\_S] 3590, 4280, 4290, 4380, 4381, and 4590; Open to students admitted to the Dietetics Program only.

## OCCUPATIONAL THERAPY COURSES

**OC THR 1000: Introduction to Occupational Therapy (1).** Introductory course to provide students information about the occupational therapy profession. Registered therapists lecture on clinical aspects. Students participate in discussions on program requirements, placement, and trends in the profession.

**OC THR 2001: Topics in Occupational Therapy (cr.arr.).** Organized study of selective topics in occupational therapy. Particular topics and credit hours may vary from semester to semester. Prerequisites: freshman or sophomore standing; instructor's consent. Repeatable upon consent of department.

**OC THR 2085: Problems in Occupational Therapy (cr.arr.).** Independent investigation leading to the completion of a project or paper. Prerequisite: freshman or sophomore standing; instructor's consent.

**OC THR 4001: Topics in Occupational Therapy (cr.arr.).** Organized study of selective topics in occupational therapy. Particular topics and credit hours may vary from semester to semester. Prerequisite: junior standing; instructor's consent. Repeatable upon consent of department.

**OC THR 4060: Professional Issues (1).** Introduction to the structures of the profession including professional association, philosophical and ethical perspectives and preparation for client contact. Includes experiential instruction in infection control. Prerequisite: acceptance into the occupational therapy program. Graded on A/F basis only.

**OC THR 4085: Problems in Occupational Therapy (cr.arr.).** Independent investigation leading to the completion of a project or paper. Prerequisite: junior standing; instructor's consent. Repeatable upon consent of department.

**OC THR 4110: Occupational Therapy in Health and Wellness Promotion (3).** Overview of occupational therapy's role in individual and community health promotion, presented from a wellness perspective. Cultural and sociological implications on health beliefs and behaviors are explored. Includes introduction to complementary and alternative approaches. Prerequisite: Admission to OT professional program. Graded A-F only.

**OC THR 4220: Clinical Kinesiology (3).** (same as Physical Therapy [PH\_THR] 4250). This course for occupational therapy students examines the musculoskeletal system with special emphasis in body movements and the application of laws and biomechanical principles that govern movement in order to select and perform effective occupation-based treatment. Prerequisites: acceptance into the occupational therapy program. Graded on A/F basis only.

**OC THR 4240: Applied Neurophysiology for Allied Health Students (3).** (same as Communicative Science and Disorders [CSD] 4430 and Physical Therapy [PH\_THR] 4240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system. Graded on A/F basis only.

**OC THR 4270: Clinical Pathophysiology (3).** (same as Physical Therapy [PH\_THR] 4270) Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice. Prerequisite: successful completion of prior professional coursework. Graded on A/F basis only.

**OC THR 4310: Foundations of Occupational Therapy (4).** History, contemporary practice, conceptual foundations, professional organizations and official documents of the OT profession are presented. Activity analysis, adaptation, and assistive technology are introduced in the context of promoting health and occupational participation. Prerequisite: Pathology and Anatomical Science [PTH AS] 4222 with a grade of "C" or better. Admission to the OT professional program required. Graded on A-F only basis.

**OC THR 4350: Rehabilitation Practice (4).** Analysis of major disability areas from an occupational perspective. Administration and interpretation of assessments and application of treatment theories and approaches for deficits in movement, sensation, cognition and perception. Must be admitted to the Occupational Therapy Professional Program. Graded on A/F basis only.

**OC THR 4380: Adult Assessment (3).** Occupational Therapy assessment of adults, including occupational performance areas and motor and process skills. Selection of assessments and interpretation of assessment findings will be facilitated through case analysis and performance of assessment in lab situations. Prerequisite: admission to the OT Professional Program. Graded on A/F basis only.

**OC THR 4410: Developmental Framework (4).** Lecture and laboratory course designed to provide an understanding of childhood development and prepare students to administer common developmental assessments for infants and young children. Also includes on-site observation of children with typical and atypical development. Prerequisites: admission to professional Occupational Therapy program. Graded on A/F basis only.

**OC THR 4450: Pediatric Practice (3).** Lecture and laboratory course designed which addresses OT pediatric frames of reference and theories. Common conditions seen in OT practice as well as interventions such as feeding, positioning, facilitation of movement and sensory strategies are also addressed. Prerequisite: Admission to the OT professional program. Graded on A/F basis only.

**OC THR 4520: Fundamentals of Occupational Therapy (4).** This course will provide an overview of disability across the lifespan, including personal and professional interactions. Professional values, ethics and advocacy are also emphasized. Restricted to students currently enrolled in the Occupational Therapy Program. Graded on A/F basis only.

**OC THR 4550: Psychopathology (2).** Introduction to diagnosis, symptoms, assessments, and treatments of common disorders seen in mental health practice. Restricted to Occupational Therapy Majors.

**OC THR 4770: Community-Based Practice (3).** Focus on role of occupational therapy in prevention, health and wellness. Program development and evaluation completed through community needs assessment and completion of health promotion project. Prerequisite: acceptance into major and completion of program year 1. Graded on A-F only basis.

**OC THR 4920: Clinical Documentation (2).** Development of observation and assessment skills related to effective documentation of occupational therapy services. Emphasizes exposure to various clinical settings, and third party payers, and legislative policies impacting documentation. Graded on A/F basis only. Restricted to students admitted to the professional program.

**OC THR 4942: Fieldwork I: Adults (2).** This course examines the aging process through latest research and knowledge. It provides field placement for observation of the OT process, including therapeutic relationships and professional communication. Prerequisite: admission to the OT Professional Program. Graded on A/F basis only.

**OC THR 4943: Fieldwork: Clinical (1).** Clinical experience in occupational therapy settings. Emphasis on classroom to clinical transition. Exposure to the occupational therapy process; assessment, planning, implementation. Emphasis on professional communication and observational skills. Prerequisite: completion of 1st semester in major in professional curriculum; junior standing. Graded on A/F basis only.

**OC THR 4960: Readings in Occupational Therapy (cr.arr.).** Directed readings of the literature and research in occupational therapy. Prerequisite: junior standing, instructor's consent. Repeatable upon consent of department.

**OC THR 4970: Research Methods (3).** This course will use writing to explore basic concepts in research design and analysis. Restricted to Occupational Therapy Majors. Graded on A/F basis only.

## PARKS, RECREATION AND TOURISM COURSES

**P R TR 1010: Introduction to Leisure Studies (3).** History of recreation and leisure movement; theories and philosophies of play, recreation and leisure. Developmental stages of leisure services to contemporary status.

**P R TR 1011: Academic Planning & Career Orientation in Parks, Recreation & Tourism (1).** Orientation to the field and analysis of career opportunities in leisure services. Academic planning leading to B.S. in parks, recreation and tourism. Prerequisite: Parks, Recreation and Tourism [P\_R\_TR] major. Must be taken in first semester as a major. Graded on S/U basis only.

**P R TR 1080: Introduction to Sport Management (3).** This course will examine the meaning of sport management in terms of its history, scope, principles, issues and future trends. In addition, this course examines the job responsibilities and competencies required of sport managers in a variety of sport organizations. Graded A-F only.

**P R TR 1081: Sport Facility Design (1).** This course will investigate the functions of management in terms of design, implementation, operating and financing public assembly facilities in order to help sell the sport product. Venues such as public and private arenas, coliseums and stadiums will be studied. Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Graded on A-F basis only.

**P R TR 1084: Recreational Shooting Sports (1).** This course provides introductory instruction and hands-on shooting with an introduction to shooting range management. Instructor's consent required. Graded A-F only.

**P R TR 1085: The Sports Page (1).** This course is offered to introduce students to Sport Management by discussing the variety of sports, issues, perspectives and people that make the daily sport page worth reading. Prerequisites: Parks, Recreation and Tourism [P R TR] 1080. Instructor consent required is P R TR 1080 is co-requisite. Graded A-F only.

**P R TR 1091: Research & Descriptive Statistics for Parks, Recreation and Tourism (3).** An introduction to research methods and techniques and descriptive statistics and their application in the field of recreation and park administration. Math Reasoning Proficiency Course.

**P R TR 2082: Domestic and International Sports Environment (1).** This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. profession sports. Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Graded on A/F basis only.

**P R TR 2083: Technological Advancement in Sport (1).** This course will teach students how to solve sports technology problems they will face in their future career, plus develop computer aided design and manufacturing skills. They will also gain skills in team work, communication and presentation, IT, research and project management. Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Graded on A/F basis only.

**P R TR 2101: Topics in Park, Recreation and Tourism (1-3).** Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**P R TR 2103: Topics in Park, Recreation and Tourism - Behavioral Science (1-3).** Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**P R TR 2104: Topics in Park, Recreation and Tourism - Social Science (1-3).** Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**P R TR 2107: Aquatics Science (3).** A scientific perspective on water chemistry, preventive maintenance of aquatic facilities with an emphasis on the newest safety and engineering design information and construction techniques.

**P R TR 2111: Introduction to Planning and Evaluating Leisure Environments (3).** Presentation of basic planning principles. Evaluation of existing areas and facilities based upon planning guidelines. Consideration of park plans, standards, terminology, map preparation and evaluation.

**P R TR 2115: Consortium Field Experience (1-3).** An organized undergraduate experiential learning opportunity. Prerequisite: instructor's consent.

**P R TR 2140: Camp Leadership and Management (3).** Organization and administration of camps; program planning; selection and training of staff; camp site selection and development; health and safety; camp history, standards, trends; practical application of camp craft skills. Prerequisite: instructor's consent.

**P R TR 2142: Leadership of Social Recreation (2).** Study and practice in techniques of leading social activities suitable for various social settings. Offered periodically.

**P R TR 2143: Organization and Conduct of Recreation Centers (2).** Problems of operation, management of playgrounds, recreation centers.

**P R TR 2182: Ethics and Current Issues in Sports (1).** Ethical strategies of sport management will be emphasized in all management decisions and current issues that today's sport business professional faces will be studied. Prerequisites: instructor's consent. Graded on A/F basis only

**P R TR 2206: Introduction to Leisure Service Management (3).** An introduction to public recreation in local government. Prerequisites: Parks, Recreation And Tourism [P R TR] 1010, 1011, 2111 or instructor's consent.

**P R TR 2281: The Business of Sport (3).** This course focuses on the business side of sport management, considering issues of marketing, sponsorship, and sales. Students will also be presented with actual models relevant to working in sales in the competitive sport environment. Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Graded on A/F basis only.

**P R TR 3185: Sports Economics and Finance (3).** This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp the importance of financial and economic decision making. Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Graded on A/F basis only.

**P R TR 3189: Pre-Internship Seminar in Parks, Recreation and Tourism (1).** The course is designed to prepare students for 4940 Parks, Recreation and Tourism Internship. Emphasis is placed on students' responsibilities prior to enrollment in Parks, Recreation and Tourism [P R TR] 4940, selecting internship sites and completing internship requirements.

**P R TR 3210: Personnel Management and Leadership in Leisure Services (3).** Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships, attitudes, supervision, motivation and group functioning.

**P R TR 3215: Program Development in Leisure Services (3).** Fundamental principles and techniques of program development; seasonal, year round, specialty areas and total agency program planning. Prerequisites: Parks, Recreation And Tourism [P R TR] 1010, 1011, or instructor's consent.

**P R TR 3220: Introduction to Recreation for Individuals with Disabilities (2).** Principles, concepts and historical development of recreation for individuals with disabilities. Explanation of attitudes, issues, practice and barriers related to recreation participation.

**P R TR 3227: Introduction to Therapeutic Recreation (3).** An investigation of therapeutic recreation service delivery models of the Parks, Recreation and Tourism 2111 and disabled in both institutional and community settings. Particular emphasis will be placed on advanced leadership and therapeutic interactional skills and dynamics.

**P R TR 3230: Introduction to Parks and Outdoor Recreation Services (3).** An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**P R TR 3231: Principles of Interpretive Outdoor Recreation (3).** Interpretive principles and techniques employed to communicate values, natural history and cultural features to the recreation user.

**P R TR 3282: Governance and Policy in Sport and Leisure (3).** This course serves as a comprehensive study in examining how leisure organizations address fundamental issues of governance and policy. Through careful use of policy and understanding of governance, organizations often form strategies in their attempts to gain an advantage. Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Graded A-F only.

**P R TR 4208: Administration of Leisure Services (3).** Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator.

**P R TR 4312: Planning Recreation and Leisure Environments (3).** Practical application of basic planning principles and design. Layout and design of

various leisure-oriented areas and facilities. Site planning and analysis.

**P R TR 4315: Senior Seminar in Leisure Services (3).** Presentation of professional principles and issues in leisure services. Seminar study resulting in presentations and discussions. Prerequisites: Pathology and Anatomical Sciences [P\_R\_TR] majors, professional core or instructor's consent.

**P R TR 4327: Operation of Therapeutic Recreation: Procedures and Principles (3).** Theories and principles of leadership and programming as they apply to recreation services for the ill, handicapped, and aged.

**P R TR 4328: Leisure and Aging (3).** Basic understanding of problems/needs of later maturity in relation to recreation. Characteristics/capabilities of aged, program settings, financial support, planning guidelines emphasized. Objectives: provide fundamentals for recreation planning with aged individuals/groups. Offered periodically.

**P R TR 4329: Therapeutic Recreation Education/Counseling Techniques (3).** Techniques and models of leisure facilitation for use within a variety of clinical, residential and Institutional models. Theories of positive/negative leisure engagement reviewed.

**P R TR 4330: Therapeutic Recreation Assessment/Evaluation Procedures (3).** Reviews accepted clinical protocols for determining a client's physical, emotional, social and cognitive levels of functioning. Competencies in administering, scoring and interpreting multiple tools included.

**P R TR 4331: Administration of Outdoor Recreation - Education Programs (3).** Philosophies, essential principles, methods, techniques, resources, administrative and program practices for outdoor recreation and education. Offered periodically.

**P R TR 4333: Park Management (3).** Basic principles, practices and problems involved in managing public park systems. Consideration given to local, district, county, state, federal and foreign park systems.

**P R TR 4340: Advanced Recreation Land Management (3).** Advanced study of problems facing forest recreation managers. Topics include rivers recreation, wilderness management and citizen participation in decision making. Offered periodically.

**P R TR 4350: Problems in Parks, Recreation and Tourism (1-3).** Prerequisite: departmental consent.

**P R TR 4355: Private and Commercial Recreation Principles and Practice (3).** Considers principles, practices, influences in public/ private leisure services; influence of tourism/travel on public/private recreation services.

**P R TR 4356: Tourism Management (3).** Introduction to the scope and scale of the tourism industry. Focus on the industry components, concepts, structures, relationships, and issues with regard to accommodation, transportation, travel, regional development, political system, and the economic, social and environmental effects of tourism.

**P R TR 4357: Tourism Planning and Development (3).** Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and implementing tourism and the organization of community resources for developing and controlling a tourism industry. Prerequisite: Parks, Recreation And Tourism [P R TR] 4356.

**P R TR 4385: Legal Aspects of Sport (3).** This course studies the U. S. legal system, its structure and terminology. Legal aspects of contract law, statutory law, constitutional law, intellectual property, torts, negligence, and risk management in sport will be examined. Restricted to Parks, Recreation, and Tourism majors with Sports Management emphasis or instructor consent. Graded on A/F basis only.

**P R TR 4940: Parks, Recreation and Tourism Internship (12).** Supervised professional experience with an approved organization. Course entails weekly reports, case studies, agency evaluations and a special project related to the student's curricular emphasis.

Prerequisite: Parks, Recreation And Tourism [P R TR] 3189, majors only, instructor's consent.

**P R TR 4950: Independent Research in Parks, Recreation and Tourism (1-3).** Independent research project in parks, recreation and tourism. Prerequisite: instructor's consent. Graded on A/F basis only.

## **PATHOLOGY & ANATOMICAL SCIENCE COURSES**

**PTH AS 2000: Basic Pathology (2).** Provides nonmedical students with a general understanding of the essential nature of disease, including mechanisms of its development and cause/effect relationships. Prerequisites: 5 hours Biological Science or equivalent and 5 hours Chemistry or Pathology and Anatomical Science [PTH AS] 2201.

**PTH AS 2201: Human Anatomy Lecture (3).** Basic microscopic and gross human anatomy for Nursing, and Health Profession students. Prerequisite: Minimum cumulative MU GPA of 2.5 required.

**PTH AS 2203: Human Anatomy Laboratory (2).** Laboratory. Study of human microscopic and gross anatomical materials. Minimum cumulative MU GPA of 2.5 and concurrent registration or passing grade (C) in Pathology and Anatomical Science [PTH AS] 2201 required.

**PTH AS 2600: Cytology Female Genital Tract (10).** A definitive study of normal and abnormal cellular changes occurring within the organ system by means of light microscopy with histologic correlation. Prerequisite: instructor's consent.

**PTH AS 2610: Respiratory Cytology (4).** A definitive study of the normal and abnormal cellular changes occurring within the system by means of light microscopy, with histologic correlation. Prerequisite: instructor's consent.

**PTH AS 2615: Cytology of Body Fluids (4).** Normal and abnormal cellular changes within pleural, peritoneal, pericardial and cerebrospinal fluids by means of light microscopy, with histologic correlation. Prerequisite: instructor's consent.

**PTH AS 2620: Gastrointestinal Cytology (4).** A definitive study of the normal and abnormal cellular changes occurring within the system by means of light microscopy, with histologic correlation. Prerequisite: instructor's consent.

**PTH AS 2625: Oral Cytology (2).** Studies normal and abnormal cellular changes within the oral cavity and oropharynx by means of light microscopy, with histologic correlation. Prerequisite: instructor's consent.

**PTH AS 2630: Urinary Cytology (4).** Studies normal and abnormal cellular morphology from kidney, ureter and bladder samples, with histologic correlation. Prerequisite: instructor's consent.

**PTH AS 2685: Special Problems in Cytology (2).** Relating hematologic morphologic findings in conventional body fluid cytology; also review of techniques used in chromosome cultures and karyotyping, with emphasis on sex-related abnormalities.

**PTH AS 3400: Fundamentals of Medical Technology I (3).** Emphasizes diseases and basic laboratory methods used in clinical laboratory areas: microbiology, hematology, immunology, virology, tissue typing, blood banking and chemistry.

**PTH AS 3410: Fundamentals of Medical Technology II (3).** Continuation of Pathology and Anatomical Sciences [PTH\_AS] 3400.

**PTH AS 3415: Fundamentals of Medical Technology III (3).** Continuation of Pathology and Anatomical Sciences [PTH\_AS] 3400 and 3410.

**PTH AS 3420: Clinical Practicum (3).** Presentation and application of concepts and laboratory method used in areas of immunochemistry, toxicology, mycology, uranalysis and cytogenetics.

**PTH AS 3425: Hemostasis (2).** Lectures and laboratory exercises in basic theory and techniques of hemostasis including platelet function and disorders,

plasma coagulation system, acquired and inherited thrombotic disorders. Prerequisites: Pathology & Anatomical Science [PTH AS] 3400, 3410, 3415.

**PTH AS 3430: Clinical Immunology (3).** Antigen-antibody reactions and their role in determining infectious, auto-allergic and inflammatory disease states.

**PTH AS 3435: Blood Banking (3).** Principles and techniques of transfusion practices related through lectures and experience in the blood bank laboratory.

**PTH AS 3440: Clinical Hematology (6).** Lectures and laboratory regarding procedures for diagnosing hematologic disorders. Experience in collection of specimens from patients; staining, counting and identifying blood and bone marrow cells.

**PTH AS 3445: Clinical Microbiology (6).** Diagnostic procedures related to the isolation and identification to infectious microorganisms; bacteria and parasites. Emphasis on human pathogens and their sensitivity patterns with commonly used antibiotics.

**PTH AS 3450: Clinical Chemistry (6).** Principles of quantitative analysis applied to the measurement of substances in biological fluids. Significance of these findings in the diagnosis and treatment of disease.

**PTH AS 3455: Principles of Management and Education (1).** Lectures and discussion of management techniques and theories used in supervising laboratory personnel. Analysis of educational objectives and exam questions.

**PTH AS 3460: Research and Instructional Techniques (3).** Involves library and laboratory research. Includes development of oral and written communications skills.

**PTH AS 3485: Problems in Medical Technology (1-3).** Individual supervised work in a area of interest in medical technology. Prerequisite: instructor's consent.

**PTH AS 3500: Cytology of the Female Genital Tract (8).** A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the female genital tract along with histologic correlation. Prerequisite: senior standing and instructor's consent.

**PTH AS 3510: Cytology of Respiratory Tract (4).** A definitive study by means of light microscopy of normal and abnormal cellular changes occurring with the respiratory tract along with immunohistologic correlation. Prerequisite: senior standing and instructor's consent.

**PTH AS 3515: Cytology of Urinary Tract (4).** A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the urinary tract along with histologic correlation. Prerequisites: senior standing and instructor's consent.

**PTH AS 3520: Cytology of Gastrointestinal Tract (5).** A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the gastrointestinal tract along with histologic correlation. Prerequisites: senior standing and instructor's consent.

**PTH AS 3525: Cytology of Body Fluids (4).** A definitive study of light microscopy of normal and abnormal cellular changes occurring within body fluid along with histologic correlation. Prerequisites: senior standing and instructor's consent.

**PTH AS 3530: Cytology of Breast (2).** A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the breast with histologic correlation. Prerequisite: senior standing and instructor's consent.

**PTH AS 3535: Fine Needle Aspiration Cytology (2).** A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the fine needle aspirations from various body sites along with histologic correlation. Prerequisites: senior standing and instructor's consent.

**PTH AS 3540: Special Procedures in Cytology (2).** Study of hematologic findings in body fluid cytology: chromosome cultures and karyotyping.

Emphasizing sex-related abnormalities; hormonal evaluation of smears from the female genital tract and their clinical significance. Prerequisites: senior standing and instructor's consent.

**PTH AS 3545: Clinical Management (1).** Procedures and processes helpful in operating in cytology laboratory, especially at the supervisory level. Prerequisites: senior standing and instructor's consent.

**PTH AS 3550: Technical Application with Research in Cytotechnology (2).** Research is an area of interest in cytology resulting in a written and oral presentation. Prerequisite: senior standing and instructor's consent.

**PTH AS 3555: Cytologic Preparation (2).** Independent applications of techniques used to prepare cytologic material. Prerequisite: senior standing and instructor's consent.

**PTH AS 3560: Practical Cytotechnology (6).** Independent application of techniques used to examine cytology material in a manage a cytology laboratory. Prerequisite: senior standing and instructor's consent.

**PTH AS 3585: Problems in Cytotechnology (1-3).** Individual supervised work in an area of interest in cytology. Prerequisite: instructor's consent.

**PTH AS 3600: Elementary Histology (3).** Simplified gross and microscopic anatomy of normal organs and tissues commonly found in the routine histopathology laboratory.

**PTH AS 3610: Basic Histotechnology (6).** Theories and technical application of procedures used in the preparation of tissue sections and slides of microscopic examination; including instrumentation, fixation, dehydration, clearing infiltration, embedding, microtomy, H&E staining and coverslipping.

**PTH AS 3615: Special Staining Techniques (6).** Principles and procedures for special staining techniques for carbohydrates, connective tissues, blood, fat and lipids, pigments and minerals, bacteria and fungi, nerve, and other special cell stains.

**PTH AS 3620: Applied Histotechnology (9).** Application of basic histological techniques in the preparation of histologic sections and slides in a clinical setting.

**PTH AS 3625: Research and Instructional Techniques (3).** Involves library and laboratory search. Includes development of oral and written communications skills. Prerequisite: senior students admitted to Histotechnology Curriculum.

**PTH AS 3630: Clinical Management (2).** Supervisory techniques and procedures helpful in operating a histopathology laboratory: including laboratory safety, workload recording, and personnel management in a laboratory situation.

**PTH AS 3635: Basic Disease Processes (2).** Special readings and discussions of basic disease processes of interest to the anatomic pathology laboratory.

**PTH AS 3680: Advances Histotechnology (6).** Advanced and specialized techniques used in the preparation and processing of muscle, nerve and rectal biopsies; special techniques in cytology; electron microscopy; enzyme and immunohistochemistry; plastic embedding and neuropathologic techniques.

**PTH AS 3685: Problems in Histotechnology (1-3).** Individual supervised work in a specialized area of histotechnology. Prerequisite: instructor's consent.

**PTH AS 4200: General Pathology (5).** Basic pathological mechanisms of human disease. Introductory principles of clinical laboratory measurements of altered organ system function studied. Prerequisites: Pathology and Anatomical Sciences [PTH\_AS] 7200, 7220, 7310; and instructor's consent.

**PTH AS 4205: General Pathology Laboratory (3).** Gross and microscopic applied study of basic pathological disease mechanisms. Laboratory assessment of these basic disease mechanisms. Prerequisites: Pathology and Anatomical Sciences [PTH\_AS] 7200, 7220, 7310; or the equivalents; and instructor's consent.

**PTH AS 4210: Seminar in Pathology and Anatomical Sciences (1).** Presentation and discussion of

original investigations and current literature.

**PTH AS 4220: Forensic Pathology and Death Investigation (2).** Forensic Pathology and Death Investigation.

**PTH AS 4222: Gross Human Anatomy (The Health Professions) (7).** Gross structure and neuro-anatomy of the human body; dissection of extremities, back, head, neck abdomen and thorax. Prerequisites: instructor's consent.

**PTH AS 4250: Interpretations of Lab Procedures in Primary Health Care (1).** Discussion and analysis of selected laboratory test procedures used in office and clinic settings involved with primary health care. Prerequisites: graduate level Physiology course and departmental consent.

## PEACE STUDIES COURSES

**PEA ST 1001: Topics in Peace Studies (3).** Underclass topics. Subjects may vary from semester to semester. May be repeated to 6 hours maximum. Graded on A/F basis only.

**PEA ST 1003: Topics in Peace Studies - Behavioral Science (2-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**PEA ST 1004: Topics in Peace Studies (2-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**PEA ST 1005: Topics in Peace Studies - Humanities (2-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A/F basis only.

**PEA ST 1050: Introduction to Peace Studies (3).** Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely. Prerequisites: English [ENGLSH] 1000, sophomore standing.

**PEA ST 1120: Population and Ecology (3).** (Same as Rural Sociology [RU SOC] and Sociology [SOCIO] 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**PEA ST 1150: The Amish Community (3).** (same as Rural Sociology [RU\_SOC] 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change. Prerequisites: Rural Sociology [RU\_SOC] 1000, Sociology [SOCIO] 1000, or Anthropology [ANTHRO] 1000

**PEA ST 1195: Service Learning in Peace Studies (1).** Students will perform significant and long term community service while exploring issues central to peace studies.

**PEA ST 1610: Russia in Modern Times (3).** (same as History [HIST] 1610). Survey of Russian History from 1801 to present.

**PEA ST 2003: Topics in Peace Studies: Behavioral Science (2-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisite: Sophomore standing or instructor's consent. Graded on A/F basis only.

**PEA ST 2004: Topics in Peace Studies - Social Sciences (2-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisite: sophomore standing or instructor's consent.

**PEA ST 2005: Topics in Peace Studies - Humanities (2-3).** Organized study of selected topics.

Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisite: sophomore standing or instructor's consent. Graded on A/F basis only.

**PEA ST 2100: The Vietnam and Iraq Wars: Lessons for the Future (3).** An interdisciplinary analysis of the Vietnam War and the American-led war with Iraq. Course focuses on the reasons that American lost in Vietnam, the reasons it won in Iraq, and the lessons these conflicts provided for America's future. Graded on A/F basis only. Prerequisite: sophomore standing.

**PEA ST 2180: Undergraduate Seminar I in Peace Studies (3).** Conflict Resolution in Theory and Practice. Conflicts are studied in the light of the social and behavioral sciences. Prerequisites: Peace Studies [PEA ST] 1050 or instructor's consent.

**PEA ST 2181: Undergraduate Seminar II in Peace Studies (3).** Contemporary International Conflict: A readings and research seminar in which students will address such problems as global conflicts, the Arms Race and disarmament, global development. Prerequisites: Peace Studies [PEA ST] 1050 or instructor's consent.

**PEA ST 2182: Undergraduate Seminar III in Peace Studies (3).** History and Theory of Nonviolent Action. Study of such cases as Gandhi's Independence, American Civil Rights and Polish Solidarity movements. Prerequisites: Peace Studies [PEA ST] 1050 or instructor's consent.

**PEA ST 2183: Undergraduate Seminar IV in Peace Studies (3).** Images of War and Peace. Study of war and peace in philosophical and religious systems, film, poetry, art, fiction, and the media. Prerequisites: Peace Studies [PEA ST] 1050 or instructor's consent.

**PEA ST 2201: Topics in Peace Studies-General (2-3).** Organized study of selected topics in Peace Studies. Subjects and credit hours may vary from semester to semester. Prerequisite: sophomore standing.

**PEA ST 2220: America in the 1960's (3).** (same as History [HIST] 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period. Prerequisite: sophomore standing.

**PEA ST 2284: Global Environmental Policy Conflicts (3).** (same as Sociology [SOCIO] 2284). Climate change, water supplies, food, sustainability, industrialization, and chemical, oil, radioactive pollution. Activity of transnational corporations, social harm, and formulation of international policies. Analysis of alternatives using criteria of justice: distribution, recognition, participation, legality.

**PEA ST 2320: Spanish Literature in Translation (3).** (same as Spanish [SPAN] 2320). May not be included in area of concentration in Spanish. Subject, such as the literature of the Spanish Civil War, varies with instructor. Prerequisite: sophomore standing.

**PEA ST 2410: Philosophies of War and Peace (3).** (same as Philosophy [PHIL] 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**PEA ST 2710: Politics and the Military (3).** (same as Political Science [POL SC] 2710). Comparative study of post-cold war civil-military relations; military as an interest group, change agent, policy instrument and competitor of civilian politicians.

**PEA ST 2780: World Political Geography (3).** (same as Geography [GEOG] 2780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world. Prerequisites: Geography [GEOG] 1100 or 1200 or sophomore standing.

**PEA ST 3003: Topics in Peace Studies - Behavioral Science (2-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum

of 6 hours with departmental consent. Prerequisite: sophomore standing or instructor's consent.

**PEA ST 3005: Topics in Peace Studies - Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisite: sophomore standing. Graded on A/F basis only.

**PEA ST 3130: Foreigners and Dangerous Women in Greek and Latin Literature (3).** (same as Classical Humanities [CL\_HUM] 3000). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed both their own values and prejudices.

**PEA ST 3230H: Terrorism and Conflict Resolution - Honors (3).** Religious, ethnic, ideological movements; state and international reactions. Case studies from South America, Europe, Africa, Asia. Identifying problems, possible resolution. Dramatized thru discussions, documentaries, role-playing; short term paper, exams.

**PEA ST 3280: Internship in Peace Studies (1-3).** Students work in a peace-related agency or institution for 1 to 3 credit hours. Repeatable for maximum of 6 hours. Prerequisite: departmental consent. S/U graded only.

**PEA ST 3350: Readings in Peace Studies (1-3).** Students may receive 1 to 3 credit hours for doing readings and research in a particular area of peace studies. At least one paper will be required. Repeatable for a maximum of 6 hours. Prerequisite: instructor's consent.

**PEA ST 3400: Politics of the Media (3).** (same as Sociology [SOCIO] 3400). We look at the history and viability of the public sphere in the United States and the integral role of the media to its vitality. We analyze the impact of current trends toward media concentration and debate related issues of bias, censorship, and social control.

**PEA ST 3420: America's Environmental Experience (3).** (same as History [HIST] 3420). Team-taught analysis of American thought and action on physical environment during 19th-20th centuries. Relation between politics, economics, technological change, environmental quality; roles of science, law, regulatory agencies, grassroots action.

**PEA ST 3440: After the Fact: Holocaust in Contemporary History, Art & Literature (3).** (same as German [GERMAN] 3440). Explores responses to the Holocaust from numerous perspectives. Considers how the Holocaust is remembered, memorialized, and debated in a variety of national contexts. Touches on historical, philosophical, and aesthetic points of view. Prerequisites: sophomore standing or instructor's consent.

**PEA ST 3520: Collective Behavior (3).** (Same as Sociology [SOCIO] 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**PEA ST 3521: Group Decision Making Processes (3).** (same as Communications [COMMUN] 3571). Procedures and techniques for interpersonal communication and decision making in small groups. Prerequisite: sophomore standing.

**PEA ST 3550: War and Democracy in Late 5th c. BCE Athens (3).** (same as Classical Humanities [CL\_HUM] 3550). War and Democracy in Late 5th c. B.C.E. Athens explores the discourse on war and peace in Athenian texts and art that survives from the last quarter of the 5th century B.C.E. This was a period of adamantine, unrelenting warfare: the Athenians were fighting the Spartans, Sparta's allies, unaligned cities and several of their own subject states. Prerequisite: any 2000 level CL\_HUM course.

**PEA ST 3600: Criminology (3).** (same as Sociology [SOCIO] 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**PEA ST 3610: Ireland, 1100s to 1850 (3).** (same as History [HIST] 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50. Prerequisite: sophomore standing.

**PEA ST 3611: Ireland, 1850-1923 (3).** (same as History [HIST] 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states.

**PEA ST 3612: Ireland, 1920-Present (3).** (same as History [HIST] 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s. Prerequisites: History [HIST] 3610 and/or 3611 recommended.

**PEA ST 3810: Imperial China (3).** (same as History [HIST] 3810). A survey of China under the Manchu Ch'ing dynasty. Within framework of the dynastic cycle, examines imperial rule, Chinese society, culture, art, internal rebellion, Western intrusion and modernization.

**PEA ST 3840: Nonviolence in the Modern World (3).** (same as History [HIST] 3840 and South Asia Studies [S A ST] 3245). Readings on recent world history, emphasis on Gandhi and nonviolent tradition in America Europe and the Third World. Prerequisite: sophomore standing.

**PEA ST 3870: Social Revolution in Latin America (3).** (same as History [HIST] and Sociology [SOCIO] 3870). Twentieth century social revolutions in selected Latin American countries.

**PEA ST 4003: Topics in Peace Studies - Behavioral Sciences (3).** Upperclass Topics. Subject may vary from semester to semester. Prerequisite: junior standing required.

**PEA ST 4005: Topics in Peace Studies: Humanities (2-6).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Prerequisite: sophomore standing or instructor's consent. Graded on A-F basis only.

**PEA ST 4080: American Foreign Policy from Colonial Times to 1898 (3).** (same as History [HIST] 4080).

**PEA ST 4240: Theory and Practice of Theatre of the Oppressed (3).** (same as Theatre [THEATR] 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues. Prerequisite: instructor's consent.

**PEA ST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present (3).** (same as History [HIST] 4260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy. Prerequisite: sophomore standing.

**PEA ST 4330: Science and Technology of Terrorism and Counterterrorism (3).** (same as Nuclear Engineering [NU ENG] 4330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems. Prerequisite: instructor's consent.

**PEA ST 4331: Nonproliferation Issues for Weapons of Mass Destruction (3).** (same as Nuclear Engineering [NU ENG] 4331). Nonproliferation impact on technology and world events. Prerequisite: junior or senior standing required or instructor's

consent.

**PEA ST 4360: Economic Development (3).** (same as Economics [ECONOM] 4360). The study of less-developed countries including problems of measuring economic growth, analysis of sources of economic growth, causes of changes in economic and social structure, development and trade policies. The consequences of goals and assumptions for development policy are analyzed. Prerequisites: ECONOM 3229 and 3251 or 4351.

**PEA ST 4410: Politics and War (3).** (same as Political Science [POL SC] 4410). Why do wars occur? The function of force and uses of a threat of force. Problems of national security strategy and arms control. Prerequisite: junior standing required.

**PEA ST 4440: Ethical Issues in Communication (3).** (same as Communication [COMMUN] 4440). Exploration and analysis of ethical dimensions intrinsic to human communication. Prerequisite: junior standing or departmental consent.

**PEA ST 4480: War Crimes and Genocide (3).** (same as History [HIST] 4480). This course will explore the development of international law, international consciousness, and U.S. Foreign policy on the two distinct but often related issues of war crimes and genocide during the late 19th and throughout the 20th centuries.

**PEA ST 4510: Western Europe's Foreign Policy (3).** Comparison of foreign policies of the major Western European countries; their roles within the European community. Study of institutions and functioning of the European community and its potential as an emerging world power. Prerequisite: junior standing.

**PEA ST 4520: Political Sociology (3).** (same as Sociology [SOCIO] 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change. MA core course. Prerequisite: Sociology [SOCIO] 3200, 3510, 3520, or 3700.

**PEA ST 4550: Gender and Human Rights in Cross Cultural Perspective (3).** (same as Women's and Gender Studies [WGST] 4550 and Sociology [SOCIO] 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism. Prerequisites: WGST 1120 or SOCIO 2200; senior standing required.

**PEA ST 4600: Political and Social Philosophy (3).** (same as Philosophy [PHIL] 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, liberalism, libertarianism, Marxism, Communitarianism and feminism may be among the views covered. Prerequisite: junior standing.

**PEA ST 4830: Journalism and Conflict (3).** (same as Journalism [JOURN] 4730). Introduction to the basic principles of conflict theory and negotiation, including the sources of conflict, why conflict escalates and what the conditions are for de-escalation, all with a special emphasis on the implications for the working journalist.

**PEA ST 4940: Leadership and Ethics (3).** (same as Naval Sciences [NAVY] 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students. Prerequisite: junior standing.

**PEA ST 4970: Senior Thesis I (3).** Senior essay on a Peace Studies topic requiring major research. Prerequisite: Peace Studies [PEA ST] 1050, senior standing, and instructor's consent.

**PEA ST 4980: Peace Studies Abroad - Social Sciences (3-6).** A study abroad experience organized

by MU and led by MU faculty. Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

## PERSONAL FINANCIAL PLANNING COURSES

**FINPLN 1183: Financial Survival (1).** Examines financial management issues needed to survive the critical college years-credit/credit cards, budgeting/planning, financial aid, loans, common financial mistakes, debt management, setting financial goals, effective use of financial resources. Graded on S/U basis only.

**FINPLN 2083: Financial Planning Careers (1).** This course will provide the student with a broad, general introduction to careers in financial planning. Through readings, introspection, discussions, and guest speakers, the student will develop an understanding of the field.

**FINPLN 2183: Personal and Family Finance (3).** Individual and family finance, with particular emphasis on financial planning, savings, insurance, investments, taxes, use of credit, and financial aspects of housing. Prerequisites: Mathematics [MATH] 1100/1120 with grade of C or above, and sophomore or above standing. Math Reasoning Proficiency Course.

**FINPLN 2185: Consumer as Entrepreneur (3).** The American economic system and marketplace from both a consumer and an entrepreneurial perspective.

**FINPLN 3282: Financial Counseling (3).** Practical course on client financial counseling. Includes development of sales techniques and training, focus on personality strengths and weaknesses, creation of the sales process, and the role of technology in counseling. Prerequisite: Personal Financial Planning [FINPLN] 2183 or instructor's consent.

**FINPLN 3283: Financial Planning: Computer Applications (3).** Development of expertise in analyzing family financial case situations via applications of the mathematics of finance, utilizing computer spreadsheets and family financial management software. Prerequisites: Personal Financial Planning [FINPLN] 2183.

**FINPLN 3285: Financial Planning: Real Estate (3).** Family housing and real estate investments as components of the family's quality of life and asset portfolio. Prerequisites: Personal Financial Planning [FINPLN] 3283; 5-6 hours of Economics [ECONOM]; Statistics [STAT] 1300 or 2500.

**FINPLN 3287: Consumer and Household Economics I (3).** Theory, concepts, principles underlying consumer decision-making, including rationality, uncertainty, optimal search, heuristics, interactive decisions; strategies for their application in the marketplace. Prerequisites: 5-6 hours of Economics [ECONOM].

**FINPLN 4000: Problems in Personal Financial Planning (cr.arr.).** Supervised and independent work. Prerequisites: a 2000- or 3000-level course in field of problem, and senior standing, and instructor's consent.

**FINPLN 4183: Sales Management (3).** Prepares students to enter financial service occupations dependent upon sales and sales management. Attention given to skill development, evaluation of current and best practices. Prerequisites: junior standing; acceptance into professional program; Personal Financial Planning [FINPLN] 2183 Pre- or co-requisite FINPLN 3283 or instructor's consent.

**FINPLN 4187: Tax Planning (3).** Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A/F basis only. Prerequisites: Personal Financial Planning [FINPLN] 2183, 3283; Accountancy [ACCTCY] 2010 or equivalent or instructor's consent. Not

available to Pre-Personal Financial Planning majors.

**FINPLN 4188: Community Agencies and Volunteerism (3).** Service learning in a non-profit community social support agency. Examines economic role of non-profits and volunteerism. Students engage in service and evaluate experience in seminar. Pre/corequisites: Personal Financial Planning [FINPLN] 3282, 4187/7187 or instructor's consent. Graded on A/F basis only. Not available to Pre-Personal Financial Planning majors.

**FINPLN 4189: Financial Planning: Applied Tax Law (3).** This course trains students to become volunteer tax preparers and provides the opportunity to use their skills in a lab setting to prepare personal tax returns for U.S. citizens and resident aliens living in central Missouri. The course also discusses tax law, especially as it applies to clients of the Volunteer Income Tax Assistance site. Prerequisites: Personal Financial Planning [FINPLN] 4187 or instructor's consent.

**FINPLN 4318: Topics in Personal Financial Planning (cr.arr.).** Selected current topics in field of interest. Prerequisites: vary with topic.

**FINPLN 4355: Recent Trends in Personal and Financial Planning (1-3).** For upper-class students who wish additional knowledge and understanding in specific subject matter areas. Prerequisites: vary with the topic.

**FINPLN 4380: Assessing the American Dream (3).** A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology, the economy, mass media and social movements on household resource management. Prerequisite: English [ENGLISH] 1000 and junior standing or instructor's consent.

**FINPLN 4382: Financial Planning: Risk Management (3).** Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance. Prerequisites: Personal Financial Planning [FINPLN] 3283; 5-6 hours of Economics [ECONOM]; Statistics [STAT] 1300 or 2500. Not available to Pre-Personal Financial Planning majors.

**FINPLN 4383: Financial Planning: Investment Management (3).** Introduction to investment for family financial planning. Prerequisite: Personal Financial Planning [FINPLN] 3283; 5-6 hours of Economics [ECONOM]; Statistics [STAT] 1300 or 2500; ECONOM 3229 or instructor's consent. Not available to Pre-Personal Financial Planning majors.

**FINPLN 4386: Financial Planning: Employee Benefits and Retirement Planning (3).** Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered. Prerequisites: Personal Financial Planning [FINPLN] 4382, 4383, or instructor's consent. Not available to Pre-Personal Financial Planning majors.

**FINPLN 4387: Consumer and Household Economics II (3).** Theory of economic behavior examining the household as both consumer and producer of goods and services, human capital investments, intertemporal decisionmaking, and use of computational studies to examine price and income effects. Prerequisite: Personal Financial Planning [FINPLN] 3287 or Economics [ECONOM] 3251; Statistics [STAT] 1300 or 2500.

**FINPLN 4388: Effective Consumer Decision-Making (3).** Theory, concepts, principles underlying consumer decision-making, including rationality, uncertainty, optimal search, heuristics, interactive decisions; strategies for their application in the marketplace. Prerequisites: 5-6 hours of Economics [ECONOM].

**FINPLN 4389: Financial Planning: Case Analysis (3).** The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households. Prerequisites: Personal Financial Planning [FINPLN] 4187, 4382, 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors.

**FINPLN 4393: Financial Planning: Estate and Gift Planning (3).** Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues. Prerequisites: Personal Financial Planning [FINPLN] 4382 and 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors.

**FINPLN 4418: Topics in Personal Financial Planning (cr.arr.).** Selected current topics in field of interest. Prerequisites: instructor's consent.

**FINPLN 4483: Financial Success (1).** Examines financial management issues needed to survive the critical post-college years - managing educational debt; after-school budgeting; auto, health, and other forms of insurance; retirement planning and other investment issues; setting financial goals; effective use of financial resources. Graded on S/U basis only.

**FINPLN 4992: Readings in Personal Financial Planning (cr.arr.).** Prerequisite: 2-3 hours in subject.

**FINPLN 4993: Internship in Personal Financial Planning (cr.arr.).** Prerequisites: junior standing and instructor's consent.

## PHILOSOPHY COURSES

**PHIL 1000: General Introduction to Philosophy (3).** Introduction to traditional philosophical problems and methods of philosophical enquiry. Consideration given to different philosophical theories on the nature of reality, man, nature and God; knowledge and how it is acquired; values and social issues.

**PHIL 1000H: General Introduction to Philosophy - Honors (3).** Introduction to traditional philosophical problems and methods of philosophical enquiry. Consideration given to different philosophical theories on the nature of reality, man, nature and God; knowledge and how it is acquired; values and social issues. Honors eligibility required.

**PHIL 1100: Introduction to Ethics (3).** Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the "good life"; nature of ethical reasoning and justification.

**PHIL 1100H: Introduction to Ethics - Honors (3).** Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the "good life"; nature of ethical reasoning and justification. Honors eligibility required.

**PHIL 1150: Introductory Bioethics (3).** This course approaches moral problems in biomedical and scientific research from a philosophical perspective. First, we'll familiarize ourselves with ethics and political philosophy. Then we'll study the ethical issues that arise in connection with a series of issues, including research involving human and animal subjects, eugenics, the human genome project, cloning and stem cell research. By thinking about these issues, we learn how to think critically about particular moral quandaries, as well as to uncover and examine some of our deepest moral commitments.

**PHIL 1200: Logic and Reasoning (3).** Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**PHIL 1200H: Logic and Reasoning-Honors (3).** Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic. Honors eligibility required.

**PHIL 2000: Philosophical Ideas in Literature (3).** Philosophical ideas and issues revolving around human freedom as these ideas and issues are embodied in great literary works from Plato through Dostoyevski to Burgess. Prerequisite: sophomore standing.

**PHIL 2005: Topics in Philosophy-Humanities (1-3).** Organized study of philosophical issues to which no regular course in devoted. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing or instructor's consent.

**PHIL 2010: The Philosophy of Film (3).** (same as Film Studies [FILM\_S] 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**PHIL 2100: Philosophy: East and West (3).** (same as South Asia Studies [S\_A\_ST] 2100). Compares the interpretation and role of philosophical concepts such as experience, reason, permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions. Prerequisite: sophomore standing.

**PHIL 2200: Philosophy and Intellectual Revolution (3).** Examines such revolutions as the Copernican, Darwinian, Marxian and Freudian. What are the new views? How is our place in the universe affected? What puzzles arise in replacing old by new views? Prerequisite: sophomore standing.

**PHIL 2300: Philosophy and Human Nature (3).** Philosophical exploration and examination of theories of human nature with reference to relevant developments in such sciences as biology, psychology, and economics. Prerequisite: sophomore standing.

**PHIL 2350: The Meaning of Life (3).** Does life have meaning, or is it essentially meaningless, absurd? This course will examine some of answers philosophers have given to this and related questions.

**PHIL 2400: Ethics and the Professions (3).** Examination of ethical issues confronted by members of different professions such as medicine, law, business, journalism and engineering. Prerequisite: sophomore standing.

**PHIL 2410: Philosophies of War and Peace (3).** (same as Peace Studies [PEA\_ST] 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age. Prerequisite: sophomore standing.

**PHIL 2420: Ethical Issues in Business (3).** Major theories of moral obligation and justice and their application to business practices. Corporate responsibility, government regulation, investment and production, advertisement, the environment, preferential hiring, etc. through case studies, legal opinions and philosophical analysis. Prerequisite: sophomore standing.

**PHIL 2430: Contemporary Moral Issues (3).** Review of the major contemporary ethical theories and their contribution to the resolution of major social issues such as euthanasia, suicide, abortion, capital punishment, violence and war. Emphasis on nature, interests, and rights of persons. Graded on A/F basis only. Prerequisite: sophomore standing.

**PHIL 2440: Medical Ethics (3).** Considers moral issues posed by developments in biological sciences and medical technology. Topics may include: genetic engineering, abortion and euthanasia, distribution of health care.

**PHIL 2500: Philosophy and Gender (3).** (same as Women and Gender Studies [WGST] 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution. Prerequisite: sophomore standing.

**PHIL 2600: Rational Decisions (3).** Principles for making decisions in a rational way. Special attention to principles that use probabilities and utilities. Some discussion of decisions made in conjunction with other people, and decisions made for other people. Prerequisites: sophomore standing and grade of C or better in Mathematics [MATH] 1100/1120. Math Reasoning Proficiency Course.

**PHIL 2700: Elementary Logic (3).** (same as Linguistics [LINGST] 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations. Prerequisites: sophomore standing and grade of C or better in Mathematics [MATH]

1100/1120. Math Reasoning Proficiency Course.

**PHIL 2820: Introduction to Cognitive Science (3).** (same as Psychology [PSYCH] 2820 and Linguistics [LINGST] 2820). Cognitive science is the interdisciplinary study of the mind. After an overview of the foundations of cognitive science as a whole, we will see what particular sectors of it have to say about mental capacities such as vision, language, categorization, and social cognition. Prerequisites: Psychology [PSYCH] 1000; sophomore standing.

**PHIL 3000: Ancient Western Philosophy (3).** Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life. Prerequisite: sophomore standing.

**PHIL 3100: Medieval Philosophy (3).** Major thinkers from St. Augustine through 14th century Occhamists. Prerequisite: sophomore standing.

**PHIL 3200: Modern Philosophy (3).** Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements. Prerequisite: sophomore standing.

**PHIL 3400: 19th Century Philosophy (3).** A careful and sympathetic study of some of the major thinkers of this period, notably Kierkegaard and Nietzsche. Prerequisite: sophomore standing.

**PHIL 3500: Existentialism (3).** The nature of human existence, the meaning of life, the relation of the individual to nature, society, and any gods that may be, according to Kierkegaard, Nietzsche, Heidegger, Sartre, de Beauvoir, Camus and others. Students are encouraged to come to grips with the issues in relation to their own lives. Prerequisite: sophomore standing.

**PHIL 3600: 20th Century Philosophy (3).** The course will be a survey of some of the notable philosophers/thinkers whose contributions have been made in the twentieth century. Prerequisite: sophomore standing.

**PHIL 3700: Selected Modern Philosophers (3).** Advanced study of a particular philosopher or a number of philosophers from the same school in the modern period. May be taken twice for credit with permission of the department. Prerequisite: sophomore standing.

**PHIL 3800: Selected Contemporary Philosophers (3).** Advanced study of a particular contemporary philosopher or philosophers. May be taken twice for credit with permission of the department. Prerequisite: sophomore standing.

**PHIL 4001: Topics in Philosophy-General (cr. arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition.

**PHIL 4005: Topics in Philosophy-Humanities (cr. arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition.

**PHIL 4100: Philosophy of Language (3).** (same as Linguistics [LINGST] 4100). Examination of contemporary views of the relationship between language, minds, and the world. Prerequisites: junior standing; Philosophy [PHIL] 2700 or instructor's consent.

**PHIL 4110: Advanced Logic (3).** (same as Linguistics [LINGST] 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems. Prerequisites: junior standing and Philosophy [PHIL] 2700. Math Reasoning Proficiency Course.

**PHIL 4120: Selected Topics in Logic (3).** Elementary set theory. Modal logic, the logic of possibility and necessity. Prerequisites: junior standing and Philosophy [PHIL] 2700 or 4110.

**PHIL 4130: Probability and Induction (3).** This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability of a conclusion. The methods of reasoning it treats are at the heart of science and practical affairs. Prerequisite: Philosophy [PHIL] 2700.

**PHIL 4200: Metaphysics (3).** Metaphysics studies what there is and how things are, most generally speaking. Topics may include realism versus nominalism, substance and attribute, facts, modality, identity and causality. Previous work in Philosophy [PHIL] 1000, 3000 or 3200 recommended. Prerequisite: junior standing.

**PHIL 4210: Philosophy of Mind (3).** Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind. Prerequisite: junior standing.

**PHIL 4220: Philosophy of Religion (3).** Considers basis for and nature of religious beliefs. Prerequisite: junior standing.

**PHIL 4300: Epistemology (3).** An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief. Previous work in Philosophy [PHIL] 1000, 3000, 3200 is recommended. Prerequisite: junior standing.

**PHIL 4400: Philosophy of Science (3).** Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to past theories? Examines contemporary philosophical answers to such questions. Prerequisite: junior standing.

**PHIL 4410: Philosophy of History (3).** Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws. Prerequisite: junior standing.

**PHIL 4420: Philosophy of Biology (3).** A survey of philosophical problems arising from consideration of evolutionary theory and the biological sciences. Topics may include reductionism, sociobiology, biological laws, and epistemic problems relating to evolutionary theory. Prerequisite: junior standing.

**PHIL 4500: Theories of Ethics (3).** Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories. Prerequisite: junior standing and one course in Philosophy.

**PHIL 4600: Political and Social Philosophy (3).** (same as Peace Studies [PEA\_ST] 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered. Prerequisite: junior standing.

**PHIL 4610: Philosophy of Law (3).** What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality? Prerequisite: junior standing.

**PHIL 4620: Marxism (3).** A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov. Prerequisite: junior standing.

**PHIL 4700: Aesthetics (3).** Typical components of art; theories of art as representation, form, expression; relation of art to value. Prerequisite: junior standing.

**PHIL 4800: Asian Philosophy (3).** (same as South Asia Studies [S\_A\_ST] 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jain, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy. Prerequisite: junior standing.

**PHIL 4810: Philosophy of India (3).** (same as South Asia Studies [S\_A\_ST] 4810). General development of Indian philosophy. Prerequisite: junior standing.

**PHIL 4850: Special Readings in Philosophy (1-3).** Prerequisite: junior standing.

**PHIL 4950: Senior Seminar in Philosophy (3).** A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course. Prerequisite: senior Philosophy major.

**PHIL 4998: Honors I in Philosophy (3).** Special work for Honors candidates. Prerequisite: junior standing.

**PHIL 4999: Honors II in Philosophy (3).** Special work for Honors candidates. Prerequisite: junior standing.

## PHYSICAL THERAPY COURSES

**PH THR 1000: Introduction to Physical Therapy (1).** Acquaints students with the physical therapy profession including the required educational preparation, practice settings, sample interventions, current issues, trends and research. Graded on S/U basis only.

**PH THR 2420: Biology of Healthy Living (2).** (same as Biomedical Sciences [BIOMED]) and Nutritional Science [NUTR\_S] 2420). Biology of inactivity as a causal factor in chronic disease.

**PH THR 3022: Principles of Physical Therapy (1).** History of physical therapy; the profession; basic skills: first aid, infection control, vital signs; medical terminology. Graded on S/U basis only.

**PH THR 3085: Problems in Physical Therapy (1-3).** Independent study, based upon educational goals, leading to completion of a project or paper. Specific objectives and time line developed with the supervision of a faculty member. Prerequisite: instructor's consent.

**PH THR 4085: Problems in Physical Therapy (1-3).** Independent study, based upon educational goals, leading to completion of a project or paper. Specific objectives and time line developed with the supervision of a faculty member. Prerequisite: instructor's consent.

**PH THR 4120: Introduction to Clinical Education I (1).** Focus on professional attributes of communication, teamwork, problem solving, and therapeutic behaviors in a case-based format. Graded on S/U basis only.

**PH THR 4150: Introduction to Clinical Education II (1).** Continuation of Introduction to Clinical Education I with increased time in clinical settings. Graded on S/U basis only.

**PH THR 4240: Applied Neurophysiology for Allied Health Students (3).** (same as Occupational Therapy [OC THR] 4240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**PH THR 4250: Human Kinesiology (3).** (same as Health Professions [HTH PR] 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport. Prerequisite: Human Anatomy.

**PH THR 4270: Clinical Pathophysiology (3).** (same as Occupational Therapy [OC THR] 4270). Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice. Prerequisite: successful completion of prior professional coursework. Graded on A/F basis only.

**PH THR 4330: Physical Agents (3).** Biophysics, theory and technique concerning the use of physical agents as adjuncts to exercise programs. Includes thermal, electrical, light, hydrotherapy and mechanical agents.

**PH THR 4420: Foundations of Therapeutic Exercise (3).** Physiological basis of exercise throughout

the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems and the effects of injury and disease on these systems.

**PH THR 4480: Medical Testing in Rehabilitation (3).** Diagnostic tests used by disciplines within and outside of physical therapy. Studies include laboratory, nuclear medicine, radiologic, and motion analysis. Emphasis placed on interpretation of results as they apply to physical therapy examination and intervention. Restricted to students accepted into professional major.

**PH THR 4510: Evidence-Based Practice (3).** Clinical research design and methods overview. Critical review of current and historically important professional literature. Effective writing related to clinically applicable research using computer and library resources. Identification of research questions. Prerequisite: departmental consent.

**PH THR 4520: Applied Therapeutic Exercise (3).** Application of therapeutic exercise with an emphasis on evidenced-based exercise prescription, modes and techniques of exercise typically seen in rehabilitation.

**PH THR 4560: Movement Theory and Application (2).** Human sensorimotor development; motor learning; motor control theories; developmental and practical application to exercise; proprioceptive neuromuscular facilitation.

**PH THR 4570: Bridging the Clinical-Research Gap (3).** This class focuses on theories of clinical decision making and Evidence-based Practice, their applications to the clinical setting and dissemination of such information to colleagues in professional forums. Graded on A/F basis only.

**PH THR 4620: Introduction to Orthopedic Physical Therapy with Laboratory (3).** Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; basics of orthopedic manual therapy. Includes laboratory.

**PH THR 4680: Orthopedic Physical Therapy (3).** Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; continuation of orthopedic manual therapy emphasizing the axial skeleton; traction; massage; taping; sport-specific injury rehabilitation; orthotics. Prerequisites: Physical Therapy [PH\_THR] 4620.

**PH THR 4730: Pediatric Physical Therapy (4).** Physical therapy evaluation and treatment of children with movement dysfunction. Emphasis on therapeutic exercise.

**PH THR 4770: Rehabilitation of the Neurologically Impaired Adult (4).** Physical Therapy evaluation and treatment of adults who have incurred neurological deficits; emphasis on the restorative care of individuals following spinal cord injury, stroke, and traumatic head injury.

**PH THR 4790: Pharmacology in Rehabilitation (2).** Principles of pharmacology including pharmacokinetics, pharmacodynamics, and toxicology of common drugs encountered in rehabilitation. Emphasis on pharmacology related to the musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems across the lifespan. Restricted to students accepted into a professional major.

**PH THR 4940: Clinical Education I (4).** Full time, supervised clinical experience addressing application of basic skills in patient evaluation and treatment, documentation and professional behaviors. Graded on S/U basis only.

**PH THR 4945: Clinical Education II (5).** Continuation of supervised clinical education. (Capstone course)

**PH THR 4960: Special Readings in Physical Therapy (1-3).** Independent readings selected in consultation with supervising faculty member. Identified educational goals and activities; discussion, annotated bibliography or report. Prerequisite: instructor's consent.

**PH THR 4965: Directed Readings in Physical Therapy (cr.arr.).** Selected readings on specific topics. Prerequisite: instructor's consent.

**PH THR 4980: Clinical Evaluation and Procedures with Laboratory (3).** Principles and procedures of basic evaluation methods and documentation: muscle strength, range of motion, muscle balance, posture, neurologic tests. Includes laboratory.

**PH THR 4981: Clinical Kinesiology with Laboratory (3).** Advanced Kinesiology addressing functional mobility; specifics of normal human gait; pathokinetics of gait. Assistive devices; wheelchairs; orthoses and prostheses. Includes laboratory.

## PHYSICS COURSES

**PHYSICS 1002: Topics in Physics and Astronomy (1-3).** Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester.

**PHYSICS 1050: Concepts in Cosmology (3).** Introduction to fundamental concepts of modern cosmology. Topics include Olbers' paradox, Hubble expansion, Big Bang, and the Cosmic Microwave Background Radiation.

**PHYSICS 1100: Science and Inventions (1).** This course covers the history of some of the most important inventions in science and their impact on past civilizations, current advances in science and inventions, funding and policies, and critical advances in technology required for future generations.

**PHYSICS 1150: Concepts in Physics (3).** Introduction to fundamental concepts of physics for non-science majors. Concepts include the conservation of energy, the second law of thermodynamics, and the special theory of relativity. Students learn to reason and apply these concepts through writing assignments.

**PHYSICS 1210: College Physics I (4).** First course in algebra-based physics. Covers kinematics, dynamics, fluids oscillatory motion, waves and thermodynamics. Three lectures, one lab weekly. Prerequisite: Mathematics [MATH] 1100/1120. Math Reasoning Proficiency Course.

**PHYSICS 1220: College Physics II (4).** Continuation of 1210. Covers electricity and magnetism, optics and modern physics. Three lectures, one lab weekly. Prerequisite: grade of C- or better in Physics [PHYSICS] 1210. Math Reasoning Proficiency Course.

**PHYSICS 1440: Physics of Sound and Music (2).** The course will be an introduction to acoustics, and the role that fundamentals physics plays in determining what we hear. No formal physics or music background is required, though the ability to read music is preferable. Topics covered will include standing waves, the harmonic series, synthesis, the response of the human ear, different tuning systems, and characteristics of different families of instruments. Prerequisite: Mathematics [MATH] 1100/1120.

**PHYSICS 2002: Topics in Physics and Astronomy - Physical Science (1-3).** Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Prerequisite: College Algebra. Course may be repeated for credit.

**PHYSICS 2100: Thinking Physics (3).** This course investigates motion and force and the relationship between them. Problem-solving skills will be emphasized in addition to hands-on inquiry and deep conceptual understanding. This course is intended to help prepare students for College Physics I or University Physics I. Prerequisites: Mathematics [MATH] 1100. Graded on A/F basis only.

**PHYSICS 2330: Exploring the Principles of Physics (4).** A hands-on course covering topics in Matter, Mechanics, Energy, Light, Sound, Electricity and Magnetism. Pedagogy reflects styles used in K-12 classrooms; emphasis on inquiry, concept development, quantitative applications and technology. Prerequisite: Mathematics [MATH] 1100/1120 and sophomore standing required.

**PHYSICS 2750: University Physics I (5).** First course in calculus-based physics for science and engineering students. Covers kinematics, dynamics,

oscillations, waves, fluids and thermodynamics. Includes a laboratory. Prerequisite: Mathematics [MATH] 1500 or equivalent. Corequisite: MATH 1700.

**PHYSICS 2750H: University Physics I - Honors (5).** First course in calculus-based physics for science and engineering students. Covers kinematics, dynamics, oscillations, waves, fluids, and thermodynamics. Includes a laboratory. Prerequisite: Mathematics [MATH] 1500 or equivalent. Co-requisite: MATH 1700. Honors eligibility required. Graded A-F only.

**PHYSICS 2760: University Physics II (5).** Continuation of Physics [PHYSICS] 2750. Covers electrostatics, elementary circuits, magnetism, electromagnetic phenomena, optics, matter waves and particles and modern physics. Includes a laboratory. Prerequisites: Mathematics [MATH] 1700 and grade of - or better in PHYSICS 2750. Corequisite: MATH 2300.

**PHYSICS 2800: Undergraduate Seminar in Physics (2).** Introduction to the Physics Department and presentation of topics of current interest in physics by faculty and students. Intended for physics majors at the freshman or sophomore level only.

**PHYSICS 3002: Topics in Physics and Astronomy - Physical Science (1-3).** Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Prerequisite: Physics [PHYSICS] 1210 or 2750. May be repeated for credit.

**PHYSICS 3010: Introduction to Modern Astrophysics (3).** (same as Astronomy [ASTRON] 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies. Prerequisite: Physics [PHYSICS] 2760.

**PHYSICS 3020: Astrophysical Techniques (2).** (same as Astronomy [ASTRON] 3020). Elements of modern astronomical instruments, observations and analysis. Prerequisite: Physics [PHYSICS] 3010 or concurrently.

**PHYSICS 3150: Introduction to Modern Physics (3).** Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay. Prerequisite: Physics [PHYSICS] 2760.

**PHYSICS 4050: Electronic Laboratory (4).** Acquaints students with techniques for the electronic acquisition and processing of physics data. Digital logic, integrated circuits, microprocessors and interfacing. Two lectures, 2 labs weekly. Prerequisite: Physics [PHYSICS] 2760.

**PHYSICS 4060: Advanced Physics Laboratory I (3).** Experiments in atomic, nuclear and solid state physics including X-ray and neutron diffraction, NMR and Mossbauer effect measurements. Experiments familiarize students with modern equipment found in most physics laboratories. Two 3-hour labs weekly. Prerequisites: Physics [PHYSICS] 3150.

**PHYSICS 4080: Major Themes in Classical Physics (3).** Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it. Prerequisite: Physics [PHYSICS] 2760.

**PHYSICS 4100: Electricity and Magnetism I (3).** Mathematical preliminaries, properties of charge distributions at rest and in motion, the field concept, introduces electromagnetic radiation. Prerequisites: Physics [PHYSICS] 2760.

**PHYSICS 4102: Topics on Physics and Astronomy-Biological/Physical/Mathematics (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: Physics [PHYSICS] 2760 or instructor's consent, departmental consent for repetition.

**PHYSICS 4110: Light and Modern Optics (4).** Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory. Prerequisite: Physics

[PHYSICS] 2760.

**PHYSICS 4120: Introduction to Thermodynamics (3).** Development of the concepts of temperature, heat, work, entropy, enthalpy and free energy. Applications to gases, liquids and solids. Statistical methods. Prerequisite: Physics [PHYSICS] 2760.

**PHYSICS 4130: Electricity and Magnetism II (3).** Application of Maxwell's equations. Prerequisite: Physics [PHYSICS] 4100.

**PHYSICS 4140: Mechanics (3).** Development of fundamental concepts, principles of mechanics using mathematical methods. Many problems used. Prerequisite: Physics [PHYSICS] 2760.

**PHYSICS 4180: Solar System Science (3).** (same as Geology [GEOL] 4180 and Astronomy [ASTRON] 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution. Prerequisites: Physics [PHYSICS] 1220 or 2760 or instructor's consent.

**PHYSICS 4190: Physics and Chemistry of Materials (3).** (same as Nuclear Engineering [NU\_ENG] 4319, Biological Engineering [BIOL\_EN] 4480 and Chemistry [CHEM] 4490). This course will cover fundamental and applied aspects relating to the Physics, Chemistry and Biology of materials with special emphasis on Nanoscience and Nanomedicine. Consists of lectures and experiments in Nanoscience. Prerequisite: Physics [PHYSICS] 2760 and CHEM 1320 or equivalent and instructor's consent.

**PHYSICS 4230: Scanning Electron Microscopy and X-ray Microanalysis (3).** This course is designed for senior undergraduate/graduate students. This course covers the basic principles and practical considerations using the scanning electron microscope (SEM) and energy-dispersive spectrometry (EDS) in the characterization of materials. Prerequisite: Physics [PHYSICS] 3150 and instructor's consent. Graded on A/F basis only.

**PHYSICS 4250: Stellar Astrophysics (3).** (same as Astronomy [ASTRON] 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation. Prerequisite: Physics [PHYSICS] 3150 or concurrently or instructor's consent.

**PHYSICS 4310: Physics in Cell and Developmental Biology (3).** (same as Biological Sciences [BIO SC] 4310). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions. Prerequisite: Physics [PHYSICS] 1220 or 2760 and BIO SC 2300 or instructor's consent.

**PHYSICS 4350: Galactic Astronomy (3).** (same as Astronomy [ASTRON] 4350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology. Prerequisites: Physics [PHYSICS] 3010, 4140 or instructor's consent.

**PHYSICS 4360: Extragalactic Astronomy (3).** This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution. Prerequisite: Physics [PHYSICS] 2760.

**PHYSICS 4390: Problems in Physics (cr.arr.).** Problems in Physics

**PHYSICS 4400: The Physics of Electronic Devices (3).** This course is designed for graduate and undergraduate students of Physics and Electrical Engineering who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout lecture notes, problem sets, two mid-term and one final exam. Prerequisites: A basic knowledge of modern physics

(electromagnetism and quantum mechanics at the level of Physics [PHYSICS] 3150 or equivalent, or instructor's consent. Graded on A/F basis only.

**PHYSICS 4410: Analysis of Biological Macromolecules and Biomaterials (3).** This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learning/ Writing Intensive approach uses four modules: Proteins, membranes, cellular interactions and biomaterials. Prerequisite: Physics [PHYSICS] 2760.

**PHYSICS 4420: Introduction to Biomedical Imaging (3).** This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray, CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging. Prerequisites: Physics [PHYSICS] 2760.

**PHYSICS 4450: Introduction to Cosmology (3).** Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Prerequisite: Physics [PHYSICS] 3150 or equivalent or instructor's consent. Graded on A/F basis only.

**PHYSICS 4460: Interstellar Medium (3).** The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves. Prerequisite: Physics [PHYSICS] 1220.

**PHYSICS 4500: Computational Biological Physics (3).** Provides a practical introduction (hands-on approach) to the study of the structure and function of biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences. Prerequisite: Physics [PHYSICS] 1220 or 2760 or instructor's consent.

**PHYSICS 4550: Cosmochemistry (3).** (same as Astronomy [ASTRON] 4550/7550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy. Prerequisites: Physics [PHYSICS] 2760 or 1220. Instructor's consent required.

**PHYSICS 4600: Semiconductor Optics (3).** It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering. Prerequisites: Physics [PHYSICS] 3150 or instructor's consent. Graded on A/F basis only.

**PHYSICS 4650: Modern Condensed Matter Physics (3).** Introduces the basic concepts and gives an overview of the latest developments of modern condensed-matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Prerequisites: Physics [PHYSICS] 3150 or instructor's consent. Graded on A/F basis only.

**PHYSICS 4700: Introduction to Methods in Mathematical Physics (3).** Introduces mathematical methods and theories of physics. Topics usually covered are complex analysis, partial differential equations, integral equations and tensor analysis. Prerequisite: Mathematics [MATH] 4100.

**PHYSICS 4800: Introduction to Quantum Mechanics I (3).** Foundations of wave mechanics; wave packets; Schrodinger equation and I-D problems; operators and eigenfunctions, spherically symmetric systems. Prerequisite: Mathematics [MATH] 4100.

**PHYSICS 4810: Introduction to Quantum Mechanics II (3).** Review of quantum mechanics and units, forms of radiation, radiation detectors, spacetime symmetries, internal symmetries, nuclear structure and form factors, low-energy nuclear models, recent developments. Prerequisite: Physics [PHYSICS] 4800 or equivalent.

**PHYSICS 4850: Computational Methods in Physics (3).** Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics. Prerequisite: Physics [PHYSICS] 4800 or instructor's consent.

**PHYSICS 4950: Undergraduate Research in Physics (1-3).** Special studies for advanced undergraduate students in physics covering subjects not included in courses regularly offered. Prerequisites: instructor's consent, departmental consent for repetition.

**PHYSICS 4985: Issues in Modern Physics and Engineering (3).** Students are expected to write a major paper on a selected topic from modern physics or engineering. The paper will review the current state of the experimental and theoretical research on the topic at a level appropriate to their peers. Prerequisite: Physics [PHYSICS] 3150 or instructor's consent.

## PLANT SCIENCE COURSES

**PLNT S 1002: Topics In Plant Science - Biological/Physical/Mathematics (1-4).** Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**PLNT S 1010: Plant Science Orientation (1).** Introduction to perspectives, comprehensiveness, and current issues in the plant sciences. Involves independent learning, faculty interviews, and oral and written communication about agronomy, horticulture, entomology, and plant pathology.

**PLNT S 1020: World Food and You (3).** (same as Food Science [F\_S] 1020). Basic scientific principles involved in production agriculture, food processing, marketing and consumption. Evaluation and understanding of current agriculture issues that affect human foods and required nutrients.

**PLNT S 1125: People, Plants and the Environment (3).** Exploration of the science and niche relationships that exist between people, plants, animals, and the environment. Emphasis placed on urban vs. rural culture, the impact on production agriculture and the world food supply. Prerequisite: restricted to freshmen and sophomores.

**PLNT S 2002: Topics in Plant Science - Biological/Physical/Mathematics (1-4).** Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**PLNT S 2075: Environmental Horticulture (3).** Investigate interrelationships between plants and the environment. Special emphasis placed on improving homeowners' environmental stewardship and their knowledge of sustainable practices. Graded on A/F basis only.

**PLNT S 2100: Introduction to Soils (3).** (same as Soil Science [SOIL] 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems. Prerequisites: 3 hrs of Chemistry.

**PLNT S 2110: Plant Growth and Culture (3).** Principles of plant growth with emphasis on anatomy, morphology, physiology, and environmental factors. Culture of major crop and horticultural species.

**PLNT S 2125: Plant Structure and Function (3).** Introduction to plant structures and how they function to promote plant growth and development, using botany, soils, chemistry and biochemistry to understand how plants make a living. The secret of life on earth is revealed in the study of photosynthesis early in the course. Prerequisites: Biological Sciences [BIO\_SC] 1200; Soil Science [SOIL] 2100; Chemistry [CHEM] 1320.

**PLNT S 2150: Plants for Interior Design (2).** Identification, culture and uses of plants adaptable to or capable of becoming acclimated to interior environments.

**PLNT S 2195: Grapes and Wines of the World (3).** (same as Food Science [F\_S] 2195). Explores the world of wine through study of viticultural principles

and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**PLNT S 2210: Ornamental Woody Plants (3).** Identifies and evaluates trees and shrubs for landscape use. Prerequisite: Biological Science [BIO\_SC] 1010 and 1200.

**PLNT S 2215: Ornamental Herbaceous Plants (3).** Annuals, biennials, perennials, ground covers, and bulbs; their identification, nomenclature classification, culture and use. Prerequisite: Biological Science [BIO\_SC] 1010, 1500, or 1200.

**PLNT S 2220: Floral Design I (2).** Use of flowers and plant materials to create basic floral designs. Students will learn to identify floral material, use tools properly and post harvest care of flowers. Focus on the elements and principles of design. Students take home all designs. Restricted to students with less than 75 credits during early registration. Graded on A/F basis only.

**PLNT S 2254: Landscape Design (3).** Historical overview of the human and environmental relationships with respect to design on the land. Prerequisite: sophomore standing.

**PLNT S 2710: Insects in the Environment (3).** Ways in which insects are adapted for life in particular environments, basics of morphology, taxonomy; how important insect pests affect food and crop production, and principles of control.

**PLNT S 3002: Topics in Plant Science - Biological/Physical/Mathematics (1-4).** Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**PLNT S 3130: Undergraduate Seminar in Plant Science (1).** Discussion of assigned or selected topics in Plant Science. Prerequisite: sophomore standing or above.

**PLNT S 3210: Principles of Weed Science (4).** Introduction to principles of weed growth, reproduction, and impact on human activities. Discussion of weed control techniques and technology, weed identification, and developing weed management strategies. Prerequisite: Plant Science [PLNT\_S] 2110 or Biological Science [BIO\_SC] 1200.

**PLNT S 3213: Genetics of Agricultural Plants and Animals (3).** (same as Animal Science [AN\_SCI] 3213). Concepts of molecular, transmission, and population and quantitative genetics. Special emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: Biological Science [BIO\_SC] 1010, 1020, 1500, Mathematics [MATH] 1100.

**PLNT S 3220: Floral Design II (2).** Continuation of Plant Science [PLNT\_S] 2220. Expansion of skills from introductory floral design. Floral designs created will include larger and more specialized arrangements. Pricing and planning will also be introduced. Prerequisites: PLNT S 2220 with grade of B or above.

**PLNT S 3225: Plant Breeding and Genetics (3).** Mendelian genetic principles and related genetic developments applicable in plant breeding. Discussion of established and new plant breeding procedures applicable to cultivar development. Prerequisite: Plant Science [PLNT\_S] 2110 or equivalent.

**PLNT S 3230: Plant Propagation (3).** Principles and practices of propagation of horticultural plants. Prerequisites: Biological Science [BIO\_SC] 1010 and 1200.

**PLNT S 3240: Principles of Viticulture I (4).** (Same as Food Science [F\_S] 3240) Students will gain knowledge and skills in vineyard establishment, grapevine propagation, yield estimation, harvest and pruning. Knowledge of grapevine physiology, cultivars, and the world's major grape production regions will also be fostered. Prerequisites: F\_S 1010 and F\_S/Plant Science [PLNT\_S] 2195 or PLNT\_S 2100 or PLNT\_S 2110. Graded on A/F basis only.

**PLNT S 3250: Green Industry Bidding (1).** Familiarize the students with the windfalls and pitfalls of competitive bidding within the green industry. We will look closely at all the visible and invisible costs of managing a green related business and then apply these costs to the bidding process. Graded on A/F basis only. Prerequisites: Plant Science major or instructor's consent; sophomore standing.

**PLNT S 3252: Arboriculture and Pruning (1).** Gain an understanding of the concepts and skills associated with establishment and management of urban trees. Emphasis on cultural practices such as planting, fertilization, pruning, chlorosis, oak wilt, and hazard assessment. Examination of the components of a municipal trees ordinance. Prerequisite: Plant Science [PLNT\_S] 2210 or instructor's consent.

**PLNT S 3260: Greenhouse Management (4).** Greenhouse design, environmental control and equipment. Practices associated with plant nutrition management, greenhouse pest control, postproduction handling and marketing of greenhouse crops, and greenhouse management are also covered.

**PLNT S 3270: Forage Crops (3).** Principle forage crops, pasture production, forage preservation and utilization. Prerequisite: Plant Science [PLNT\_S] 2110.

**PLNT S 3275: Grain Crops (3).** Lecture and discussion covering production and utilization, plus growth and development of a wide range of grain crops, including Missouri crops. Problem solving tasks include agronomics, economics and environmental factors. Prerequisite: Plant Science [PLNT\_S] 2110.

**PLNT S 3355: Introductory Turfgrass Management (3).** Characteristics of turf materials, principles of establishment and maintenance. Prerequisites: Plant Science [PLNT\_S] 2100 or instructor's consent.

**PLNT S 3385: Problems in Plant Science (1-4).** Not accepted as a substitute for any regularly scheduled course. Problems arranged with individual faculty member in specific matter area. Prerequisite: consent required.

**PLNT S 3500: Forest Pathology (3).** Provides basic understanding of biotic and abiotic agents which cause forest diseases, and current approaches to disease control. Prerequisite: 5 hours Biological Sciences or equivalent.

**PLNT S 3510: Biology of Fungi (3).** (same as Biological Sciences [BIO\_SC] 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers. Prerequisites: BIO SC 1500, 1100, or 1200 or equivalent.

**PLNT S 3710: Introductory Entomology (3).** (same as Biological Sciences [BIO\_SC] 3710). Holistic biology of insects, including anatomy, physiology, behavior ecology, and management. Prerequisites: BIO SC 1010, 1020, or 1500, or equivalent.

**PLNT S 3715: Insect Diversity (2).** (same as Biological Sciences [BIO\_SC] 3715). Laboratory emphasizing external insect anatomy, classification, and identification to the family level. Insect collection is required. Prerequisite: concurrent enrollment or previous satisfactory completion of Plant Science [PLNT\_S] 3710/BIO SC 3710.

**PLNT S 4002: Topics in Plant Science - Biological/Physical/Mathematics (1-4).** Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**PLNT S 4313: Soil Fertility and Plant Nutrition (3).** (same as Soil Science [SOIL] 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments. Prerequisites: SOIL 2100 or instructor's consent.

**PLNT S 4314: Soil Fertility and Plant Nutrition Laboratory (2).** (same as Soil Science [SOIL] 4314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants. Prerequisite: concurrent enrollment or

previous completion of SOIL 4313.

**PLNT S 4315: Crop Physiology (3).** Basic course on crop growth and development. Emphasis is on physiological processes and morphology of crop plants, and their application to crop breeding and management decisions. Prerequisites: Plant Science [PLNT\_S] 2110 or equivalent.

**PLNT S 4320: Plant Physiology (3-5).** (same as Biological Sciences [BIO\_SC] 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory. Prerequisite: BIO SC 1500 or 1200 and five hours of chemistry.

**PLNT S 4325: Field Crop Breeding (3).** Plant Science 4325 will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed. Prerequisite: Plant Science [PLNT\_S] 2110 and 3225.

**PLNT S 4330: Plant Breeding Theory (3).** Designed to provide a logical application of genetic concepts to mating and selection theory in general improvement of cross pollinated crops. Prerequisite: Plant Science [PLNT\_S] 3225 or equivalent.

**PLNT S 4340: Principles of Viticulture II (4).** (Same as Food Science [F\_S] 4340) To develop an understanding of the factors influencing vine physiology and winegrape quality such as irrigation strategies, canopy management, and disease and pest control. Budgets for profitable operation, mechanized viticulture, and current trends in viticulture will also be covered. Prerequisite: F\_S/Plant Science [PLNT\_S] 3240. Graded on A/F basis only.

**PLNT S 4350: Nursery Crop Production and Management (4).** Operations, methods used by wholesale, retail, landscape nurseries. Field problems, observational trips. Prerequisites: Plant Science [PLNT\_S] 3230 and 3235.

**PLNT S 4355: Advanced Turfgrass Management (3).** Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance. Prerequisites: Plant Science [PLNT\_S] 3355 or instructor's consent.

**PLNT S 4360: Precision Agriculture Science and Technology (3).** (same as Agricultural Systems Management [AG\_S\_M] 4360 and Soil Science [SOIL] 4360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management. Prerequisites: SOIL 2100, Plant Science [PLNT\_S] 2110 or instructor's consent.

**PLNT S 4365: Greenhouse Crops Production (4).** Production management decision and commercial culture of the major floriculture crops. Prerequisite: Plant Science [PLNT\_S] 3260 or instructor's consent.

**PLNT S 4385: Problems in Plant Science (3).** Special problem in plant pathology designed for the minor program in Plant Pathology. Problems arranged on an individual student basis.

**PLNT S 4400: Plant Anatomy (4).** (same as Biological Sciences [BIO\_SC] 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Prerequisites: BIO\_SC 1200 or 1500. Graded on A/F basis only

**PLNT S 4500: Biology and Pathogenesis of Plant-Associated Microbes (4).** The lecture and lab will provide information on disease development in plant populations and possible control strategies combined with training in retrieving and critically reviewing

research information. Prerequisites: 5 hours Biological Sciences, junior, senior or graduate standing.

**PLNT S 4520: Environmental Microbiology (3).** Fundamental knowledge of selected microbial processes that are important in agriculture, environmental detoxification, and microbial biotechnology. Emphasis is on molecular, genetic and physiological aspects of nitrogen metabolism, bioconversions, antibiotics and biocontrol.

**PLNT S 4710: Systematic Entomology (5).** Taxonomy of insects: emphasizes biology and classification of orders and major families. Insect collection required. Prerequisites: Plant Sciences [PLNT S] 3710 and 3715 or 10 hours biological sciences.

**PLNT S 4720: Aquatic Entomology (3).** Identification, life histories, ecology of aquatic arthropods; emphasizes fresh-water insects. For students of wild-life, fisheries management, aquatic biology, advanced entomology. Prerequisites: Plant Science [PLNT\_S] 3710, 3715 and 4304 or equivalent.

**PLNT S 4730: Insect Pest Management for Plant Protection (3).** Identification and importance of insect pests of crops, detection techniques, economic injury levels, and recent development in control techniques of importance to insect management decisions. Prerequisites: Plant Science [PLNT\_S] 3710 and 3715.

**PLNT S 4940: Internship in Plant Science (1-3).** Combines study, observation, and employment with an industry or government agency in area of agronomy or horticulture. Written and oral reports and faculty evaluation. Prerequisites: 60 hours including two courses in department and instructor's consent.

**PLNT S 4950: Undergraduate Research in Plant Science (1-3).** Capstone experience consisting of investigations in Plant Science in support of an undergraduate thesis or special project portfolio. Prerequisites: senior standing in Plant Science Degree Program.

**PLNT S 4965: Special Readings in Plant Pathology (cr.arr.).** Independent readings and discussions of topics in entomology selected in consultation with supervising faculty member. Paper required.

**PLNT S 4975: Advanced Landscape Design (4).** Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design. Prerequisites: Plant Science [PLNT\_S] 2254, instructor's consent.

## POLITICAL SCIENCE COURSES

**POL SC 1004: Topics in Political Science - Social Science (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**POL SC 1100: American Government (3).** Topics covered include Constitution, federalism, civil liberties, political attitudes, interest groups, political parties, nominations, elections, and campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirement.

**POL SC 1100H: American Government - Honors (3).** Topics covered include Constitution, federalism, civil liberties, political attitudes, interest groups, political parties, nominations, elections, and campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirement. Honors eligibility required.

**POL SC 1400: International Relations (3).** Contemporary international affairs including family of nations, control of national foreign policies, competition and cooperation in legal, political, economic, social fields.

**POL SC 1400H: International Relations - Honors (3).** Contemporary international affairs including family of nations, control of national foreign policies, competition and cooperation in legal, political, economic, social fields. Honors eligibility required.

**POL SC 2004: Topics in Political Science - Social Science (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester

to semester. Prerequisite: departmental consent for repetition.

**POL SC 2100: State Government (3).** Government and politics at the state level, with emphasis on Missouri. Meets state law constitutional requirement.

**POL SC 2200: The Judicial Process (3).** Analysis of roles played by American judges and courts in democratic policy formation.

**POL SC 2600: Canadian Politics and Government (3).** Introductory survey of Canada, including constitutional development, governmental institutions, political participation, and Canadians' political attitudes and behaviors. Prerequisite: sophomore standing.

**POL SC 2700: Comparative Political Systems (3).** Analysis of major political systems selected from Europe, Asia, Africa, and Latin America, emphasizing basic concepts of comparative political study. Prerequisites: Political Science [POL\_SC] 1100.

**POL SC 2700H: Comparative Political Systems - Honors (3).** Analysis of major political systems selected from Europe, Asia, Africa, and Latin America, emphasizing basic concepts of comparative political study. Prerequisites: Political Science [POL\_SC] 1100. Honors eligibility required.

**POL SC 2720: European Democracies (3).** This course provides an introduction to the institutions and issues in contemporary European political systems. It covers domestic institutions and policies as well as the developments of the European Union. Prerequisites: sophomore standing.

**POL SC 2800: Introduction to Political Theory (3).** Selected great political theorists and their contemporary relevance. How to think critically about political ideas and ideologies. Prerequisite: sophomore standing.

**POL SC 2860: American Political Thought (3).** Examines major themes that shaped three centuries of American political thought, including slavery, religion, and the tension between unity and difference. Readings are drawn from primary sources (Jefferson, Adams, Mason, Tocqueville, Calhoun, Lincoln, Stowe, Baldwin) as well as contemporary analytic commentary on those sources (Bercovitch, Hartz, Wolin, Guinier, Morrison). Prerequisite: sophomore standing.

**POL SC 3000: Introduction to Political Research (3).** This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of "explanation" and "causal reasoning" and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Prerequisite: sophomore standing.

**POL SC 4000: Introductory Statistics for Political Science (3).** Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS. Prerequisites: Mathematics [MATH] 1100/1120 or equivalent, concurrent enrollment in Political Science [POL SC] 4010. Math Reasoning Proficiency Course.

**POL SC 4004: Topics in Political Science - Social Science (cr.arr.).** Organized study of selected topics. Subjects and earnable credit vary from semester to semester. Prerequisite: instructor's consent.

**POL SC 4010: Computing Methods (1).** Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only. Prerequisite: concurrent enrollment in Political Science [POL SC] 4000.

**POL SC 4030: Formal Political Analysis (3).** Introductory course in formal mathematical models of political behavior and political institutions. Topics includes electoral rules, agenda control, measures of power, collective action, constitutions. Prerequisites: Mathematics [MATH] 1100/1120 or equivalent.

**POL SC 4100: Political Parties and Election Campaigns (3).** Development, organization, functions, activities of major and minor political parties; principles and procedures of managing campaigns; campaign finance; election administration. Prerequisites: Political Science [POL SC] 1100 junior standing.

**POL SC 4110: Political Behavior (3).** Economic, psychological, and social dimensions of political behavior; participation, leadership and elites; political attitudes; voting behavior and decision-making processes. Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4120: Politics and the Media (3).** The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking. Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4130: African-American Politics (3).** (same as Black Studies [BL\_STU] 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government. Prerequisites: Political Science [POL\_SC] 1100 and junior standing.

**POL SC 4140: Congress and Legislative Policy (3).** Study of national and state legislative systems and legislative policy making, with emphasis on Congress. Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4150: The American Presidency (3).** Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy. Prerequisites: Political Science [POL SC] 1100 and junior standing.

**POL SC 4160: Interest Groups (3).** Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest groups; lobbying and techniques for influencing public policy in the American political system. Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4170: Politics of the American South (3).** This course focuses on the politics of the American South in the latter part of the 20th century and the early years of the current millennium. For undergraduate credit only. Prerequisite: Political Science [POL SC] 1100, junior standing or instructor's consent.

**POL SC 4200: The American Constitution (3).** Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court. Prerequisites: Political Science [POL SC] 1100; junior standing.

**POL SC 4210: The Constitution and Civil Rights (3).** Civil rights in the American constitutional context emphasizing citizenship, voting rights, purposeful and structural discrimination (age, race, sex, physical), and legal remedies (equal opportunity, affirmative action). Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4220: The United States Supreme Court (3).** Role of Supreme Court in American system of government; particular attention given to reading biographies and writings of the Justices. Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4230: Constitution and Civil Liberties (3).** Civil liberties in the American constitutional context emphasizing freedom of expression (religion, speech, press, assembly), rights of accused and right to privacy. Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4310: Comparative State Politics (3).** Analyzes similarities and differences of state politics and the ways in which such politics are shaped by political and socioeconomic environments of the states. Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4320: Public Policy (3).** Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions. Prerequisite: Political Science [POL SC] 1100, and junior standing.

**POL SC 4370: Issues in Public Bureaucracy (3).** Investigates selected political and administrative problems affecting public bureaucratic units. Context varies. Prerequisite: Political Science [POL SC] 1100 and junior standing.

**POL SC 4380: Politics of Criminal Justice (3).** Course explores the political motivations for and the substantive consequences of state and federal criminal justice policy in the United States. Prerequisite: junior or senior standing.

**POL SC 4400: Theories of International Relations (3).** Surveys Theories of International Relations. Analyzes conceptions of decision-making, foreign policy behavior and international society. Prerequisite: junior standing

**POL SC 4410: Politics and War (3).** (same as Peace Studies [PEA\_ST] 4410). Why do wars occur? The functions of force and uses of a threat of force. Problems of national security strategy and arms control. Prerequisite: junior standing.

**POL SC 4411: Genocide, Terrorism and Civil War (3).** This course explores the conditions that lead to the initiation, escalation and termination of civil wars as well as the causes and targets of terrorism and the effects of genocide.

**POL SC 4412: Strategy and Warfare (3).** Examines strategic theory, traditional forms of warfare (on land, sea, and in the air), as well as irregular warfare and terrorism. Additional topics include weapons of mass destruction, deterrence, and technology. Prerequisite: junior standing or instructor's consent.

**POL SC 4415: Peacekeeping and Intervention (3).** This course will survey the causes and consequences of peacekeeping and intervention as well as assess the conditions that lead to successful and failed missions. Prerequisite: junior standing.

**POL SC 4420: Politics of International Economic Relations (3).** Study of reciprocal interaction between global politics and economics. Includes politics of north/south relations, multinational non-state actors, arms transfers and dependency. Prerequisites: junior standing.

**POL SC 4440: International Organization (3).** Forms and functions of governmental (United Nations, European Union, NATO) and nongovernmental international organizations. Political Science [POL SC] 1100 and junior standing.

**POL SC 4500: The European Union in the Global System (3).** Provides an understanding of the European Union from the perspective of international relations and comparative politics. Topics covered pertain to the institutions, politics and policies of the European Union and its member states. Prerequisites: Political Science [POL SC] 1100, 1400 and junior standing.

**POL SC 4540: American Foreign Policies (3).** Bases, formulation, evaluation of current American foreign policies. Prerequisite: junior standing.

**POL SC 4600: Latin American Politics (3).** Development, present status of political institutions in South America; emphasizes current political problems. Political Science [POL SC] 1100 and junior standing.

**POL SC 4605: Latin American Politics through Film (3).** This course provides an introduction to Latin American politics using the medium of film to illustrate the complexities of political development, regime change, revolutionary movements, and problems facing new democracies such as crime, poverty, drugs, and democratic stability.

**POL SC 4610: European Political Systems (3).** Comparison of political cultures, institutions, and processes of Britain, France, West Germany, and selected smaller countries in Western Europe. Prerequisite: junior standing.

**POL SC 4640: African Politics (3).** (same as Black Studies [BL\_STU] 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives. Prerequisite: Political Science [POL\_SC] 1100 and junior standing.

**POL SC 4660: Canada in North America (3).** This course focuses on the role of Canada in North America. The main topic areas include the evolution of Canada as a political system; political structures and processes; regionalism and social movements; political, economic and social connections with North America; and the future of Canada in North America. Prerequisite: Political Science [POL SC] 2600.

**POL SC 4670: The Political System of the European Union (3).** This course examines the politics, political actors, and institutions of the European Union from a comparative perspective. It questions whether we can view the EU as a federal democratic system similar to the U.S. Prerequisites: Political Science [POL\_SC] 1100 and Junior or Senior standing or consent of instructor.

**POL SC 4710: Terrorism: Religious, Ethnic and Ideological Politics (3).** Terrorism as political violence extending beyond the acts themselves. Examines major modern movements, e.g. Northern Ireland, Basques (Spain), Germany, Algeria, Arab-Israeli, Iran, India, Sri Lanka, Peru, Argentina, Uruguay. Prerequisite: junior standing.

**POL SC 4720: Politics of Development (3).** (same as Black Studies [BL\_STU] 4720). Comparative, interdisciplinary analysis of the politics of developing countries in Asia, Africa, and Latin America. Special attention given to the problems of political and socio-economic development. Prerequisites: junior standing or instructor's consent.

**POL SC 4730: Women and Politics (3).** (same as Women's and Gender Studies [WGST] 4730). This course examines women's political participation and public policies towards women in countries around the world. Prerequisites: Political Science [POL SC] 1100; junior standing.

**POL SC 4740: Comparative Political Culture (3).** Review of the many divergent conceptions of political culture and examination of the dynamics and consequences for the performance of political systems and the behavior of their citizenry. Comparison of particular cultures of selected regions including East Asia, Europe and the Middle East, Latin America, and North America. Prerequisite: junior standing.

**POL SC 4750: Power and Money (3).** This course provides an introduction to comparative political economy by focusing on the following questions. How and why do governments promote economic prosperity? Does democracy make people richer or poorer? Is it true that "money is power"? Can poor countries enjoy a stable democracy? Prerequisite: junior standing.

**POL SC 4760: Comparative Political Parties (3).** This course will explore political parties and party systems in democracies around the world. The course will focus on differences in the number, size, ideology, polarization, and functions of political parties. Prerequisites: Political Science [POL\_SC] 2700 and Junior standing or consent of instructor.

**POL SC 4770: Comparative Political Behavior (3).** Explores research questions related to cross-national differences and similarities in public opinion formation, political culture and values, voting behavior, and other forms of political participation. Violent forms of political participation are also considered. Prerequisite: Junior Standing and Political Science [POL SC] 1100. Graded on A/F basis only.

**POL SC 4800: Classical Political Theory (3).** Great Greek, Roman, and Medieval political theorists on the relation of psychology, ethics, politics, and the best form of government. Prerequisite: junior standing or instructor's consent.

**POL SC 4810: Modern Political Theory (3).** Great political theorists from Machiavelli through Marx on the nation state, capitalism, liberalism, conservatism,

and Marxism. Prerequisite: junior standing or instructor's consent.

**POL SC 4820: Contemporary Political Theory (3).** Great contemporary thinkers on Western vs. Eastern Marxism, existentialism, critical theory, political theologies, postmodernism, feminism, environmentalist ideologies, biological approaches to politics. Prerequisite: junior standing or instructor's consent.

**POL SC 4830: Democracy in America (and Elsewhere) (3).** This course focuses on the dynamics of democracy. We will explore various topics in the history, development, and practice of democracy through an examination of the writings of Alexis de Tocqueville, one of the most insightful and prescient observers of American political culture. Prerequisites: Political Science [POL\_SC] 1000 and Junior standing.

**POL SC 4890: Contemporary Political Analysis (3).** This course introduces public choice writings. Public choice applies economic methods to the study of politics. Topics covered include the appropriate size of the state, how individuals organize to achieve shared goals and how voters chose in elections. Prerequisite: junior standing or instructor's consent.

**POL SC 4940: Political Science Internship (3-6).** Work experience in a public or private organization that is relevant to the political science major coordinated by a faculty member. Prerequisites: junior standing with a 3.0 GPA; or senior standing with 2.67 GPA. Must be in good standing.

**POL SC 4985: Problems in Political Science (cr. arr.).** Independent investigation to meet needs of the individual student. Prerequisite: instructor's consent.

**POL SC 4986: Special Readings in Political Science (cr.arr.).** Independent readings selected in consultation with supervisory faculty member. Prerequisite: instructor's consent.

**POL SC 4995: Political Science Capstone (3).** Readings and discussions in selected areas of political science (comparative, American, international affairs, public administration/policy or theory). Subject depends on instructor. Prerequisites: political science major, senior standing.

**POL SC 4996: Political Science Capstone, Honors (1-6).** Special readings, reports in the several fields of political science. For political science Honors students. Prerequisite: senior standing. Honors eligibility required.

## PORTUGUESE COURSES

**PORT 1100: Elementary Portuguese I (6).** Elementary Portuguese I is designed to give students an overview of the grammar and syntax of Portuguese. Emphasis is on oral and listening skills with some reading and writing.

**PORT 1200: Elementary Portuguese II (6).** Elementary Portuguese II is designed to give students an overview of the grammar and syntax of Portuguese. Emphasis is on oral and listening skills with some reading and writing. Prerequisite: grade of C- or better in Portuguese [PORT] 1100 or its equivalent.

**PORT 2001: Topics in Portuguese-General (1-3).** Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**PORT 2005: Topics in Portuguese-Humanities/Fine Arts (1-3).** Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**PORT 2160: Intermediate Portuguese (3).** Review of grammar through Brazilian culture. Designed for students who have taken either Portuguese 1200 or Portuguese 4070 and wish to continue studying the language. Prerequisite: Portuguese [PORT]1200 OR 4070.

**PORT 2310: Brazilian Civilization (3).** Survey of Brazilian history, arts and culture. Open to any student interested. No knowledge of Portuguese required. Prerequisite: sophomore standing.

**PORT 3001: Topics in Portuguese-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: sophomore standing, departmental consent for repetition.

**PORT 3005: Topics in Portuguese-Humanities/Fine Arts (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: sophomore standing, departmental consent for repetition.

**PORT 3160: Advanced Portuguese Composition and Conversation (3).** Development of more sophisticated skills of written and oral expression. Prerequisite: Portuguese [PORT] 2160.

**PORT 3420: Survey of Brazilian Literature (3).** Masterpieces of Brazilian literature in translation from its origins to present. Prerequisites: sophomore standing.

**PORT 3875: Brazilian Cinema (3).** (same as Film Studies [FILM\_S] 3875). An introduction to Brazilian cinema, culture and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; re-definitions of national identity and history, representations of race and gender. Prerequisite: English [ENGLISH] 1000.

**PORT 4070: Intensive Beginning Portuguese (3).** Designed for rapid acquisition of a reading knowledge of Portuguese. Cannot be taken to fulfill undergraduate language requirement. Prerequisites: instructor's consent.

**PORT 4960: Special Readings in Portuguese (1-3).** Independent study through readings, conferences, reports. Prerequisite: departmental consent.

## PSYCHOLOGY COURSES

**PSYCH 1000: General Psychology (3).** Survey of theories, principles, and methods in the study of human behavior.

**PSYCH 1000H: General Psychology - Honors (3).** Survey of theories, principles, and methods in the study of human behavior. Honors eligibility required.

**PSYCH 1001: Topics in Psychology - General (cr.arr.).** Organized study of selected topics in psychology. Particular topics and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department. Prerequisites: Psychology [PSYCH] 1000.

**PSYCH 1003: Topics in Psychology - Behavioral Science (cr.arr.).** Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department. Prerequisites: Psychology [PSYCH] 1000 and instructor's consent.

**PSYCH 1020: Applied Psychology (3).** Surveys wide range of applications of psychology. Topics include social issues (prejudice and violence), applications to fields such as business and law, applications for personal improvement (improving memory), and others (sports, health, environment). Prerequisite: Psychology [PSYCH] 1000.

**PSYCH 1030: Orientation to the Psychology Major (1).** This course is intended to help students choose the best major for themselves and to provide information on careers available to psychology majors.

**PSYCH 2001: Topics in Psychology-General (cr.arr.).** Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department. Prerequisites: Psychology [PSYCH] 1000.

**PSYCH 2003: Topics in Psychology-Behavioral Science (cr.arr.).** Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors.

Repeatable upon consent of department. Prerequisites: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2110: Learning, Memory, and Cognition (3).** Students will gain an understanding of the fundamental principles of learning, memory and cognition, and will be able to recognize important historical figures and their contributions. Students will also learn how the principles can be applied to their everyday lives. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2210: Mind, Brain, and Behavior (3).** Introduction to the structures and processes of the mind and the nervous system, including the psychobiology of eating, sleeping, emotion, stress and learning. Prerequisite: Psychology [PSYCH] 1000. No credit if taken after PSYCH 4210. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2220: Drugs and Behavior (3).** Basic principles of drug action on the nervous system; the effects of important psychoactive drugs; drug use and society. Prerequisites: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2310: Social Psychology (3).** An introduction to how people's thoughts, feelings and behaviors are influenced by the actual or imagined thoughts, feelings and behaviors of others. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2320: Introduction to Personality (3).** Personality is the scientific study of individual differences (e.g., traits, motives, abilities). This course reviews historical theoretical perspectives as well as current research. Students will have an opportunity to learn about on their own motives and traits. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2410: Developmental Psychology (3).** Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Prerequisite: Psychology [PSYCH] 1000. Cannot receive credit for more than one of the following: PSYCH 2410, Human Development and Family Studies [H\_D\_FS] 2420/3420 or Educational School and Counseling Psychology [ESC\_PS] 2500. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2510: Survey of Abnormal Psychology (3).** Basic survey of maladaptive human behavior and experience, including personality disorders, alcohol and drug abuse, anxiety and mood disorders, sexual dysfunctions, and thought disorders. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2810: Human Sexuality (3).** Survey of research on sexual behavior including sex norms, gender identity, sexual dysfunctions, sexual deviation, homosexuality, and legal aspects of sexual behavior. Attendance at small group discussions may be required at the option of the instructor. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 2820: Introduction to Cognitive Science (3).** (same as Linguistics [LINGST] 2820 and Philosophy [PHIL] 2820). Cognitive science is the interdisciplinary study of the mind. After an overview of the foundations of cognitive science as a whole, we will see what particular sectors of it have to say about mental capacities such as vision, language, categorization, and social cognition. Prerequisites: Psychology [PSYCH] 1000; sophomore standing required.

**PSYCH 2830: Human-Companion Animal Interaction (3).** Exploration of historical and theoretical bases of human-companion animal interaction (HAL), the nature issues, and clinical applications of HAL. Prerequisite: Psychology [PSYCH] 1000. Graded on

A/F basis only.

**PSYCH 2940: Internship in Psychology (3-6).** Work experience in an organization that is relevant to the psychology major. Prerequisites: must be in good standing and have completed 9 credit hours in psychology; instructor's consent. Intended for students with freshman or sophomore standing.

**PSYCH 2950: Special Problems in Psychology (cr.arr.).** Research apprenticeship with a faculty member, assisting a faculty member in the development and execution of research. May be repeated to 6 hours maximum. Prerequisite: instructor's consent.

**PSYCH 3001: Topics in Psychology-General (cr.arr.).** Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department. Prerequisites: Psychology [PSYCH] 1000.

**PSYCH 3003: Topics in Psychology-Behavioral Science (cr.arr.).** Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department. Prerequisites: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3010: Research Methods in Psychology (3).** Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods. Prerequisites: Psychology [PSYCH] 1000, concurrent enrollment in Statistics [STAT] 1300 or a grade of C or better in STAT 1200 (or its equivalent). This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3010H: Research Methods in Psychology - Honors (3).** Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods. Prerequisites: Psychology [PSYCH] 1000, concurrent enrollment in Statistics [STAT] 1300 or a grade of C or better in STAT 1200 (or its equivalent). Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3020: Research Methods in Psychology II (3).** Continuation of Psychology 3010 and required for all further labs in psychology. Prerequisite: Psychology [PSYCH] 1000, and a grade of C or better in PSYCH 3010 and Statistics [STAT] 1200 (or its equivalent). This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3020H: Research Methods in Psychology II - Honors (3).** Continuation of Psychology 3010 and required for all further labs in psychology. Prerequisite: grade of C or better in Psychology [PSYCH] 3010 and Statistics [STAT] 1300. Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3110: Theories of Learning (3).** Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3130: Decisions, Values and Choice (3).** Survey of factors influencing choices and decisions. Topics include cause and effect decisions, values and ethical considerations, outcome likelihood, biases and heuristics, concept formation, self-control and impulsiveness, and social factors. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3140: Cognitive Psychology (3).** A survey of psychological theory and research on human cognition. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3150: Human Memory (3).** Surveys research on human memory, including basic laboratory studies with normal subjects as well as research on amnesia and other memory impairments, life-span memory development, and the cognitive neuroscience of memory. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3160: Perception and Thought (3).** Covers research on various aspects of mental life: language, problem-solving, decision-making, sensory perception. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3310: Intergroup Relations (3).** Provides an overview of the social psychological literature on stereotyping, prejudice, discrimination, and intergroup relations. Students learn theoretical frameworks and research findings regarding the development and maintenance of intergroup conflict. Prerequisites: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3330: Human Aggression (3).** Examines human aggression from a social psychological perspective. Topics include cognitive, affective, developmental, and biological aspects. The effects of media violence and other societal factors are also examined. Prerequisite: Psychology [PSYCH] 2310.

**PSYCH 3410: Infancy (3).** Overview of theory and research on the development of infants and toddlers, with an emphasis on major research methods that are currently in use. Topics include infant perception, sociality, motor development, early communication, language development and attachment. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3420: Cognitive Development in Childhood (3).** Theories and research on cognitive development in childhood. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3430: Social Development in Childhood (3).** Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3510: Introduction to Clinical Psychology (3).** Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology. Prerequisites: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3810: Normal Language Development (3).** (same as Communication Science and Disorders [C\_S\_D] 3020). Language development in children and changes in language processing during normal aging. Cognition and language; language learning processes, language sample analysis; relationship between spoken and written language. Prerequisite: Psychology [PSYCH] 2410 or 3140, or Linguistics [LINGST] 4600. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3820: Environmental Psychology (3).** Survey of the effects of human behavior on the natural environment. Examines strategies for modifying behavior to preserve the environment. Prerequisite: Psychology [PSYCH] 1000.

**PSYCH 3830: Health Psychology (3).** A hands-on approach to the study of health psychology including research on a topic of current relevance to the field. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3860: Law and Psychological Science (3).** This survey course examines the interactions of law and psychology across the justice system. Emphasis is placed on how psychological research does (and does not) inform important legal issues. Requirements may include an in-class team debate of relevant controversy in law. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 3870: Sleep and Sleep Disorders (3).** This course provides a critical review of the current research on both normal sleep and sleep disorders.

**PSYCH 3880: African-American Psychology (3).** (Same as Black Studies [BL\_STU] 3100 and Educational School, Counseling Psychology [ESC\_PS] 3100). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed. Prerequisite: Psychology [PSYCH] 1000. Graded on A/F basis only.

**PSYCH 4001: Topics in Psychology-General (cr. arr.).** Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department. Prerequisites: Psychology [PSYCH] 1000 and instructor's consent.

**PSYCH 4003: Topics in Psychology-Behavioral Science (cr.arr.).** Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department. Prerequisites: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4110: Perception (3).** Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4210: Physiological Psychology (3).** An introduction to neuroscience with an overview of the relation between the brain and behavior. Topics include intercellular communication, drugs and reward, emotions and stress psychoimmunology, psychopathology, nervous system development and repair, perception, cognition, learning and memory. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4220: Animal Learning and Behavior (3).** Survey of animal behavior and learning abilities, including topics such as learning, habitat selection, foraging, problem solving, mating, communication, conditioning and memory. Prerequisite: Psychology [PSYCH] 1000 plus 8 hours of Psychology (exclusive of PSYCH 2950) or Biology. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4240: Cognitive Neuroscience (3).** The neural basis of human information processing in memory, attention, perception, imagery, movement, and language. Prerequisites: Psychology [PSYCH] 2210 or 4210 recommended. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4340: Attitude Change (3).** Theories, methods, and experimental findings in attitude change research. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4350: Stereotypes and Prejudice (3).** This course provides an overview of theory and research on stereotypes, prejudice, and discrimination from a social-psychological perspective. Course material comes primarily from textbook and supplementary readings, in addition to videos related to these topics. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4420: Personality Development (3).** This course covers the topic of temperament and personality development through the lifespan with particular focus on infancy, childhood, and adolescence. Coverage includes classic and contemporary theories and classic and contemporary research. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4430: Literature and Human Lifespan (3).** In this course we will examine the processes of human development as they are reflected in the specific literary and cinematic texts. "Adult" literary and cinematic materials will be supplemented with notable examples of adolescent and children's stories, so that the works (like their subjects) will mirror the life span. This course will also provide an overview of prominent developmental theories/research, which have been devoted to understanding the life span. This course is designed to stimulate active reflection and debate about the impact of literature on human development. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4440: Sex Differences (3).** This course covers the evolution of sex differences and hormonal and environmental influences on their expressions in nonhuman species. These insights are used to understand human sex differences in mate choices, emotions, development, brain and cognition, and in modern societies. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4520: Behavior Genetics (3).** The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level. Prerequisite: Psychology [PSYCH] 3020. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4530: Research in Psychopathology (3).** Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizes experimental and explanatory approaches. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4540: Emotional Disorders in Childhood and Adolescence (3).** Surveys disturbed behavioral development during childhood and adolescence, emphasizing factors that produce deviation from normal developmental patterns. Prerequisites: Psychology [PSYCH] 2410 or equivalent. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4560: Schizophrenia (3).** This course will examine one of the most severe, debilitating, and complex mental disorders. We will review the major symptoms and clinical features of schizophrenia, explore possible causes of Psychology [PSYCH] disorder, and critically assess treatments for the disorder. Prerequisite: PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4570: Pediatric Neuropsychology (3).** Introduction to the field of pediatric neuropsychology and the study of individuals with early brain dysfunction. Common central nervous system disorders of childhood (e.g. autism, ADHD, epilepsy) will be discussed. Prerequisites: Psychology [PSYCH] 1000, PSYCH 2210 or 4240 recommended. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4810: Industrial/Organizational Psychology (3).** Survey of basic and applied personnel and organizational psychology. Focus on the human relations field, job satisfaction, leadership, group dynamics and formal organizational structures within the realm of industry. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4815: Cross-Cultural Psychology (3).** This course aims to explore relationships between cultural variables and human behavior, and to look

at recent attempts by cross-cultural psychologists to devise theories that reflect the cultural, social and developmental perspectives on behavior. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4815H: Cross-Cultural Psychology - Honors (3).** The Cross-cultural Psychology course aims to explore relationships between cultural variables and human behavior, and to look at recent attempts by cross-cultural psychologists to devise theories that reflect the cultural, social and developmental perspectives on behavior. Prerequisite: Psychology [PSYCH] 1000; Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4825: Psychology at the Movies (3).** In this course we watch and discuss films from multiple psychological perspectives. Connections are made between cinematic content and contemporary psychological research on culture and diversity. Race, Gender, Disability, Class, and LGBT issues in movies are explored. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4830: Psychology of Women (3).** (same as Women's and Gender Studies [WGST] 4830). Overview of current theories and research relating to the psychology of women. Topics include gender stereotyping, psychological sex differences, achievement motivation in women, and women and mental health. Prerequisite: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4840: The History of Psychology (3).** Historical foundations of contemporary psychology. Prerequisites: Psychology [PSYCH] 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration.

**PSYCH 4940: Internship in Psychology (3-6).** Work experience in an organization that is relevant to the psychology major. Prerequisites: must be in good standing and have completed 9 credit hours in psychology; instructor's consent. Intended for students with junior or senior standing.

**PSYCH 4950: Special Problems in Psychology (cr.arr.).** Independent investigation leading to a project or paper. Repeatable upon consent of department. Prerequisite: instructor's consent.

**PSYCH 4960: Special Readings in Psychology (cr. arr.).** Independent readings selected in consultation with supervisory faculty member. Repeatable upon consent of department. Prerequisite: instructor's consent.

**PSYCH 4970: Psychological Measurement Capstone (3).** Survey of theories and methods of psychological test construction, focusing on measures of intelligence and personality. Lab component involves experimental training in test construction and test evaluation. Prerequisite: grade of C or better in Psychology [PSYCH] 3020. This course is restricted to psychology majors with senior standing.

**PSYCH 4971: Developmental Psychology Capstone (3).** Introduces students to developmental research methods through relevant readings and by students conducting original research. Prerequisite: grade of C or better in Psychology [PSYCH] 3020. This course is restricted to psychology majors with senior standing.

**PSYCH 4972: Animal Learning Capstone (3).** Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Prerequisites: grade of C or better in Psychology [PSYCH] 3020. This course is restricted to psychology majors with senior standing.

**PSYCH 4973: Human Cognition Capstone (3).** Students review, evaluate and conduct research on various aspects of human cognition. Prerequisite: grade of C or better in Psychology [PSYCH] 3020. This course is restricted to psychology majors with senior standing.

**PSYCH 4974: The Human Senses Capstone (3).** Psychophysical data, sense organs, psychological attributes, and theories of vision, hearing, and the vestibular (motion) senses. Elementary aspects of psychophysics. Prerequisite: grade of C or better in Psychology [PSYCH] 3020. This course is restricted to psychology majors with senior standing.

**PSYCH 4975: Social/Personality Capstone (3).** Experimental methods course emphasizing research in social psychology. Prerequisites: grade of C or better in Psychology [PSYCH] 3020. This course is restricted to psychology majors with senior standing.

**PSYCH 4976H: Honors Research Seminar I (3).** Individual honors thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (Psychology [PSYCH] 4977 in spring semester). Students should plan on enrollment in both PSYCH 4976 and 4977. Weekly class discussions of research topics, strategies and of current issues. Prerequisites: PSYCH 3020; overall and Psychology GPA 3.3 and instructor's consent. Successful completion of thesis and maintenance of 3.3 GPA leads to degree with departmental honors in Psychology. This course is restricted to psychology majors with senior standing.

**PSYCH 4977H: Honors Research Seminar II (3).** Honors eligibility required. Prerequisite: Psychology [PSYCH] 4976. This course is restricted to psychology majors with senior standing.

**PSYCH 4978: Clinical Psychology Capstone (3).** Students work at assigned agencies to gain "real-world" experience in the practice of psychology and attend regularly scheduled class meetings in order to integrate their academic knowledge with their practical experience. Prerequisites: grade of C or better in Psychology [PSYCH] 3020; departmental consent. This course is restricted to psychology majors with senior standing.

**PSYCH 4979: Judgement and Decision Making Capstone (3).** This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental findings and identify how those findings are being used to develop public policy or in applied settings. Prerequisites: grade of C or better in Psychology [PSYCH] 2030; This course is restricted to psychology majors with senior standing.

**PSYCH 4980: Human Relationships Capstone (3).** Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Prerequisites: grade of C or better in Psychology [PSYCH] 3020, PSYCH 2810 or two social/personality courses recommended; departmental consent. This course is restricted to psychology majors with senior standing.

**PSYCH 4981: Advanced Developmental Psychology Capstone I (3).** Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Prerequisite: grade of C or better in Psychology [PSYCH] 3020; departmental consent; restricted to psychology majors with senior standing. Graded on A/F basis only.

**PSYCH 4982: Advanced Developmental Psychology II (3).** Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Prerequisite: grade of C or better in Psychology [PSYCH] 3020; department consent; restricted to psychology majors with senior standing. Graded on A/F basis only.

## PUBLIC AFFAIRS COURSES

**PUB AF 4001: Topics in Public Affairs (3).** Selected topics in public administration.

## RADIOLOGIC SCIENCES COURSES

**RA SCI 1000: Introduction to Radiography (1).** Overview of radiography through small group discussions and onsite visitations in radiology departments. Graded on S/U basis only.

**RA SCI 3110: Radiographic Positioning I (2).** Instruction in radiographic positioning of the chest, upper extremity, shoulder girdle, and lower extremity.

**RA SCI 3120: Fundamentals of Radiography (3).** Orientation to radiology department, ethics, basic nursing procedures, medical legal considerations and radiation safety procedures.

**RA SCI 3130: Basic Radiographic Skills (2).** An introduction to radiographic processing techniques, intensifying screens, sensitometry and silver reclamation procedures.

**RA SCI 3140: Principles of Radiographic Exposure I (3).** Theory and principles of X-ray technique; correlation of factors with application.

**RA SCI 3150: Radiologic Pharmacology (3).** Introductory study of drugs commonly used in medical imaging with emphasis on pharmacokinetics and pharmacodynamics. Designed for allied health students and personnel in the medical imaging sciences.

**RA SCI 3160: Radiologic Physics (3).** Fundamentals of physics of electricity and radiant energy; principles of generation of electromagnetic radiations and applicable equipment.

**RA SCI 3170: Imaging Modalities (2).** A presentation of various recording media emphasizes fluoroscopy, image intensification, computed tomography, digital, xeroradiography, thermography, ultrasound, magnetic resonance imaging; automatic exposure devices; and a brief introduction to nuclear medicine and radiation therapy.

**RA SCI 3180: Radiographic Positioning II (2).** Instruction in radiographic positioning of the pelvic girdle, vertebral column, bony thorax, cranium, gastrointestinal system, and urinary system.

**RA SCI 3190: Radiographic Positioning III (3).** Advanced positioning techniques; emphasizes trauma radiography, vascular studies, mammography, and other procedures.

**RA SCI 3460: Cardiovascular and Pulmonary Diagnostic Applications I (3).** (same as Cardiopulmonary and Diagnostic Science [CPD] 3460). Problem-based study of cardiopulmonary anatomy and physiology using current imaging methods. Emphasis given to assessment of the acutely distressed cardiac or pulmonary subject, emergency pulmonary support and vascular access techniques.

**RA SCI 3941: Clinical Education I (3).** Supervised clinical rotations in basic areas of radiography. Must complete: mandatory exams from one category competency; two elective exams; and must be competency-tested in chest and abdomen.

**RA SCI 3942: Clinical Education II (3).** Supervised clinical rotations in basic areas of radiography and in special procedures. Must complete: mandatory exams from one category competency; one neurological exam; three elective exams; two exams from miscellaneous category; and three periodical exams.

**RA SCI 4085: Problems in Medical Imaging (1-3).** Supervise investigation in an aspect of medical imaging science usually culminating in a written report. Prerequisite: instructor's consent.

**RA SCI 4110: Sectional Anatomy (3).** (same as Diagnostic Medical Ultrasound [DMU] 4312/7312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Prerequisite: instructor's consent.

**RA SCI 4140: Magnetic Resonance Imaging: Physics and Procedures (5).** Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations.

**RA SCI 4150: Computed Tomography: Physics and Procedures (5).** Computed tomography imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures.

**RA SCI 4303: Radiation Safety (3).** (same as Nuclear Science and Engineering [NU\_ENG] 4303/7303) Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**RA SCI 4440: Organization and Administration (3).** (same as Respiratory Therapy [RS\_THR] 4440 and Cardiopulmonary and Diagnostic Science [CPD] 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**RA SCI 4943: Clinical Education III (3).** Progression from basic to more advanced rotations. Must complete: mandatory exams from one category competency; one neurological exam; three elective exams; three exams from miscellaneous category; and three periodical exams.

**RA SCI 4944: Clinical Education IV (3).** Advanced clinical rotations. Experience with Equipment Quality Control. Must complete: mandatory exams from one category; one neurological exam; three elective exams; three exams from miscellaneous category; and three periodical exams.

**RA SCI 4945: Clinical Education V (3).** Advanced clinical rotation at one of three clinical centers to include an evening and a night rotation; must complete final competency.

**RA SCI 4946: Advanced Medical Imaging Externship (1-3).** Supervised clinical experience in a medical imaging speciality with emphasis on patient care and technical practice. Prerequisite: instructor's consent.

**RA SCI 4947: Radiography Overview (3).** A comprehensive overview of all aspects of diagnostic radiology with emphasis on procedures, technique, radiation protection, positioning, radiographic anatomy and patient care.

**RA SCI 4980: Imaging Pathology (3).** Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

## RADIOLOGY COURSES

**RADIOL 4328: Introductory Radiation Biology (3).** (same as Biological Sciences [BIO\_SC] 4328, Nuclear Engineering [NU\_ENG] 4328, Veterinary Medicine and Surgery [V\_M\_S] 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man. Prerequisite: junior standing Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent.

## RELIGIOUS STUDIES COURSES

**REL ST 1100: Introduction to Religion (3).** Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**REL ST 1100H: Introduction to Religion - Honors (3).** Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history. Honors eligibility required.

**REL ST 1500: Religion and Culture (3).** The study of religion as expressed in art, literature, music, dance, drama, architecture. Restricted to Freshmen and Sophomores only.

**REL ST 1820: Asian Humanities (3).** (same as Art History and Archeology [AR\_H\_A] 1230, History [HIST] 1820, South Asian Studies [S\_A\_ST] 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**REL ST 1820H: Asian Humanities - Honors (3).** (same as Art History and Archeology [A\_R\_HA] 1230, History [HIST] 1820, South Asian Studies S\_A\_ST] 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**REL ST 2001: Topics in Religious Studies-General (3).** Organized study of selected topics which vary by semester and are announced at time of registration.

**REL ST 2005: Topics in Religious Studies-Humanities (1-3).** Organized study of selected topics which vary by semester and are announced at time of registration.

**REL ST 2100: Indigenous Religions (3).** (same as Anthropology [ANTHRO] 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific groups, it considers individual and group identity, the meaning of the sacred, and the impact of foreign domination. 2100H same as 2100 with the addition of Honors eligibility required.

**REL ST 2100H: Indigenous Religions - Honors (3).** (same as Anthropology [ANTHRO] 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred. Honors eligibility required.

**REL ST 2110: Religions of the World (3).** This course introduces students to a variety of religious traditions through the study of their myths, rituals, beliefs, and practices, and explores approaches to the academic study of religion.

**REL ST 2110H: Major World Religions - Honors (3).** Explores the differing ways in which Asian and Western religions interpret life and reality. Includes study of Hinduism, Buddhism, Chinese and Japanese religions, Judaism, Christianity, and Islam. Honors eligibility required.

**REL ST 2230: Religion and Popular Culture in the U.S. (3).** Explores intersections of religion and popular culture and methods for analysis.

**REL ST 2240: Harry Potter, Magic, and Religion (3).** This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups.

**REL ST 2250: Religious Perspectives on Peace and War (3).** This course explores religious justification for war as well as religious perspectives on peacemaking. We engage these issues through the investigation of a variety of religious leaders and traditions, drawing from contemporary and historical examples. Traditions studied can include Jewish, Christians, Buddhist, Hindu, Islamic, and indigenous illustrations.

**REL ST 2270: Religion and Literature (3).** This course explores religious themes such as myth, rituals and rites, sacred power, transcendence, salvation, and pilgrimage in secular literature. Selections in English, include novels and short stories from a variety of cultures and religious traditions.

**REL ST 2270H: Modern Literature and the Quest for Values - Honors (3).** This course is an interdisciplinary study of the religious and ethical questions, quests, and solutions in the literary works of selected modern writers: Beckett, Eliot, Camus, Kazantzakis, O'Connor, Updike, Wiesel, Percy and Morrison. Honors eligibility required.

**REL ST 2280: Biblical Themes in American Literature (3).** This course is a study of the

reinterpretation of Hebrew scriptures and New Testament sources in classic American texts. The works of Melville, Faulkner, MacLeish, Baldwin, O'Connor, Updike, Percy, and Morrison create a history of certain American ideas as they transform traditional biblical figures and ideas.

**REL ST 2280H: Biblical Themes in American Literature - Honors (3).** A study of the sources in the Hebrew Scriptures and the New Testament and their reinterpretation in classic American texts. Such a study, initially textual, results in a history of American ideas. Authors studied include MacLeish, Baldwin, O'Connor, Updike, Percy and Morrison. Honors eligibility required.

**REL ST 2310: Religions of China and Japan (3).** Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

**REL ST 2310H: Religions of China and Japan - Honors (3).** Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state. Honors eligibility required.

**REL ST 2400: Judaism (3).** A comprehensive introduction to Judaism: an overview of Jewish philosophy and theology, rituals and customs.

**REL ST 2410: Essential Stories of the Torah (3).** Students will examine major narratives and texts from the Pentateuch section of Hebrew Bible. This class will present such ancient, medieval, and contemporary interpretations that will demonstrate how biblical texts could be construed in more than one way.

**REL ST 2450: The Holocaust and Reflections on Genocide (3).** Examines the nature of genocide as an historical phenomenon using the Holocaust as the primary case study.

**REL ST 2500: Introduction to Hebrew Bible/Old Testament (3).** An introduction to the literature, history, institutions, and thought contained in the Hebrew Bible and to the methods and principles necessary for the scholarly study of scripture.

**REL ST 2500H: Introduction to Hebrew Bible/Old Testament - Honors (3).** An introduction to the literature, history, institutions, and thought contained in the Hebrew Bible and to the methods and principles necessary for the scholarly study of scripture. Honors eligibility required.

**REL ST 2510: Introduction to the New Testament (3).** An introduction to the literature of the New Testament and the methods and principles guiding its interpretation, with particular mention to its structure, thought, and historical setting.

**REL ST 2510H: Introduction to the New Testament - Honors (3).** An introduction to the literature of the New Testament and the methods and principles guiding its interpretation, with particular mention to its structure, thought, and historical setting. Honors eligibility required.

**REL ST 2600: Early Christianity (3).** (same as History [HIST] 2600). History of Christian practices and teachings from Christian origins through the 8th century, including Eastern Orthodox Syrian Christianity, Roman Catholicism. Themes such as interpretation and creation of Scriptures, worship style, central rituals, debates about right teaching (orthodoxy) mysticism and developing lifestyles both in and apart from the world.

**REL ST 2600H: Early Christianity - Honors (3).** (same as History [HIST] 2600). History of Christian practices and teachings from Christian origins through the 8th century, including Eastern Orthodox Syrian Christianity, Roman Catholicism. Themes such as interpretation and creation of Scriptures, worship style, central rituals, debates about right teaching (orthodoxy) mysticism and developing

lifestyles both in and apart from the world. Honors eligibility required.

**REL ST 2610: Medieval Christianity (3).** (same as History [HIST] 2610). History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**REL ST 2610H: Medieval Christianity - Honors (3).** (same as History [HIST] 2610). History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities. Honors eligibility required.

**REL ST 2620: History of Christianity, 1500-Present (3).** (same as History [HIST] 2620). History of Christian practices and teachings from the 15th - 21st centuries, including global dimensions of Orthodox, Catholic, Protestant and other forms of Christianity. Themes such as right teaching and practice, indigenous-Christian contact, mission and expansion, impact of secular theories, contemporary debates.

**REL ST 2620H: History of Christianity, 1500-Present - Honors (3).** (same as History [HIST] 2620). History of Christian practices and teachings from the 15th - 21st centuries, including global dimensions of Orthodox, Catholic, Protestant and other forms of Christianity. Themes such as right teaching and practice, indigenous-Christian contact, mission and expansion, impact of secular theories, contemporary debates. Honors eligibility required.

**REL ST 2700: Islam (3).** Examines the historical development of Islamic traditions, noting the manner in which various sects & factions understand religion, humanity and God.

**REL ST 2900: Contemporary Religious Thought (3).** Explores issues within contemporary Christian theology that cut across denominational lines such as: the nature and existence of God; secularization, relativism, and humanism; the authority of the Bible; attitudes toward other religions; the moral integrity of Christianity; and the purpose of human existence.

**REL ST 2910: Religion and Contemporary Social Issues (3).** Study of the social ethics of Jewish and Christian theologians and movements of the 19th and 20th centuries and an examination of selected social problems in light of these systems.

**REL ST 2920: Images of Good and Evil (3).** Study of the symbols and myths which explore the nature and power of good and evil. Includes examination of the music, art and literature of both ancient and contemporary religions.

**REL ST 2930: Religion and Psychological Perspectives (3).** Examines how religion is understood from various psychological perspectives, and how psychological theories reflect religious presuppositions about the nature and purpose of human life.

**REL ST 2939: Religion and Human Sexuality (3).** Examines attitudes within the Christian tradition toward sexuality, with particular reference to the alternatives of patriarchy and feminism, especially as they consider issues such as the meaning of bodiliness, masturbation, pornography, prostitution, homosexuality and sexual pluralism.

**REL ST 2950: Directed Readings in Religious Studies (3).** Independent readings selected in consultation with supervisory faculty member. May not be repeated. Prerequisite: instructor's consent.

**REL ST 3000: History of Religion in America to the Civil War (3).** (same as History [HIST] 3000). Surveys major American religious traditions, patterns, and themes from 1492 to the Civil War, especially the role of religion in American social, cultural, and political developments. Prerequisite: sophomore standing or instructor's consent.

**REL ST 3000H: History of Religion in America to the Civil War - Honors (3).** (same as History [HIST] 3000). Surveys major American religious traditions, patterns, and themes from 1492 to the Civil

War, especially the role of religion in American social, cultural, and political developments. Prerequisite: sophomore standing or instructor's consent. Honors eligibility required.

**REL ST 3001: Topics in Religious Studies-General (3).** Organized study of selected topics which vary by semester and are announced at time of registration. Prerequisite: instructor's consent.

**REL ST 3005: Topics in Religious Studies-Humanities (3).** Organized study of selected topics which vary by semester and are announced at time of registration.

**REL ST 3100: Religious Literacy for the Public and Professions (3).** This course teaches students to engage and encounter religion in day-to-day life and in the professional workplace. Its primary goal is to examine religious diversity in private and professional contexts from a practical standpoint by examining a variety of case studies.

**REL ST 3200: Hinduism (3).** (same as South Asia Studies [S.A\_ST] 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga, and meditation, Indian religious thought, and devotional Hinduism.

**REL ST 3210: History of Religion in Post-Civil War America (3).** (same as History [HIST] 3210). Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments. Prerequisite: sophomore standing or instructor's consent.

**REL ST 3210H: History of Religion in Post-Civil War America - Honors (3).** (same as History [HIST] 3210). Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments. Prerequisite: sophomore standing or instructor's consent. Honors Eligibility Required.

**REL ST 3230: Buddhism and Environmental Ethics (3).** (same as South Asian Studies [S.A\_ST] 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**REL ST 3240: Buddhism of South and Southeast Asia (3).** (same as South Asian Studies 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in South and Southeast Asia.

**REL ST 3250: Buddhism in East Asia (3).** This course will trace the transmission of Buddhism from the Indian subcontinent to China, and from there to Korea and Japan. We will examine the historical development of East Asian forms of Buddhism, deal with key issues of Buddhist thought and practice, and look at the role of Buddhism in modern East Asian societies. Prerequisites: Religious Studies [REL ST] 2110, 2300, 2310 or 3200, or instructor's consent.

**REL ST 3260: Hindu Goddesses (3).** This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**REL ST 3280: Chinese Popular Religion (3).** Starting with a consideration of conceptual issues (what is 'popular religion?'), the course will give a survey of the beliefs and practices of Chinese popular

religion, including ancestor worship, territorial cults, spirit-mediumism, divination, and popular sects. Prerequisite: Religious Studies [REL ST] 2110 or instructor's consent.

**REL ST 3300: The Prophets (3).** Study of the prophetic writings of the Hebrew Scriptures, with consideration of the origin and nature of Israelite prophecy. Includes the narratives of the period of prophetic activity and study of the classical prophets. Prerequisites: Religious Studies [REL ST] 2500 or instructor's consent.

**REL ST 3310: The Psalms and Wisdom Literature (3).** Detailed interpretation of the Psalms, Proverbs and related writings of the broad wisdom tradition, with critical attention to the literary style and structure of the writings. Prerequisites: Religious Studies [REL ST] 2500 or instructor's consent.

**REL ST 3380: Native American Religions (3).** (same as Anthropology [ANTHRO] 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts. Prerequisite: Religious Studies/Anthropology [REL ST/ANTHRO] 2100 or instructor's consent.

**REL ST 3380H: Native American Religions - Honors (3).** (same as Anthropology [ANTHRO] 3380H). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts. Prerequisite: Religious Studies/Anthropology [REL ST/ANTHRO] 2100 or instructor's consent. Honors eligibility required.

**REL ST 3400: The Gospels of Matthew, Mark, and Luke (3).** Examination of the Gospels of Matthew, Mark, and Luke as single works and as literarily related compositions. Interpretation focuses on the literary form of passages and the theological and ethical themes expressed. Prerequisite: Religious Studies [REL ST] 2510 or instructor's consent.

**REL ST 3400H: The Gospels of Matthew, Mark, and Luke - Honors (3).** Examination of the Gospels of Matthew, Mark, and Luke as single works and as literarily related compositions. Interpretation focuses on the literary form of passages and the theological and ethical themes expressed. Prerequisite: Religious Studies [REL ST] 2510 or instructor's consent. Honors eligibility required.

**REL ST 3410: Life and Letters of Paul (3).** Reconstruction of the life and letters of the Apostle Paul; examination of his thought in relation to Jesus of Nazareth and to earliest Christianity. Prerequisite: Religious Studies [REL ST] 2510 or instructor's consent.

**REL ST 3410H: Life and Letters of Paul - Honors (3).** Reconstruction of the life and letters of the Apostle Paul; examination of his thought in relation to Jesus of Nazareth and to earliest Christianity. Prerequisite: Religious Studies [REL ST] 2510 or instructor's consent. Honors eligibility required.

**REL ST 3430H: Revelation and Apocalyptic Literature - Honors (3).** A study of Jewish and Christian apocalyptic literature with an emphasis on the Revelation to St. John. Prerequisite: Religious Studies [REL ST] 2510 or instructor's consent. Honors eligibility required.

**REL ST 3451: Religion in Science Fiction (3).** Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

**REL ST 3500: Second Temple Judaism: The Persian, Hellenistic, & Roman Periods (3).** This course is an introduction to the origin and development of Judaism from the time of the destruction of the first Jerusalem temple (587 BCE) to the Bar Kochba revolt (132-135 CE). Prerequisite: Religious Studies [REL ST] 2400, 2410 or instructor's consent.

**REL ST 3530: Rabbinic Judaism: Perspective and Literature (3).** Overview of the Jewish oral tradition during the Rabbinic era. The information covered in

this course will focus upon the vast literature created during the Mishnaic and Talmudic periods and the emerging new styles and directions of Jewish religious thought. Prerequisite: Religious Studies [REL ST] 2400 or instructor's consent.

**REL ST 3540: Jewish-Christian Relations (3).** Explores historical and contemporary relations between Christians and Jews, and the transformations in Christian thought and practice resulting from awareness of Christianity's role in the Holocaust and from post-Holocaust dialogues between Jews and Christians.

**REL ST 3600: Spirituality (3).** Comparative investigation of selected mystical writings from Western religious traditions; consideration of contemporary psychological, philosophical, and phenomenological interpretations of mystical experience.

**REL ST 3700: Modern Religious Thought (3).** Examination of the theological systems of major Christian thinkers and movements of the 19th and 20th centuries in relation to historic religious traditions and modern cultural challenges.

**REL ST 3710: Reality of God (3).** Will explore the meaning of "the loss of God" (Tillich) and various modern and contemporary attempts to reaffirm the reality of God.

**REL ST 3740: Religion and Film (3).** Addresses issues of interpretation and analysis in the convergence of religion and film. Addresses three areas under this broad rubric: 1) film representations of established religions; 2) film and the construction of social values; 3) film as contemporary "myth". Treating films as social texts, we will ask what such representations of ourselves to ourselves suggest about culture in general.

**REL ST 3750: Women and Religions (3).** (same as Women's and Gender Studies [WGST] 3750). A rediscovery of the wealth of religious activity which women have created and enacted. Investigates women's roles and rituals in large-scale and local religions, including ancient Goddess religions, Hinduism, Buddhism, Judaism, Christianity, Islam, and African, South American, and native American groups. Prerequisite: sophomore standing.

**REL ST 3760: Geography of the World's Religions (3).** (same as Geography [GEOG] 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion. Prerequisite: 1000/2000 level Geography course; junior standing or instructor's consent.

**REL ST 3800: Religion in America Today (3).** Explores in depth a few selected issues currently shaping or being shaped by religion in the United States. Specific topics will be chosen from events conflicts, developments, or news items within the last five years. Prerequisite: sophomore standing. Graded on A/F basis only.

**REL ST 3820: Religion and Law in America (3).** This class explores how the U.S. legal system is navigating an increasing diversity of religious traditions. Course examines the place of religious values and the ongoing tension between religion and law in the legal system of the U.S. through a variety of controversial topics.

**REL ST 3990: Majors Seminar (3).** In this seminar religious studies majors will be encouraged to form a community of inquiry focused on the subject of religion and public life. Prerequisite: Religious Studies majors in their junior year. Graded on S/U basis only.

**REL ST 4001: Topics in Religious Studies-General (3).** Organized study of selected topics which vary by semester and are announced at time of registration. Prerequisite: junior standing or instructor's consent.

**REL ST 4005: Topics in Religious Studies-General (3).** Organized study of selected topics which vary by semester and are announced at time of registration.

**REL ST 4100: Advanced Theories and Methods (3).** The course investigates the history of the

modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others. Limited to Religious Studies majors and MA students.

**REL ST 4110: Religious Myth and Ritual (3).** This course will unpack theoretical and methodological issues surrounding the study of embodied religious practice and the nature of religious narrative using myths and rituals from around the world's religious traditions.

**REL ST 4120: Studies in Ritual (3).** Exploration of particular themes of religious expression in seasonal, calendric and life-cycle rituals and in personal and public ceremonies. Includes comparisons of indigenous communities and modern society.

**REL ST 4130: Haunting and Healing (3).** This course explores instances, stories, and representations of haunting in the United States. We apply a variety of theoretical and methodological approaches to illuminate the diversity of meanings, functions, and contexts of supernatural beings in American popular and folk cultures.

**REL ST 4150: Religion, Spirituality, and the Brain (3).** Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, medication, and altered states of consciousness. Prerequisite: junior or senior standing.

**REL ST 4200: Survey of West African and African Diasporic Religions (3).** Explores indigenous African religions and Islam in West Africa, as well as the development of African American Christianity and African diasporic religions in the Americas.

**REL ST 4210: African-American Religion (3).** (same as Black Studies [BL\_STU] 4210). Historical and thematic examination of African American religious traditions and practices. Addresses intersections of religious expression with race, identity, culture, and society.

**REL ST 4280: Archaeology of Religion (3).** (same as Anthropology [ANTHRO] 4280). This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas. Prerequisite: Anthropology [ANTHRO] 2020 and/or Religious Studies [REL ST] 2100.

**REL ST 4300: Religious Narratives of South Asia (3).** (same as South Asian Studies [S A ST] 4300). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess. Prerequisite: Religious Studies [REL ST] 2110, 3200, or 3240, or instructor's consent.

**REL ST 4310: The Confucian Tradition: Past and Present (3).** Investigates Confucianism as the dominant religio-philosophical tradition of China and its impact on Korea and Japan. We will study basic Confucian canonical texts, follow its historical development, look at its interactions with other religions, and discuss the continuing relevance of the Confucian tradition in modern East Asia.

**REL ST 4320: Introduction to Daoism (3).** An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**REL ST 4380: Anthropological Theories of Religion (3).** (same as Anthropology [ANTHRO] 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from

nineteenth century classics to the current approaches of today. Prerequisites: Anthropology [ANTHRO] 2030, ANTHRO/Religious Studies [REL ST] 2100, or instructor's consent.

**REL ST 4400: The Catholic Intellectual Tradition (3).** Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**REL ST 4410: Major Religious Thinkers (3).** Concentrated study of one or more selected theologians, such as Augustine, Aquinas, Luther, Calvin, Buber, Tillich, and Rahner.

**REL ST 4418: Religion Reporting and Writing (3).** (same as Journalism [JOURN] 4426). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life, and culture. Prerequisite: JOURN 4450 professional writing experience and instructor's consent.

**REL ST 4500: Greek and Roman Religion (3).** (same as Classical Humanities [CL\_HUM] 4500). Survey of religious development among the Greeks and Romans. Prerequisite: sophomore standing and CL\_HUM 1060, Art History and Archaeology [AR\_H\_A] 1110 or History [HIST] 1520.

**REL ST 4550: The Historical Jesus (3).** This course examines theory, method, and conclusions in recent Jesus scholarship. Attention is also paid to the historical and cultural context in which Jesus research becomes prominent. Prerequisites: Religious Studies [REL ST] 2510 or instructor's consent.

**REL ST 4630: Sanskrit I (3).** (same as South Asian Studies [S A ST] 4350). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist literature.

**REL ST 4640: Sanskrit II (3).** (same as South Asian Studies [S A ST] 4640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit tests in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**REL ST 4750: Women, Religion and Culture (3).** (same as Women's and Gender Studies [WGST] 4750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**REL ST 4960: Directed Readings in Religious Studies (1-6).** Independent readings selected in consultation with supervisory faculty member. May be repeated up to 6 hrs. Prerequisite: instructor's consent.

**REL ST 4990: Senior Seminar in Religious Studies (3).** A seminar in which Religious Studies majors use methods of understanding and comparing religions by focusing on times and places of significant contact among peoples of different religions. Prerequisite: Religious Studies [REL ST] 4100 and Religious Studies Major.

## RESPIRATORY THERAPY COURSES

**RS THR 1000: Introduction to Respiratory Therapy (1).** Introductory course to assist students acquiring information about the respiratory therapy profession. Students observe therapists in hospitals and participate in lectures on credentialing, program requirements, placement and future trends in the profession. Graded on S/U basis only.

**RS THR 3000: Fundamentals of Respiratory Care (1).** Orientation to the profession. Focus on professional attributes of communication, teamwork, licensure and safety. Prerequisite: acceptance into respiratory therapy major.

**RS THR 3220: Equipment and Techniques (5).** History, organization of respiratory therapy. Theory, application of gas laws. Equipment for invasive and non-invasive pulmonary assessment, therapeutic aerosol and humidity, gas delivery, airway management. Techniques for infection control, lung expansion, bronchial hygiene. Graded on A/F basis only.

**RS THR 3290: Cardiopulmonary Pharmacology (2).** To provide the student with specific knowledge of the pharmacologic strategies in treating cardiopulmonary disorders. Prerequisites: restricted to students in the respiratory therapy program. Graded on A/F basis only.

**RS THR 3420: Principles of Mechanical Ventilation (3).** Continuation of Respiratory Therapy 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application. Prerequisite: Respiratory Therapy [RS THR] 3220, 3941 and 4040.

**RS THR 3440: Mechanical Ventilation Lab (3).** Application of mechanical ventilation emphasizing acute care: pressure, volume, and oscillatory ventilation of adults. Pediatrics, and infants. Related graphical, laboratory, and hemodynamic analysis; therapeutic intervention. Prerequisites: Respiratory Therapy [RS THR] 3220, 3941, 4040. Graded on A/F basis only.

**RS THR 3941: Clinical Practice I (2).** To be taken concurrently with Respiratory Therapy [RS THR] 3220 for which it serves as an extension of the laboratory time and an opportunity for structured clinical experience exposures.

**RS THR 3942: Clinical Practice II (4).** To be taken concurrently with Respiratory Therapy [RS THR] 3420, for which it serves as an extension of the laboratory time, and an opportunity for structured clinical experience exposures.

**RS THR 3943: Clinical Practice III (2).** Continuation of supervised clinical experience from Respiratory Therapy [RS THR] 3942. Graded on A/F basis only.

**RS THR 4020: Perinatal/Neonatal Respiratory Care (3).** Evaluation and management of perinatal/neonatal pulmonary, medical and surgical conditions which require respiratory care. Emphasis on resuscitation, pathophysiology, evaluation, blood gas and x-ray interpretation, treatment and mechanical ventilation. Prerequisites: Respiratory Therapy [RS THR] 4040. Respiratory Therapy students only.

**RS THR 4040: Respiratory Pathophysiology (5).** Clinical pulmonary disease, organized around the gross structural components of the lung, airways, alveoli and pulmonary vasculature. Impact of disease on normal structure function; clinical, roentgenographic, and physiologic manifestations are described.

**RS THR 4085: Problems in Respiratory Therapy (cr.arr.).** Independent work on special problems related to cardiopulmonary health. Course not offered for graduate credit. Some sections of the course may be graded on either A/F or S/U basis only. Prerequisite: instructor's consent.

**RS THR 4220: Community and Patient Education I (1).** Design and implement materials for educational presentations for a given patient population. Prerequisites: Respiratory Therapy [RS THR] 3943 or instructor's consent. Graded on A/F basis only.

**RS THR 4240: Pulmonary Rehabilitation (3).** Focus is on an interdisciplinary approach to pulmonary rehabilitation and home care of the adult cardiopulmonary patient. Prerequisite: senior Respiratory Therapy standing or instructor's consent. Graded on A/F basis only.

**RS THR 4420: Pediatric Respiratory Care (3).** Evaluation and management of pulmonary, medical and surgical pediatric conditions requiring respiratory care. Emphasis on pediatric resuscitation, pathophysiology, treatment and prevention of respiratory conditions, mechanical ventilation, lab interpretation. Prerequisite: Respiratory Therapy [RS THR] 3420, 4020, 4040 or instructor's permission.

**RS THR 4440: Organization and Administration (3).** (same as Radiologic Science [RA SCI] 4440 and

Cardiopulmonary and Diagnostic Science [CPD] 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**RS THR 4460: Evidence-Based Medicine in Respiratory Care (3).** This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**RS THR 4620: Pulmonary Function Technologies (1).** This course will provide the student with a specific knowledge of the testing procedures and equipment for pulmonary function technology. The student will learn to interpret pulmonary function tests and perform quality assurance within the pulmonary function laboratory. Prerequisite: restricted to Respiratory Therapy students only.

**RS THR 4640: Teaching Practicum (3).** Structured and supervised experience identifying student characteristics, methods for teaching, improving assessment, current development and instructional design.

**RS THR 4660: Advanced Mechanical Ventilation Theory (3).** Exploration of advanced disease management via specific disease processes as well as concepts and modes of mechanical ventilation. Emphasis will be placed on mode selection for various disease and how new modes of mechanical ventilation impact disease management.

**RS THR 4820: Adult Critical Care (3).** This course will focus on the respiratory therapist's role in the adult critical care environment. Topics include airway management, mechanical ventilation, general adult critical care and functioning as a vital member of the critical care team. Prerequisite: restricted to Respiratory Therapy students only.

**RS THR 4920: Community and Patient Education II (1-3).** Presentations to a variety of community groups. Emphasis on wellness and disease prevention. Prerequisites: Respiratory Therapy [RS THR] 4220 or instructor's consent. Graded on A/F basis only.

**RS THR 4940: Clinical Practice IV (5).** Structured and supervised clinical experience and case conferences regarding bioterrorism response and emergency/disaster planning. Prerequisites: Respiratory Therapy [RS THR] 3420, 3942, 3440, 3943, 4020.

**RS THR 4956: Research in Respiratory Therapy (2-6).** Selected research projects guided by a senior staff member. Prerequisite: Cardiopulmonary and Diagnostic Science [CPD] 4955.

**RS THR 4973: Clinical Practice V (4).** An extension of the supervised practicum begun in Respiratory Therapy [RS THR] 4940. Emphasis in adult critical care and special procedures including brochoscopies, cardiac catheterization and chest tube placement.

**RS THR 4983: Clinical Practice VI (5).** An extension of the supervised practicum begun in Respiratory Therapy [RS THR] 4940. Emphasis in perinatal and pediatric critical care including pediatric pulmonary function testing and airway management.

**RS THR 4990: Respiratory Therapy Capstone (2).** Integration of literature, knowledge of previous coursework and clinical experience. Prerequisites: Senior standing and Respiratory Therapy Major.

**RS THR 4993: Clinical Practice VII (5).** An extension of the supervised practicum begun in Respiratory Therapy [RS THR] 4940. Emphasis in rehabilitation and home care, inservice education, and management. Students will participate in on-going research projects and community service activities.

## ROMANCE LANGUAGES COURSES

**RM LAN 2001: Undergraduate Topics in Romance Languages-General (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. Prerequisite: departmental

consent for repetition.

**RM LAN 2200: Introduction to Catalan Language and Culture (3).** This is an introductory course to Catalan language and culture. Previous knowledge of another Romance language might be beneficial. Students will learn basic Catalan expressions, vocabulary and grammatical structures. Furthermore, students will begin to familiarize themselves with elements of Catalan culture. Prerequisite: Some knowledge of a Romance language desirable.

**RM LAN 2310: Literature of the African Diaspora (3).** (same as Black Studies [BL STU] 2310) A post-colonial analysis of selected literary texts interpreting the African diaspora in the Americas. Exemplary texts from the Caribbean (English, French, Spanish), South America and the United States are discussed in comparative perspective. No knowledge of Spanish required. Prerequisite: English [ENGLSH] 1000.

**RM LAN 2820: Trends in World Cinema (3).** (same as Film Studies [FILM\_S] 2820 and German [GERMAN] 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production. Prerequisite: sophomore standing, English [ENGLSH] / Film Studies [FILM\_S] 1800 or instructor's consent.

**RM LAN 3200: Catalan Culture and Identity (3).** Students in this course are not expected to have previous exposure to Catalan instruction. If they do, it will enhance their learning experience. Knowledge of another Romance language might be beneficial as well. This is a course focused on Catalan culture and identity. Students will learn about the history of the language, the language policies in Spain and Europe, Catalan literature, cinema, music, and food. Students will read different materials in English for the most part. Course is taught in English. Sophomore standing required.

**RM LAN 3820: Major Directors (3).** (Same as English [ENGLSH] 3820 and Film Studies [FILM\_S] 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Prerequisite: English [ENGLSH] 1000 and English [ENGLSH] / Film Studies [FILM\_S] 1800. Graded A-F only.

**RM LAN 4310: Literature of the African Diaspora (3).** A study, in English translation, of writings by authors of African descent in the Americas. Prerequisite: junior standing or instructor's consent.

**RM LAN 4730: Linguistic Theory and Language Acquisition (3).** (same as Linguistics [LINGST] 4730). The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English. Prerequisites: Spanish [SPAN] 4721/7721, French [FRENCH] 4720/7720, English [ENGLSH] 4600/7600 or LINGST 4860/7860.

**RM LAN 4940: Service Learning in Romance Languages (1).** (same as Spanish [SPAN] 4940 and French [FRENCH] 4940). Course offers our majors and advanced minors the opportunity to use their language skills in real-life community settings. Graded on S/U basis only. Does not meet A&S general education requirements. May be repeated once for credit. Prerequisites: junior or senior standing and departmental consent.

## RURAL SOCIOLOGY COURSES

**RU SOC 1000: Rural Sociology (3).** Introduction to basic concepts and principles of sociology with a focus on rural populations and places. The course explores interconnections between rural/urban and local global economies and cultures. Students are exposed to the rich diversity of rural society, social changes underway, and to current social issues. (Students may not earn credit for both Rural Sociology [RU\_SOC]1000 and Sociology [SOCIOLOGY] 1000).

**RU SOC 1103: Topics in Rural Sociology - Behavioral Science (1-3).** Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated. Prerequisites: Rural Sociology [RU\_SOC] 1000 or Sociology [SOCIO] 1000.

**RU SOC 1104: Topics in Rural Sociology - Social Science (1-3).** Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated. Prerequisites: Rural Sociology [RU\_SOC] 1000 or Sociology [SOCIO] 1000.

**RU SOC 1120: Population and the Environment (3).** (same as Sociology [SOCIO] and Peace Studies [PEA\_ST] 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**RU SOC 1150: The Amish Community (3).** (same as Peace Studies [PEA\_ST] 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change. Prerequisites: Rural Sociology [RU\_SOC] 1000, Sociology [SOCIO] 1000, or Anthropology [ANTHRO] 1000.

**RU SOC 1175: The Health of People in Local Communities (3).** Health is a universal concern of all people. However, the place of residence has a major impact on many things closely related to health including the local cultural such as diets, exercise, occupations, local health services, etc. This is an introduction to these topics. Prerequisite: introduction to Sociology or Rural Sociology.

**RU SOC 2010: Leadership in Today's World (3).** Examination of dynamics of group leadership, especially in local voluntary organizations; study of how leader's behavior is related to success or failure of organization's program. Prerequisites: Rural Sociology [RU\_SOC] 1000 or Sociology [SOCIO] 1000.

**RU SOC 2203: Topics in Rural Sociology - Behavioral Science (1-3).** Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated. Prerequisites: Rural Sociology [RU\_SOC] 1000, Sociology [SOCIO] 1000 or Anthropology [ANTHRO] 1000.

**RU SOC 2204: Topics in Rural Sociology - Social Science (1-3).** Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated. Prerequisites: Rural Sociology [RU\_SOC] 1000, Sociology [SOCIO] 1000 or Anthropology [ANTHRO] 1000.

**RU SOC 2225: Science, Technology and Society (3).** Overview of the social influences that shape science including how scientific knowledge is contested and legitimated; how social forces (among them mass communication) influence the choice of innovations; and the role social systems and sectors play in the use and benefit of science. Communication intensive-discussion, presentation and essay based. Prerequisites: Rural Sociology [RU\_SOC] 1000 or Sociology [SOCIO] 1000.

**RU SOC 2950: Social Research I (3).** (same as Sociology [SOCIO] 2950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**RU SOC 3085: Problems in Rural Sociology (cr. arr.).** Prerequisite: instructor's consent.

**RU SOC 3100: Recent Theories in Sociology (3).** (same as Sociology [SOCIO] 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories. Prerequisite: Sociology [SOCIO] 2200.

**RU SOC 3235: Global Perspectives and Realities (3).** Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to

prepare for a valuable and safe experience abroad.

**RU SOC 3303: Topics in Rural Sociology - Behavioral Science (2-3).** Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated. Prerequisites: 6 hours Rural Sociology or Sociology, or junior standing.

**RU SOC 3304: Topics in Rural Sociology - Social Science (2-3).** Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated. Prerequisites: 6 hours Rural Sociology or Sociology, or junior standing.

**RU SOC 3325: Sociology of Food and Nutrition (3).** This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems. Prerequisite: English [ENGLSH] 1000 and junior or senior standing or instructor's permission.

**RU SOC 3940: Practicum in Rural Sociology (3).** Independent research or professional experience under faculty supervision. Projects must be arranged by student and faculty member prior to registration. Prerequisites: junior standing, departmental consent.

**RU SOC 4120: Social Statistics (3).** (same as Sociology [SOCIO] 4120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis. Prerequisite: SOCIO 2950.

**RU SOC 4301: Topics in Rural Sociology (3).** Current and new topics not currently offered in applied and/or theoretical areas in Rural Sociology. Prerequisites: Rural Sociology [RU\_SOC] 1000 or Sociology [SOCIO] 1000 or equivalent. Graded on A/F basis only.

**RU SOC 4310: Sociology of Agriculture and Natural Resources (3).** Human dimensions of agriculture and natural resource management by giving an overview of sociological approaches related to these fields. Special emphasis is given to social organization, globalization and social constructions related to food and natural resources. Prerequisite: junior standing.

**RU SOC 4325: American Community Studies (3).** An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**RU SOC 4335: Social Change and Development (3).** (same as Sociology [SOCIO] 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines. Prerequisites: Rural Sociology [RU\_SOC] 1000 or SOCIO 1000 and junior standing.

**RU SOC 4341: Building Communities from the Grassroots (3).** Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue. Prerequisite: instructor's consent.

**RU SOC 4342: Empowering Communities for the Future (3).** Focuses on the professional practice and applications of community-based development including participatory action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A/F basis only. Prerequisite: instructor's consent.

**RU SOC 4343: Creating Capacity for Dynamic Communities (3).** Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on

A/F basis only. Prerequisite: instructor's consent.

**RU SOC 4370: Environmental Sociology (3).** (same as Sociology [SOCIO] 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included. Prerequisites: junior standing.

## RUSSIAN COURSES

**RUSS 1100: Elementary Russian I (6).** Five hours of classroom instruction, with one hour lab work weekly.

**RUSS 1200: Elementary Russian II (6).** Five hours of classroom instruction, with one hour lab work weekly. Prerequisite: C- or better in Russian [RUSS] 1100 or equivalent.

**RUSS 2001: Undergraduate Topics in Russian-General (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with consent of department.

**RUSS 2005: Undergraduate Topics in Russian-Humanities (1-3).** Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with consent of department. No language credit.

**RUSS 2120: Russia: Enigma Wrapped in Mystery (3).** Broad introduction to the study of Russia as a discipline; designed to acquaint the student with a wide range of topics connected to the study of Russia. Prerequisite: sophomore standing or instructor's consent.

**RUSS 2130: Second-Year Russian I (4).** Students will solidify their command of Russian grammar and begin developing their reading skills. Prerequisite: Russian [RUSS] 1200, equivalent, or instructor's consent.

**RUSS 2160: Second-Year Russian II (4).** Continuation of Russian [RUSS] 2130. Prerequisites: RUSS 2130 or equivalent.

**RUSS 2310: Between Heaven and Earth: Russian Civilization (3).** Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**RUSS 2320: The Arts of Survival: Civilization in Soviet Times (3).** Historical, social, and artistic topics. No foreign language credit. Humanities credit.

**RUSS 2330: Russia and America as Comparative Civilizations (3).** Analyzes similar developments in the arts, architecture, literature, and film of Russia and America.

**RUSS 2570: The Supreme Measure: Capital Punishment in Russian History and Literature (3).** Highlights historical, ethical, and religious aspects of capital punishment across the span of Russian history. Provides an opportunity to explore a difficult topic using material unknown to most students; a serious course in literary history. Develops critical thinking skills.

**RUSS 2865: The Art of Soviet and Russian Cinema (3).** (Same as Film Studies [FILM\_S] 2865) Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken towards major.

**RUSS 3001: Topics in Russian-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing, departmental consent for repetition.

**RUSS 3005: Topics in Russian-Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing, departmental consent for repetition.

**RUSS 3130: Intermediate Russian (3).** Normally taken as 5th semester of Russian language sequence. Prerequisites: Russian [RUSS] 2160 or equivalent or instructor's consent.

**RUSS 3160: Intermediate Conversation and Composition (3).** Further develops oral command of Russian as well as listening comprehension and some letter writing skills. Prerequisite: Russian [RUSS] 2160 or 3130 or instructor's consent.

**RUSS 3310: Heroes of Their Times: Individualism in Russian Literature (3).** Examines selected works by the major Russian writers of the first half of the nineteenth century. Reading and lectures in English. Prerequisite: sophomore standing or instructor's consent.

**RUSS 3320: Matters of Life and Death: The Fiction of Tolstoy and Dostoevsky (3).** Analyzes the major works of Tolstoy and Dostoevsky. Readings and lectures in English. Prerequisite: sophomore standing or instructor's consent.

**RUSS 3330: Decline, Fall, and Resurrection in Modern Russian Literature (3).** Analysis of the major trends in Russian literature and related cultural developments from 1890 to 1930. Readings and lectures in English. Prerequisite: sophomore standing or instructor's consent.

**RUSS 3350: The Split Tree of Russian Literature: Contemporary Russian Prose (3).** Analyzes the divided tradition of Russian literature since 1930 in the works of such authors as Nabokov, Pasternak, Bulgakov, and Solzhenitsyn. Readings and lectures in English. Prerequisite: sophomore standing or instructor's consent.

**RUSS 3630: Russian Classics I (3).** Reading and discussion of selected works by major Russian writers of the nineteenth century. Course conducted in Russian. May be taken before or after Russian [RUSS] 3640. Prerequisite: RUSS 3130 or instructor's consent.

**RUSS 3640: Russian Classics II (3).** Reading and discussion of selected works by major Russian writers of the twentieth century. Course conducted in Russian. May be taken before or after Russian [RUSS] 3630. Prerequisite: RUSS 3130, or instructor's consent.

**RUSS 3870: Russian Women and Film (3).** (same as Film Studies [FILM S] 3870 / Women's and Gender Studies [WGST] 3870). Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles). Prerequisite: sophomore standing or instructor's consent.

**RUSS 3890: Russian and Soviet Cinema (3).** (same as Film Studies [FILM S] 3890). Survey and analysis of selected Soviet films. Emphasis on film-making as a form of art. English or subtitled. Second screenings by arr. Some films may run over 2 hrs. No foreign language credit. Prerequisite: junior standing or instructor's consent.

**RUSS 3895: Service Learning in Russian Studies (2).** Service learning offers students a chance to put into practice what they have learned in theory. Students work as teacher-aids or tutors in foreign language/culture classes at area schools. Graded on S/U basis only. Does not meet A&S foundation requirements. Prerequisites: instructor's consent.

**RUSS 3896: Honors in Russian (1-3).** Special problems in Slavic literature or linguistics. Prerequisite: consent of departmental Honors director.

**RUSS 4001: Topics in Russian-General (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition.

**RUSS 4005: Topics in Russian-Humanities (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: junior standing and instructor's consent, departmental consent for repetition.

**RUSS 4070: Intensive Beginning Russian (3).** Designed to lead quickly to a reading knowledge of Russian. Cannot be taken to fulfill undergraduate language requirement. Intended for graduate students in other departments who plan to conduct research in Russian. Prerequisite: junior standing or instructor's consent.

**RUSS 4160: Advanced Russian Conversation (3).** Advanced syntax, idiomatic constructions, and vocabulary building. Prerequisite: Russian [RUSS] 3160 or equivalent.

**RUSS 4350: Special Readings in Russian (1-3).** Prerequisites: junior standing and chairman's consent.

**RUSS 4420: Russian Poetry (3).** Survey of readings in Russian poetry from its beginnings to present. Prerequisite: Russian major or instructor's consent.

**RUSS 4430: Russian Drama (3).** Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century. Prerequisite: Russian major or instructor's consent.

**RUSS 4435: Russian Prose (3).** Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: rasskaz (story), the povest' (tale), the novella, novel essay early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**RUSS 4440: The Russian Novel (3).** Selected readings and seminar discussion of major novelists of the 19th and 20th centuries. Prerequisites: Russian major or instructor's consent.

**RUSS 4450: Russian Capstone Seminar (3).** Topics vary from year to year. The capstone course brings together aspects of Russian literature and culture studied during the degree program. Prerequisite: Russian major or instructor's consent.

**RUSS 4510: The Art and Life of Pushkin (3).** Gives a conceptual thematic overview of Alexander Pushkin's lyrical poetry, as well as some dramatic work and prose. Special attention paid to the parallel development of his artistic and religious beliefs. Poetry read in Russian; prose and dramatic poems in Russian and English. Prerequisite: Russian major or instructor's consent.

**RUSS 4520: Nikolai Gogol (3).** Study of the life and art of Nikolai Gogol. Includes biographical overview, Ukrainian stories, dynamics of folklore, local dialect, and the process of literary creation. Considers St. Petersburg stories, novels, and plays. Prerequisite: Russian major or instructor's consent.

**RUSS 4530: Dostoevsky (3).** Introduction to the works of Fyodor Dostoevsky, including selections from both the shorter works and the major novels. Prerequisite: Russian majors or graduate standing or instructor's consent.

**RUSS 4540: Tolstoy's Fiction and Truth (3).** Provides a conceptual overview and analysis of two masterpieces of Tolstoy's art. Acquaints students with the complex and hidden connections between Tolstoy's artistic method and religious beliefs. Prerequisites: Russian major or instructor's consent.

**RUSS 4550: Nabokov's Russian Fiction (3).** Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian (English translations for undergraduate students). Prerequisite: Russian major or instructor's consent.

**RUSS 4730: Internship in Russian (3).** Supervised introduction to the methodology of the teaching of elementary Russian; conducted in a classroom environment. Prerequisite: Russian major or graduate standing or instructor's consent.

**RUSS 4820: Blogging the World: The Web in Cultural Context (3).** (same as German [GERMAN] and French [FRENCH] 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts? Prerequisite: sophomore standing required.

## SCIENCE AND AGRICULTURAL JOURNALISM COURSES

**SCI AG J 1160: Introduction to Science and Agricultural Journalism (3).** Introduction to journalistic writing for print, broadcast, Web. Introduction to writing for public relations. Also includes writing for live Web publication: cafncornerpost.com. Provides overview of career opportunities. Prerequisite: instructor's consent.

**SCI AG J 2150: Problems in Science and Agricultural Journalism (1-6).** For undergraduates majoring in science and agricultural journalism. May be repeated. Prerequisite: instructor's consent.

**SCI AG J 2940: Internships in Science and Agricultural Journalism (1-3).** Prerequisite: instructor's consent, may be repeated for credit.

**SCI AG J 3201: Topics in Science and Agricultural Journalism (1-3).** Instruction in select subject matter areas in the field of communications. Prerequisite: instructor's consent.

**SCI AG J 3210: Fundamentals of Communications (3).** Instruction in writing about conflicts in agriculture and the environment and their cultural impacts. Emphasis on media literacy, critical thinking, communication and the interplay of science and human values. Prerequisites: English [ENGLSH] 1000, sophomore standing.

**SCI AG J 3240: Communicating on the Web (3).** Learn to make a useful, content-driven web site using web authoring software (this is not a programming class). This course emphasizes informative content and functional design. Prerequisite: instructor's consent.

**SCI AG J 3385: Problems in Science and Agricultural Journalism (1-4).** Opportunity to apply journalism skills to agricultural subjects; opportunity to integrate communication processes within single medium or across media. Section 1: Corner Post Staff, Section 2: Problems in Science and Agricultural Journalism. Prerequisite: junior standing and instructor's consent. May be repeated.

**SCI AG J 4301: Topics in Science and Agricultural Journalism (1-3).** Instruction in select subject matter areas in the field of communications. Prerequisite: Journalism [JOURN] 4450 and Junior standing. Consent of instructor required. Graded on A/F basis only.

**SCI AG J 4414: Field Reporting on the Food System and Environment (3).** (Same as Journalism [JOURN] 4414.) Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Prerequisite: consent of instructor. Graded A-F only.

**SCI AG J 4480: Will Write for Food (and Wine) (3).** (Same as Journalism [JOURN] 4480) Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Prerequisites: Junior standing, instructor's consent and JOURN 4450. Graded on A/F basis only.

**SCI AG J 4940: Internships in Science and Agricultural Journalism (1-3).** Prerequisite: instructor's consent, 60 or more credit hours completed. May be repeated for credit.

**SCI AG J 4970: Agriculture and the Media Senior Seminar Capstone (3).** (Science and Agricultural Journalism [SCI AG J] capstone course). Provides background, knowledge of trends and experience with agricultural media. Prerequisites: instructor's consent, Science and Agricultural Journalism seniors take last Spring semester before graduation.

## SOCIAL WORK COURSES

**SOC WK 1101: Topics in Social Work (1-3).** Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate students only.

**SOC WK 1110: Introduction to the Social Work Major (1).** Students examine their interest in social work and other human service professions; learn of career possibilities in their interest area; and develop an educational plan to reach their goal. Prerequisite: freshman or sophomore standing.

**SOC WK 1115: Social Welfare and Social Work (3).** Survey course that examines the history and development of social welfare in the United States and the profession of social work, as well as contemporary issues.

**SOC WK 2000: Exploration in Social and Economic Justice (3).** This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Graded on A/F basis only. Course may be repeated two times for credit.

**SOC WK 2101: Topics in Social Work (1-3).** Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest. Prerequisite: consent required.

**SOC WK 2220: Human Behavior and the Environment (3).** The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Prerequisite: English [ENGLSH] 1000 or sophomore standing. Graded on A/F basis only.

**SOC WK 3101: Topics in Social Work (1-3).** Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students. Prerequisite: consent required.

**SOC WK 3310: Comparative Social Policy (2-3).** A comparative study of social policy aspects in the framework of international development. Policy areas include South Asia, as well as other regions relevant to such study. Prerequisite: consent required.

**SOC WK 3320: Understanding Personality in a Social Context (3).** Introduces students to diverse personality theories and examines background, key concepts, motivation, structure, development dynamics and applications of each theory in a social context. Required of all undergraduate social work majors.

**SOC WK 3330: Medical Social Problems (2).** Interrelations of biological, psychological, social factors in understanding people with common physical illnesses. Prerequisites: junior standing and instructor's consent.

**SOC WK 3340: Dynamics of Interviewing (3).** Analysis of interviewing techniques employed in

communication for securing reliable, valid data to modify behavior in accordance with professional objectives. Prerequisites: junior standing and consent required.

**SOC WK 3350: Problems in Social Work (1-3).** Research and independent study projects offered on a tutorial basis to undergraduate social work students. Prerequisites: consent required.

**SOC WK 4101: Topics in Social Work (1-6).** Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. Prerequisite: consent required. May be repeated for credit

**SOC WK 4300: Women and Health Care (3).** Provides a study of the role of women as health care providers and an analysis of the impact of value systems and the women's movement on the organization and delivery of health services to women.

**SOC WK 4310: Social Statistics (4).** Descriptive, analytic techniques applied to qualitative and quantitative social data. Prerequisite: sophomore standing. Math Reasoning Proficiency Course.

**SOC WK 4320: Rural Human Services (3).** A study of the effect of rural and small community environments on the planning and delivery of social and health services. Emphasis on policy and program analyses relevant to rural issues and concerns. Prerequisite: junior standing.

**SOC WK 4330: Addiction Treatment and Prevention (3).** Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed. Prerequisite: junior standing.

**SOC WK 4350: Deaf Culture: A Social Work Perspective (3).** An introduction to the deaf community as a linguistic and cultural minority. Examines the complexities of Deaf culture from a historical and contemporary perspective. Addresses cultural identity, communication, education, social services, civil rights and advocacy. Graded on A/F basis only.

**SOC WK 4360: Working with Minority Youth (3).** (same as Black Studies [BL\_STU] 4360). Develops awareness and understanding of social/psychological and cognitive realities influencing the behavior of minority youth. Content draws upon theories, research and practice skills relevant to understanding and counseling minority youth. Prerequisite: junior standing.

**SOC WK 4370: Delinquency, Corrections and Social Treatment (3).** Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field. Prerequisite: junior standing.

**SOC WK 4380: Social Work Practice With Minorities: African-American Emphasis (3).** (same as Black Studies [BL\_STU] 4380). Provides students with an appreciation of the African-American experience in the United States on a knowledge and feeling level. Prerequisite: junior standing.

**SOC WK 4390: Helping Strategies With Children and Adolescents (3).** Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations. Prerequisite: junior standing.

**SOC WK 4400: Domestic Violence (3).** (same as Women's and Gender Studies [WGST] 4400). This 3-hour course covers history of battered women's movement, violence theories, policy issues, prevention and intervention practice models for working with battered women, their children, and abusers. Prerequisite: junior standing

**SOC WK 4410: Law and Social Work Practice (3).** Legal processes relevant to social work practice and court procedures, and study of decisions affecting social work across micro and macro practice. Prerequisite: junior standing.

**SOC WK 4440: International Social Work Practices and Principles (3).** This course explores issues of fairness and equity in economic, political and social systems, and applies social justice principles to major international social problems. Social Justice is the perspective that in a perfect world, all citizens deserve equal rights, protection, opportunities, obligations and social benefits. Recognizing that the world is not perfect, International Social Work Practice and Principles presents theories and perspectives on how to affect a more just society and world community. Social Work person in environment orientation and strong value system are used as guides in analyzing problems and determining ways of promoting a more just society and global community. Junior Standing required.

**SOC WK 4450: Professional Perspectives on Child Welfare Services in the 21st Century (3).** This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child safety, family stability, permanency for the child, and well-being of the child as a long-term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within the program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**SOC WK 4455: Latino/a Immigrants and Receiving Communities (3).** This interdisciplinary course is designed to educate students about the Latino/a immigrants seeking better lives and the communities that receive them. Special attention is given to social justice issues; micro, mezzo, and macro systems will be used to explore content.

**SOC WK 4710: Social Justice and Social Policy (3).** Based on the concepts of human need and social justice, a historical and analytical approach to social welfare policies and programs. Graded on A/F basis only. Prerequisites: junior standing and consent required.

**SOC WK 4711: Social Justice and Social Policy II (3).** Advanced course in the analysis of policies and programs relevant to social work and social welfare. Prepares students to understand and conduct policy analysis of public, voluntary, and proprietary human service organizations. Prerequisites: Social Work [SOC WK] 4710. Social Work Professional standing. Graded on A/F basis only.

**SOC WK 4720: Variations in Human Behavior (3).** Basic concepts and principles regarding psychological/social dynamics of deviance; implications for social welfare policy and social interventions. Prerequisites: junior standing and consent required.

**SOC WK 4730: Introduction to Social Work Practice (3).** Introductory, generalist practice theory course promoting student's understanding of professional social work practice as holistic, identifiable, unique configuration of knowledge, values and skills. Graded on A/F basis only. Prerequisite: Social Work Professional Standing and consent required.

**SOC WK 4740: Introduction to Community and Organizational Processes (4).** Introduction to contextual framework of social work practice with particular emphasis on community and organization as social systems. Graded on A/F basis only. Prerequisite: Social Work professional standing and consent required.

**SOC WK 4750: Interaction Skills Workshop (3).** Generalist practice at individual, group and community levels. Group communication and social influence theories address generic and unique aspects of interaction across systems. Uses laboratory instruction. Graded on A/F basis only. Prerequisites: Social Work Professional standing and consent required.

**SOC WK 4760: Theory and Practice of Social Group Work (3).** Focuses on small group dynamics and models of group work practice suitable in all social work fields. Emphasizes practice theory and skills. Graded on A/F basis only. Prerequisites: Social Work Professional standing.

**SOC WK 4770: Strategies of Direct Practice (3).** Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention. Prerequisites: Social Work [SOC WK] 4730 and 4750; third semester professional program standing; consent required. Co-requisite: SOC WK 4971 and 4970.

**SOC WK 4951: Research for Social Work Practice (3).** This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A/F basis only. Prerequisites: Social Work Professional standing or consent required.

**SOC WK 4952: Research Methods for Social Work (3).** Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A/F basis only. Prerequisites: Social Work Professional standing or consent required.

**SOC WK 4960: Special Readings in Social Work (1-3).** Extensive readings in selected area or intensive reading in a special field. Prerequisites: consent required.

**SOC WK 4970: Senior Professional Seminar (3).** Integrative professional practice seminar for BSW students, focusing on the principles of generic social work and its application to direct practice in diverse fields, career planning and responsibilities. Prerequisite: Social Work [SOC WK] 2220, 4710, 4730, 4740, 4750, 4760, and 4720; consent required. Co-requisite: SOC WK 4770 and 4970.

**SOC WK 4971: Undergraduate Field Practicum (6).** Supervised social work practice in a school-approved agency focusing on development of direct practice skills. Fall semester, three days per week. Prerequisites: senior standing; Social Work [SOC WK] 2220, 4710, 4730, 4740, 4750, 4760, and 4720; consent required. Co-requisite: SOC WK 4770 and 4970. Graded on S/U basis only.

## SOCIOLOGY COURSES

**SOCIOL 1000: Introduction to Sociology (1-3).** Nature of organization and activities of human groupings—family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both Sociology [SOCIOL] 1000 and Rural Sociology [RU\_SOC] 1000.

**SOCIOL 1000H: Introduction to Sociology Honors (3).** Nature of organization and activities of human groupings—family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both Sociology [SOCIOL] 1000 and Rural Sociology [RU SOC] 1000. Honors eligibility required.

**SOCIOL 1120: Population and Ecology (3).** (same as Rural Sociology [RU\_SOC] and Peace Studies [PEA ST] 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**SOCIOL 1360: The Female Experience: Body, Identity, Culture (3).** (same as Women's and Gender Studies [WGST] 1360). Study of the experience of being female in American culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**SOCIOL 1650: Social Deviance (3).** Survey of approaches to the study of behaviors commonly regarded as deviant such as crime, sexual abuse, substance abuse, mental illness, etc.

**SOCIOL 2103: Topics in Sociology-Behavioral Science (1-3).** Organized study of selected topics. Particular topics may vary from semester to semester. Departmental consent for repetition.

**SOCIOL 2200: Social Inequalities (3).** (same as Black Studies [BL\_STU] 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequalities are structured.

**SOCIOL 2210: The Black Americans (3).** (same as Black Studies [BL\_STU] 2210). Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, styles of life, patterns of work and intergroup relations.

**SOCIOL 2230: Social Perspectives on Aging (3).** Survey of basic knowledge in social gerontology, aging and old age in American society. Analysis of changes as individuals age, differences among old people, social problems of the aged. Prerequisites: Sociology [SOCIOL] 1000 or equivalent.

**SOCIOL 2284: Global Environmental Policy Conflicts (3).** (same as Peace Studies [PEA ST] 2284). Climate change, water supplies, food, sustainability, industrialization, and chemical, oil, radioactive pollution. Activity of transnational corporations, social harm, and formulation of international policies. Analysis of alternatives using criteria of justice: distribution, recognition, participation, legality.

**SOCIOL 2300: Self and Society (3).** Analysis of the self in modern society. Topics covered include social interaction, social perception, language and learning, the sociology of emotions and the social construction of identity.

**SOCIOL 2310: Culture and Mass Media (3).** Sociological study of modern folk, local, popular and mass cultural production and consumption; mass media, diffusion, change, differentiation.

**SOCIOL 2950: Social Research I (3).** (same as Rural Sociology [RU\_SOC] 2950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**SOCIOL 3000: Urban Sociology (3).** Urbanism as a world phenomenon; ecological, demographic characteristics of cities; organization of urban society including status systems, occupational structure, formal and informal associations, racial and cultural relations, forms of communication, housing, city planning.

**SOCIOL 3010: Social Problems (3).** Trends in modern societies: urbanization, occupational structure, technological change, etc. as these have produced alienation and legitimacy problems. Political, economic, health, welfare, military, justice institutions may be considered. Counter movements and policy issues.

**SOCIOL 3100: Recent Theories in Sociology (3).** (same as Rural Sociology [RU\_SOC] 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories. Prerequisite: Sociology [SOCIOL] 2200.

**SOCIOL 3200: Class, Status, and Power (3).** Study of the structure of wealth, poverty, prestige, and power. Concepts of social justice in political, economic and legal issues and policies. Provides student engagement in research.

**SOCIOL 3210: Sociology of Globalization (3).** Globalization's origin and dynamics; the social and political effects of globalization: countervailing forces to economic globalization, in particular reassertions of "traditional" identities, labor movements, new social movements, and the global democracy movement.

**SOCIOL 3230: Education and Social Inequalities (3).** Examination of the ways in which inequalities are constructed, reproduced, maintained or transformed by and within educational institutions. Particular attention will be given to inequalities based on gender,

race, and social class.

**SOCIOL 3255: Youth in Today's World (3).** Study of what factors influence the development of youth in today's society. Examined are types of behavior such as mating, deviance and the role of schools, parents, TV and friendship groups.

**SOCIOL 3300: Queer Theories/Identities (3).** Analysis of gay, lesbian, bisexual, transgender (glbt) and queer identities in culture and society with an emphasis on the contributions of queer theory and other glbt standpoint theories to sociology and the study of society. Prerequisite: Sociology [SOCIOL] 2200 or instructor's consent.

**SOCIOL 3310: Social Psychology (3).** Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**SOCIOL 3320: Sociology of Gender (3).** (same as Women's and Gender Studies [WGST] 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**SOCIOL 3330: Environmental Justice (3).** Environmental justice refers to the ways in which the "cost and benefits" of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places—national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality.

**SOCIOL 3400: Politics of the Media (3).** (same as Peace Studies [PEA ST] 3400). In this course we study critical thinking skills and use them to compare and contrast U.S. media coverage of current issues with media in other parts of the world. Graded on A/F basis only.

**SOCIOL 3420: The Family (3).** Families, kin and households as interacting groups; roles, socialization, problems, structural change; family in relation to other social institutions; historical, cultural and class variations.

**SOCIOL 3430: The Sociology of Sport (3).** The role of sport in modern society. Includes violence in sport; politics and economics of sport; male, female, and racial inequalities; and international comparisons of sport structures.

**SOCIOL 3440: Sociology of Health (3).** A survey of sociological thinking and research on health, health problems, health occupations and health services. How these are shaped by the society. Problems faced by individuals and the system. Potential solutions to problems.

**SOCIOL 3450: The Sociology of Religion (3).** Sociology of religious experience, action, organization, movements and social change; contemporary trends, including mainline and new religions, civil religion, secularization.

**SOCIOL 3460: Technology and Society (3).** In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the relationship between science, technology, and society. Graded on A/F basis only.

**SOCIOL 3510: Public Opinion and Communication (3).** Nature of public opinion; processes of

opinion formation; special publics, pressure groups; effects of communication through personal contacts and mass media; propaganda, censorship; opinion surveying.

**SOCIOL 3520: Collective Behavior (3).** (same as Peace Studies [PEA\_ST] 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**SOCIOL 3600: Criminology (3).** (same as Peace Studies [PEA\_ST] 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**SOCIOL 3700: Organizations and Institutions (3).** Social organization of modern societies with focus on complex organizations (corporations, bureaucracies) within institutional arrangements (economy, polity, education, religion); organizational structure; interorganizational networks; interrelations of institutional sectors.

**SOCIOL 3710: The Sociology of Work (3).** Analysis of occupational, professional aspects of American society. Division of labor; occupational mobility; work and the self; collegueship and informal organizations of work. Prerequisites: Sociology [SOCIOL] 1000 or 1650.

**SOCIOL 4100: Expert Systems (3).** Introduction to the use of expert system shells, designed for graduate students from any department. Students create prototype expert systems under close supervision by faculty experts. Prerequisite: junior standing or instructor's consent.

**SOCIOL 4104: Topics in Sociology-Social Science (3).** Organized study of selected topics. Particular topics may vary from semester to semester. Departmental consent for repetition.

**SOCIOL 4110: Feminist Research and Criticism (3).** (same as Women's and Gender Studies [WGST] 4110). Examination of both feminist critiques of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms. Prerequisites: Sociology [SOCIOL] 2950 or equivalent.

**SOCIOL 4120: Social Statistics (3).** (same as Rural Sociology [RU\_SOC] 4120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis. Prerequisite: Sociology [SOCIOL] 2950 or graduate standing.

**SOCIOL 4200: Social Inequalities (3).** Examination of theories and research concerned with inequalities based on social class, gender, and race-ethnicity. M.A. core course for sociology students. Prerequisite: graduate standing or instructor's consent.

**SOCIOL 4210: Sociology of Aging (3).** Sociological research and theories of aging and old age; historical, demographic, comparative, social psychological and structural topics are studied in depth. Prerequisites: 6 hours of Sociology and junior standing.

**SOCIOL 4220: Race and Ethnic Relations (3).** The experience of racial and ethnic minorities; inequality, assimilation, ethnic and racial conflict, accommodation. Prerequisite: junior standing or instructor's consent.

**SOCIOL 4230: Women, Development, and Globalization (3).** (same as Black Studies [BL\_STU] 4230 and Women's and Gender Studies [WGST] 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities. Prerequisites: Sociology [SOCIOL] 2200, WGST 1332, BL\_STU 1332, or WGST 4420.

**SOCIOL 4300: Death and Dying (3).** Death and dying explored from demographic, sociological and

social psychological perspectives. Topics: trends and differentials; definitions of death; dying as a social process; funerals and survivors; cultural solutions to problems of death. Prerequisite: junior standing or instructor's consent.

**SOCIOL 4310: Advanced Social Psychology (3).** Major theoretical fields and their application to human problems. M.A. core course. Prerequisite: Sociology [SOCIOL] 3310 or graduate standing.

**SOCIOL 4315: Social Demography (3).** (same as Rural Sociology [RU\_SOC] 4315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends. Prerequisites: Sociology [SOCIOL] 1000 or RU\_SOC 1000 and junior standing.

**SOCIOL 4320: Culture, Identity and Interaction (3).** Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectivities. Prerequisites: Sociology [SOCIOL] 3310 graduate standing or instructor's consent.

**SOCIOL 4335: Social Change and Development (3).** (same as Rural Sociology [RU\_SOC] 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines. Prerequisites: RU\_SOC or Sociology [SOCIOL] 1000 and junior standing.

**SOCIOL 4370: Environment and Society (3).** (same as Rural Sociology [RU\_SOC] 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included. Prerequisites: junior, senior or graduate standing.

**SOCIOL 4400: Sociology of Health Systems (3).** Analyzes organization of U.S. health system and systems in the developed and developing world. Special attention to reform movements, universality, effectiveness, quality, and efficiency. Prerequisite: Sociology [SOCIOL] 2950, 3440, and 3100 or graduate standing.

**SOCIOL 4410: Sociology of Education (3).** (same as Educational Leadership and Policy Analysis [ED LPA] 7458). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy. Prerequisites: Sociology [SOCIOL] 1000 or equivalent.

**SOCIOL 4500: Sociology of Social Policy (3).** Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences. Prerequisite: senior standing.

**SOCIOL 4510: Social Movements and Conflicts (3).** Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions. MA core course. Prerequisite: Sociology [SOCIOL] 3520, 3700, or 3320 or graduate standing.

**SOCIOL 4520: Political Sociology (3).** (same as Peace Studies [PEA\_ST] 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change. Prerequisite: Sociology [SOCIOL] 3200, 3510, 3520, or 3700.

**SOCIOL 4530: Social Organization of the Industrial Societies (3).** The organizational and interorganizational structure of modern capitalist and socialist societies, including examination of alternative models such as technocracy, bureaucratic society, state capitalism, state socialism, organized capitalism. Prerequisites: Sociology [SOCIOL] 3700 or 3710.

**SOCIOL 4550: Gender and Human Rights in Cross Cultural Perspective (3).** (same as Women's and Gender Studies [WGST] 4550 and Peace

Studies [PEA\_ST] 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism. Prerequisites: WGST 1120 or Sociology [SOCIOL] 2200; senior standing required.

**SOCIOL 4600: Contemporary Corrections (3).** Development of concepts of punishment, treatment. Contemporary penal and correctional institutions; problems of custody, classification, education, industry and treatment program; probation, parole. Prerequisites: Sociology [SOCIOL] 2200 and 3600.

**SOCIOL 4610: Society and Social Control (3).** The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination. Prerequisite: Sociology [SOCIOL] 3700 or 3710.

**SOCIOL 4620: Drugs and Society (3).** Course will examine the social, political, and economic aspects of legal and illegal drug use in American society. Issues include: theories of drug use, the social correlates of drug use, the war on drugs and policy alternatives, and the rise of the pharmaceuticals industry. Graded on A/F basis only

**SOCIOL 4700: Social Organization (3).** Survey of approaches to the analysis of social organization emphasizing complex organizations, division of labor, social inequality, politics and the state, social change. MA core course. Prerequisite: Sociology [SOCIOL] 3700 or 3710 or graduate standing or instructor's consent.

**SOCIOL 4940: Internship in Sociology (1-9).** Professional experience under faculty supervision. Project must be arranged by student and faculty member prior to registration. Prerequisites: junior standing and instructor's consent.

**SOCIOL 4942: Service Learning in Sociology (3).** Students participate in a variety of research-oriented, community service projects which illuminate and reinforce concepts introduced in various sociology courses. Repeatable twice for credit. Does not meet A&S general education requirements. Prerequisite: instructor's consent.

**SOCIOL 4960: Special Readings in Sociology (cr.arr.).** Extensive reading in selected area or special field. Prerequisites: 12 hours Sociology & departmental consent.

**SOCIOL 4970: Senior Seminar (3).** Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment. Prerequisite: Sociology [SOCIOL] 2950 and 3100 and senior sociology major.

**SOCIOL 4995: Honors in Sociology (3).** Intensive work in a selected field within sociology, including readings and research. Repeatable up to 6 hours with departmental consent. Prerequisites: for honors candidates; Sociology [SOCIOL] 2950 and 3100.

## SOIL SCIENCE COURSE

**SOIL 2100: Introduction to Soils (3).** (same as Plant Science [PLNT\_S] 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems. Prerequisites: 3 hrs of Chemistry.

**SOIL 2106: Soil Science Laboratory (2).** Laboratory application of fundamental soil science concepts. Prerequisites: concurrent enrollment in Soil Science [SOIL] 2100.

**SOIL 3001: Topics in Soil Science (cr.arr.).** Organized study of selected topics in soil science.

**SOIL 3085: Problems in Soil Science (cr.arr.).** Special individualized research projects or readings in soil science.

**SOIL 3290: Soils and the Environment (3).** (same as Environmental Science [ENV SC] 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution. Prerequisites: Soil Science [SOIL] 2100, 3 hrs of chemistry, English [ENGLSH] 1000 or instructor's consent.

**SOIL 4001: Topics in Soil Science (cr.arr.).** Organized study of selected topics in soil science.

**SOIL 4085: Problems in Soil Science (cr.arr.).** Special individualized non-thesis research projects or readings in soil science.

**SOIL 4305: Environmental Soil Physics (3).** (same as Environmental Science [ENV SC] 4305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat. Prerequisites: Soil Science [SOIL] 2100, Physics [PHYSCS] 1210 or equivalent.

**SOIL 4306: Environmental Soil Physics Laboratory (2).** (same as Environmental Science [ENV SC] 4306). Introduction to the methodology and equipment for measurement of soil physical properties and processes. Prerequisites: concurrent or previous enrollment in Soil Science [SOIL] 4305.

**SOIL 4308: Soil Conservation (3).** Conservation of soil with respect to topsoil, soil productivity, and fertility. Prerequisite: Soil Science [SOIL] 2100. Recommended: Agricultural Systems Management [AG S M] 4420.

**SOIL 4312: Environmental Soil Microbiology (3).** (same as Environmental Science [ENV SC] 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic general bioremediation, etc. Prerequisite: general microbiology, Soil Science [SOIL] 2100, or instructor's consent.

**SOIL 4313: Soil Fertility and Plant Nutrition (3).** (same as Plant Science [PLNT\_S] 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments. Prerequisites: Soil Science [SOIL] 2100 or instructor's consent.

**SOIL 4314: Soil Fertility and Plant Nutrition Laboratory (2).** (same as Plant Science [PLNT\_S] 4314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants. Prerequisite: concurrent or previous enrollment in Soil Science [SOIL] 4313.

**SOIL 4318: Environmental Soil Chemistry (3).** (same as Environmental Science [ENV SC] 4318 and Geology [GEOL] 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes. Prerequisites: Soil Science [SOIL] 2100 or GEOL 2400, Chemistry [CHEM] 1320 and 1330. Junior level standing or consent of instructor.

**SOIL 4320: Genesis of Soil Landscapes (4).** The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings. Prerequisites: introductory soil science or introductory geology or permission of instructor.

**SOIL 4360: Precision Agriculture Science and Technology (3).** (same as Agricultural Systems Management [AG\_S\_M] 4360 and Plant Science [PLNT\_S] 4360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture

technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management. Prerequisites: Soil Science [SOIL] 2100, PLNT\_S 2110 or instructor's consent.

**SOIL 4940: Soil Science Internship (cr.arr.).** Supervised professional experience with an approved public or private organization. Prerequisite: Soil and Atmospheric Sciences majors only, instructor's consent. Course may be repeated for credit. Graded on S/U basis only.

## SOUTH ASIA STUDIES COURSES

**S A ST 1004: Topics in South Asian Studies (3).** Special topics.

**S A ST 1100: Elementary Hindi I (5).** Oral-aural and structural approach. Devanagari script.

**S A ST 1152: Asian Humanities (3).** (same as Religious Studies [REL\_ST] 1820, History [HIST] 1820 and Art History and Archeology [AR\_H\_A] 1230). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**S A ST 1200: Elementary Hindi II (5).** Continuation of South Asian Studies [S A ST] 1100. Spoken and written Hindi. Prerequisite: grade of C or better in S A ST 1100.

**S A ST 1860: History of Ancient India (3).** (same as History [HIST] 1860). This course surveys the history of South Asian history. The course begins with the Indus Valley Civilization (fl. 2600-1900B.C.) and ends with an analysis of Islamic impact on Indic culture around 1200-1350. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used for the study of premodern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**S A ST 1861: History of Modern India (3).** (same as History [HIST] 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**S A ST 1862: History of India: 1000-1750 (3).** (Same as History [HIST] 1862) This course surveys the history of the South Asian subcontinent from the eleventh through mid-eighteenth centuries. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used to study civilization. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**S A ST 2100: Philosophy: East and West (3).** (same as Philosophy [PHIL] 2100). Compares the interpretation and role of philosophical concepts such as experience, reason permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions. Prerequisite: sophomore standing.

**S A ST 2110: Elementary Hindi III (3).** Continuation of South Asian Studies [S A ST] 1200. Prerequisite: S A ST 1100, 1200 or equivalent.

**S A ST 2270: Geography of Asia (3).** (same as Geography [GEOG] 2270). An introductory survey of the geography of Asia from India through Southeast Asia to China and Japan, emphasizing factors contributing to cultural similarities and variations, conflicts of interest, and current development. Prerequisites: sophomore standing or one Introductory Geography course.

**S A ST 2800: Women in Indian History (3).** (same as History [HIST] 2800). This course

examines the role of women in Indian (South Asian) history, focusing on women in British India from the eighteenth century up to the Partition of 1947. While previous knowledge of South Asian history may be beneficial, it is not required for this course.

**S A ST 3130: Advanced Hindi Readings I (4).** Directed readings in the literature of the student's area of concentration, and advanced conversation. Prerequisite: instructor's consent.

**S A ST 3160: Advanced Hindi Readings II in South Asian Studies (4).** Continuation of South Asian Studies [S\_A\_ST] 3160. Prerequisite: instructor's consent.

**S A ST 3200: Hinduism (3).** (same as Religious Studies [REL\_ST] 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga and meditation, Indian religious thought and devotional Hinduism.

**S A ST 3230: Buddhism and Environmental Ethics (3).** (same as Religious Studies [REL\_ST] 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**S A ST 3240: Buddhism of South and Southeast Asia (3).** (same as Religious Studies [REL\_ST] 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in south and Southeast Asia.

**S A ST 3245: Nonviolence in the Modern World (3).** (same as History [HIST] 3840 and Peace Studies [PEA\_ST] 3840). Readings on recent world history, emphasis on Ghandi and nonviolent tradition in America, Europe and the Third World.

**S A ST 3260: Southeast Asia (3).** (same as Geography [GEOG] 3260). Physical, cultural, historical and regional geography of Southeast Asia, with an introduction to East Asian geography. Emphasizes the problems of tradition and development. Prerequisite: GEOG 2270 or junior standing.

**S A ST 3280: Geography of South Asia (3).** (same as Geography [GEOG] 3280). Topical and regional analysis of India, Pakistan, Sri Lanka. Historical development of distinctive cultural regions. Relations with neighboring areas. Impact of Westernization on economic activities, settlements, population. Prerequisite: junior standing.

**S A ST 4004: Topics in South Asian Studies (3).** Special topics.

**S A ST 4300: Religious Narratives of South Asia (3).** (same as Religious Studies [REL\_ST] 4300). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**S A ST 4620: Politics in India and South Asia (3).** (same as Political Science [POL\_SC] 4620). Contemporary political and governmental patterns of India, Pakistan, Sri Lanka, Nepal, and Bangladesh.

**S A ST 4630: Sanskrit I (3).** (same as Religious Studies [REL\_ST] 4630). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**S A ST 4640: Sanskrit II (3).** (same as Religious Studies [REL\_ST] 4640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the

course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**S A ST 4790: Culture and Society in South Asia (3).** (same as Anthropology [ANTHRO] 4790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include caste, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora. Prerequisite: junior standing.

**S A ST 4800: Asian Philosophy (3).** (same as Philosophy [PHIL] 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jain, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy. Prerequisite: junior standing.

**S A ST 4810: Philosophy of India (3).** (same as Philosophy [PHIL] 4810). General development of Indian Philosophy. Prerequisite: junior standing.

**S A ST 4820: Contemporary Indian Philosophy (3).** (same as Philosophy [PHIL] 4820). Indian philosophical traditions as represented in backgrounds of Gandhi, Tagore, Tagore, Tagore, Tagore, and philosophical systems of Radhakrishnan, Aurobindo, etc. Prerequisite: junior standing.

**S A ST 4850: Traversing the Muslim World (3).** (same as History [HIST] 4850) The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**S A ST 4860: Indian Army as Colonial Army (3).** (same as History [HIST] 4860). This writing intensive discussion-based course examines how the Indian Army acted as a colonial army in the British Empire, including Africa, the Boxer Rebellion, and the World Wars. Focus is on the role of the Indian Army, impact of the Sepoy Mutiny an martial race ideology.

## SPANISH COURSES

**SPAN 1100: Elementary Spanish I (5).** An introductory course for students who wish to begin their study of Spanish. It teaches the four skills - listening, speaking, reading, and writing. The class meets four days a week and one day in the lab. Class time is used to practice the structures and vocabulary.

**SPAN 1100H: Elementary Spanish I - Honors (5).** This designated honors section of Elementary Spanish 1100 will challenge students to explore more deeply the currently existing thematic units of the Spanish 1100 curriculum. Students will participate in group discussions, creative projects, independent study and use of authentic written and aural material from primary sources. Honors Spanish 1100 will integrate cultural events outside the classroom such as movies, guest lectures, art exhibits, seminars or concerts as available. Once a semester, Honors Spanish 1100 will meet with Honors Spanish 1200 and 2100 as a cohort group for further intellectual exchange and enrichment. Honors eligibility required. Graded on A/F basis only.

**SPAN 1200: Elementary Spanish II (5).** The second course of the beginning sequence in the continuation of Spanish [SPAN] 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of Spanish are encouraged to take this course. Prerequisite: Grade of C or better in SPAN 1100 or equivalent. NO credit for both SPAN 1200 and 1250.

**SPAN 1200H: Elementary Spanish II - Honors (5).** This course, designed for students who have taken Spanish 1100 or an equivalent course and enrolled in the Honors College, offers an introduction to the Spanish language and the many cultures in encompasses. Your course work will allow you to develop all

four language skills: reading, speaking, listening and writing along with the cultural background necessary to help you to communicate effectively in Spanish. With the honors designation section, the course will allow students to access greater challenges in the existing thematic units in the curriculum through group discussion, creative projects and authentic situations. Prerequisites: grade of C or better in SPAN 1100; Honors eligibility required. Graded on A/F basis only.

**SPAN 1250: Accelerated Beginning Spanish (5).** Course is designed for students who have taken more than two years of High School Spanish. It offers a reinforcement of the beginning concepts of the Spanish language and the many cultures it encompasses. Course allows students to further develop all language skills. NO credit for both Spanish [SPAN] 1200 and 1250.

**SPAN 2001: Undergraduate Topics in Spanish-General (1-3).** Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department. Prerequisite: Spanish [SPAN] 1200 with a grade of C or better.

**SPAN 2005: Undergraduate Topics in Spanish-Humanities/Fine Arts (1-3).** Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department. Prerequisite: Spanish [SPAN] 1200 with a grade of C or better.

**SPAN 2100: Elementary Spanish III (3).** A multi-skill course following Spanish [SPAN] 1200, centering on cultural/literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression. Prerequisite: grade of C or better in SPAN 1200 or 1250, or their equivalent courses.

**SPAN 2100H: Elementary Spanish III - Honors (3).** A multi-skill course following Spanish [SPAN] 1200, centering on cultural/literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression. The course seeks to improve student's fluency in Spanish and to expose them to the many cultures it encompasses. This course will integrate cultural events outside the classroom as well such as movies, guest lectures, art exhibits, seminars or concerts as available. Prerequisite: grade of C or better in SPAN 1200 or 1250, or their equivalent courses. Honors eligibility required. Graded on A/F basis only.

**SPAN 2160: Intermediate Spanish Composition and Conversation (3).** First course following required elementary sequence. Designed specifically to correct any remaining weaknesses in gross writing skills and to develop further conversational ability with equal emphasis on both of these aspects. Classwork involves written compositions and oral presentations. Prerequisites: Spanish [SPAN] 2100 or equivalent.

**SPAN 2310: Spanish Civilization (3).** Survey of Spanish history, arts and culture. Open to any student interested. No knowledge of Spanish required. May not be included in area of concentration in Spanish.

**SPAN 2320: Spanish Literature in Translation (3).** (same as Peace Studies [PEA\_ST] 2320). May not be included in area of concentration in Spanish. Subject, such as the literature of the Spanish Civil War, varies with instructor. Prerequisite: sophomore standing.

**SPAN 2330: Latin American Civilization (3).** Survey of Latin American history, arts and culture. Open to any student interested. No knowledge of Spanish required. May not be included in area of concentration in Spanish.

**SPAN 2340: Hispanic Minority Literature (3).** This course studies the literature of Hispanic minorities in the United States: Chicanos (Mexican American), Mainland Puerto Ricans, and Cuban exile writers. It explores the question of minority versus majority literatures and the creation of a Hispanic minority discourse. No knowledge of Spanish required. Prerequisite: English [ENGLSH] 1000.

**SPAN 3001: Topics in Spanish-General (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

Prerequisite: sophomore standing. Departmental consent for repetition.

**SPAN 3004: Topics in Spanish-Social Science (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing. Departmental consent for repetition.

**SPAN 3005: Topics in Spanish-Humanities/Fine Arts (1-3).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: sophomore standing. Departmental consent for repetition.

**SPAN 3150: Advanced Spanish Conversation (3).** Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary. Prerequisite: Spanish [SPAN] 2160 or equivalent.

**SPAN 3160: Advanced Spanish Composition (3).** Course emphasizes writing at an advanced level, with a certain degree of sophistication about varied subjects and using different techniques of composition. Classwork consists mainly of the discussion of both the ideas and techniques used in different textual forms. Prerequisite: Spanish [SPAN] 2160 or equivalent.

**SPAN 3170: Conversational Spanish Practice (3).** Study Abroad Conversational Spanish course for students who have already completed 3150, but want more practice. Does not count for majors/minors. Prerequisite: Spanish [SPAN] 3150 and instructor's consent. Graded on A/F basis only.

**SPAN 3280: Commercial Spanish (3).** Business terminology and forms. Translate and compose business letters and documents for advertising and promotion, trade and commerce, imports and exports, money and banking. Prerequisite: Spanish [SPAN] 2160 or equivalent.

**SPAN 3400: Mexican Culture and Civilization (2-3).** Study of Mexican culture and civilization through field trips, excursions and selected readings in Mexican history and literature. No knowledge of Spanish required. Open only to participants in UMC's study programs in Mexico. Prerequisites: sophomore standing or instructor's consent.

**SPAN 3420: Introduction to Hispanic Literature I (3).** Selected prose fiction and nonfiction prose of Spain and Spanish America. Prerequisite: Spanish [SPAN] 3160 or equivalent.

**SPAN 3430: Introduction to Hispanic Literature II (3).** Selected plays and poetry of Spain and Spanish America. Prerequisite: Spanish [SPAN] 3160 or equivalent.

**SPAN 3710: Survey of Minority & Creole Languages of the U.S. & the Caribbean (3).** (same as French [FRENCH] 3710 and Linguistics [LINGST] 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, culture and national identity (taught in Eng.). Prerequisite: sophomore standing.

**SPAN 3721: Spanish Phonetics (3).** (same as Linguistics [LINGST] 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish. Prerequisite: Spanish [SPAN] 2160 or equivalent.

**SPAN 4070: Intensive Beginning Spanish (3).** Designed for rapid acquisition of a reading knowledge of Spanish. Cannot be taken to fulfill undergraduate language requirement. Prerequisite: instructor's consent.

**SPAN 4120: Foreign Language Teaching Methodology (3).** (same as French [FRENCH] 4120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom

observations, and strategies for classroom management. Prerequisite: department consent. May not be used towards Arts & Science major.

**SPAN 4130: Stylistics (3).** Advanced composition class. Discussion of complex grammatical structures necessary for formal writing. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production. Prerequisite: Spanish [SPAN] 2160 or equivalent. Recommended: SPAN 3420 and 3430.

**SPAN 4410: Spanish Medieval Literature (3).** The principal periods, schools, and genres of Spanish medieval literature are surveyed through representative masterworks. Lectures and periodic student reports help relate works read to the rest of contemporary Spanish and European literature. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4420: Golden Age Poetry (3).** Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required. Prerequisite: Spanish [SPAN] 3420 and 3430.

**SPAN 4421: Renaissance and Golden Age Prose (3).** Representative prose works from various genres are read as well as literary criticism devoted to them. Among the authors studied are Fernando de Rojas, Jorje Montemayor, Miguel de Cervantes, Francisco de Quevedo, and Maria de Zayas. Prerequisite: Spanish [SPAN] 3420 and 3430.

**SPAN 4422: Spanish Theatre in the Golden Age (3).** Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcón, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre. Prerequisite: Spanish [SPAN] 3420 and 3430.

**SPAN 4423: Don Quijote (3).** In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4441: Twentieth-Century Spanish Novel (3).** Reading and critical analysis of representative novels written in Spain from early century to the post-Franco period. The objectives of the course are to develop critical skills in dealing with these fictional works and to understand the major trends of the contemporary Spanish novel. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4442: Advanced Contemporary Culture of Spain (3).** Study of Spanish culture and civilization through field trips, excursions, and selected readings in history, literature, and contemporary print media. Prerequisite: Spanish [SPAN] 3150, 3160, 3721 or equivalent. Open only to participants in the UMC's summer study in Spain.

**SPAN 4450: Hispanic Literature of Resistance (3).** A study of the literature of commitment in the Hispanic world: literature in its historical and political contexts that makes a conscious effort to change social conditions. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4460: Advanced Contemporary Culture of Spanish America (3).** A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A/F basis only. Prerequisites: Spanish [SPAN] 3150 and 3160.

**SPAN 4461: Advanced Spanish Civilization (3).** A survey of Spanish culture and Spanish history from the Middle Ages to the present with special emphasis on contemporary culture. Students will be provided with knowledge of chronology, geography and contemporary issues from readings of journals, novels and Internet news. Prerequisites: Spanish [SPAN] 3150 and 3160.

**SPAN 4470: Survey of Spanish American Literature I (3).** This is an introductory course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the

early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4471: Survey of Spanish American Literature II (3).** Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4490: Hispanic Oral Traditions (3).** This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4520: Modernista and Contemporary Poetry (3).** Careful study and analysis of selected poems by major figures in Hispanic poetry. The period covered includes the modernist movement to the present. Particular attention is given to the following figures: Ruben Dario, Octavio Paz, Pablo Neruda, and Nicolas Guillen. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4530: The Spanish American Theatre (3).** Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4540: Afro-Hispanic Literature (3).** A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4550: Nobel Laureates in Spanish American Literature (3).** Analyzes the creative expression of five Nobel laureates from Spanish America. Selected works of Gabriela Mistral, Pablo Neruda, Miguel Angel Asturias, Octavio Paz and Gabriel Garcia Marquez are read in relation to contemporary theory. Prerequisites: Spanish [SPAN] 3420 and 3430.

**SPAN 4711: History of the Spanish Language (3).** (same as Linguistics [LINGST] 4711). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects. Prerequisite: reading knowledge of Spanish. Recommended: Spanish [SPAN] 3420 and 3430.

**SPAN 4721: Structure of Modern Spanish (3).** (same as Linguistics [LINGST] 4721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects. Prerequisites: four 3000-level courses in Spanish.

**SPAN 4722: Spanish Across the Continents (3).** (same as Linguistics [LINGST] 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A/F basis only. Prerequisites: four 3000-level courses in Spanish.

**SPAN 4723: Language and Society: Spanish in the U.S. (3).** (same as Linguistics [LINGST] 4723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A/F basis only. Prerequisites: four 3000-level courses in Spanish.

**SPAN 4940: Service Learning in Spanish (1).** (same as Romance Languages [RM\_LAN] 4940). Course offers our majors and advanced minors the opportunity to use their language skills in real-life community settings. Graded on S/U basis only. Does not meet A&S general education requirements. May be repeated once for credit. Prerequisites: junior or senior standing and departmental consent.

**SPAN 4960: Special Readings in Spanish (1-3).** Independent study through readings, conferences, reports. Prerequisites: Spanish [SPAN] 3420 and 3430 and departmental consent.

**SPAN 4980: Special Themes in Spanish (3).** Subject varies according to instructor. Prerequisites: Spanish [SPAN] 3420 and 3430. May be repeated for credit.

**SPAN 4993: The Capstone Experience in Spanish (3).** This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

## SPECIAL EDUCATION COURSES

**SPC ED 3300: Special Readings in Special Education (1-3).** Directed study of literature and research reports in special education.

**SPC ED 3310: Aiding: Special Education (1-3).** Supervised observational and instructionally-related activities in special education.

**SPC ED 3500: Student Teaching in Special Education (cr.arr.).** Ten-week, full-time placement in Special Education classroom; field-based opportunity for the application of competencies developed in initial certification area(s). Prerequisite: advisor's consent.

**SPC ED 4020: Inquiry into Learning II (3).** Inquiring into Learning II addresses topics in the foundations of pedagogy including classroom management, behavior management, and students with special needs. Prerequisite: Progression into Phase II. Graded on A/F basis only.

**SPC ED 4300: Introduction to Special Education (3).** Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**SPC ED 4305: Introduction to Special Education for Regular Educators (3).** Introduction to the field of special education for other majors; survey of exceptionalities with emphasis on the mainstreaming exceptional students.

**SPC ED 4310: Behavioral Management for Exceptional Students (3).** Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs. Prerequisite: Special Education [SPC ED] 4300.

**SPC ED 4320: Assessment and Evaluation in Special Education (3).** Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs. Prerequisite: Special Education [SPC ED] 4300.

**SPC ED 4325: Language Development of Exceptional Students (3).** Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs. Prerequisite: Special Education [SPC ED] 4300.

**SPC ED 4330: Collaboration and Consultation in Special Education (3).** Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams. Prerequisites: Special Education [SPC ED] 4300.

**SPC ED 4370: Literacy in Special Education (3).** Addresses specific literacy needs of special needs students with a focus on assessment and instruction for special needs students in regular classrooms. Pre-requisite: Special Education [SPC ED] 4300, Literacy Methods.

**SPC ED 4371: Literacy in Special Education II (3).** Advanced study in literacy methods and research

for students with disabilities. Graded on A/F basis only. Prerequisites: Special Education [SPC ED] 4370 or 7370.

**SPC ED 4375: Cross Categorical Special Education (3).** Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices. Prerequisite: professional standing in Phase II.

**SPC ED 4380: Methods in Cross-Categorical Special Education (4).** This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities. Prerequisites: professional standing in Phase II, Special Education [SPC ED] 4375, 4940.

**SPC ED 4390: Methods in Vocational Education for the Disabled and Disadvantaged (2-3).** (same as Learning, Teaching and Curriculum-Vocational [LTC V] 4770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities. Prerequisite: Special Education [SPC ED] 4300.

**SPC ED 4401: Topics in Special Education (3).** In-depth study of certain developments, findings, trends and issues in one or more areas of special education.

**SPC ED 4940: Cross-Categorical Special Education: Practicum I (1-4).** Involvement in meaningful field-based activities that extend and/or apply content information from Special Education [SPC ED] 4375. Pre/co-requisites: SPC ED 4375, professional standing in Phase II.

**SPC ED 4941: Practicum in Cross-Categorical II (3).** The purpose of this course is to provide students with experience in applying the content of Special Education [SPC ED] 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). Prerequisites: SPC ED 4375 and 4940. Pre/co-requisites: SPC ED 4380. This course may be repeated for credit.

**SPC ED 4972: Capstone Seminar and Portfolio in Special Education (1).** Students in final student teaching internship will meet weekly to examine and compare their internship experiences. Analysis, synthesis, evaluation and problem solving are the focus of the examination of various aspects of pedagogy and experience. Additionally, students will develop and submit for scoring their State mandated certification portfolio. Prerequisites: Learning, Teaching and Curriculum [LTC] 4971, concurrent enrollment in final semester of student teaching internship.

## STATISTICS COURSES

**STAT 1200: Introductory Statistical Reasoning (3).** Statistical concepts for critically evaluation quantitative information. Descriptive statistics, probability, estimation, hypothesis testing, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for a higher numbered course offered by the Statistics Department. Prerequisite: grade in C range or better in Mathematics [MATH] 1100, 1120, 1160 or 1180 or exemption from College Algebra by examination. Math Reasoning Proficiency Course.

**STAT 1300: Elementary Statistics (3).** Collection, presentation of data; averages; dispersion; introduction to statistical inference, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Prerequisite: grade in C range or better in Mathematics [MATH] 1100, 1120, 1160, or 1180 or exemption from college algebra by examination. Math Reasoning Proficiency Course.

**STAT 1300H: Elementary Statistics - Honors (3).** Collection, presentation of data; averages; dispersion; introduction to statistical inference, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department.

Prerequisite: grade in C range or better in Mathematics [MATH] 1100, 1120, 1160, or 1180 or exemption from college algebra by examination. Honors eligibility required. Math Reasoning Proficiency course

**STAT 1400: Elementary Statistics for Life Sciences (3).** Designed for students studying agriculture and other life sciences. Descriptive statistics, probability, estimation, hypothesis testing, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency Course. Prerequisite: grade in C range or better in Mathematics [MATH] 1100, 1120, 1160, or 1180 or exemption from college algebra by examination.

**STAT 2200: Introductory Statistical Methods (1).** Designed to upgrade the curriculum of Statistics [STAT] 1200 or 1300 or 1400 to the level of Statistics 2500. Students may not receive credit for Statistics 2200 if they have completed a course from the Department of Statistics numbered 2500 or higher. Prerequisites: grade in C range or better in STAT 1200, 1300, or 1400. Math Reasoning Proficiency Course.

**STAT 2500: Introduction to Probability and Statistics I (3).** Designed primarily for students in College of Business. Descriptive statistics, probability, random variables, sampling distributions, estimation, confidence intervals, hypothesis tests. Prerequisite: grade of C- or better in Mathematics [MATH] 1300, 1320, 1400 or 1500. Math Reasoning Proficiency course.

**STAT 2530: Statistical Methods in Natural Resources (3).** Statistical methods, with emphasis on applications to natural resources and including computer exercises. Prerequisite: a college-level computing course and a grade in the C range or better in Mathematics [MATH] 1100, 1120, 1160, or 1180. Math Reasoning Proficiency Course.

**STAT 3500: Introduction to Probability and Statistics II (3).** Continuation of 2500. Coverage of additional topics including: Regression; model building; ANOVA; nonparametric methods; use of a statistical computer package. Prerequisite: grade in the C range of Statistics [STAT] 2200, 2500, 2530, or concurrent enrollment in STAT 2200.

**STAT 4002: Topics in Statistics-Biological/Physical/Mathematics (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent. Prerequisites: junior standing and instructor's consent.

**STAT 4050: Connecting Statistics to Middle and Secondary Schools (3).** Primarily for middle and secondary mathematics education majors. Uses standards-based curricular materials to demonstrate connections between college-level statistics and content taught in middle and secondary schools. No credit toward a graduate degree in statistics. Prerequisite: an introductory course in statistics or Mathematics [MATH] 2320 or instructor's consent.

**STAT 4085: Problems in Statistics for Undergraduates (1-3).** Independent investigations. Reports on approved topics. Prerequisite: instructor's consent.

**STAT 4110: Statistical Software and Data Analysis (3).** Programming with major statistical packages emphasizing data management techniques and statistical analysis for regression, analysis of variance, categorical data, descriptive statistics, non-parametric analyses, and other selected topics. Prerequisite: Statistics [STAT] 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

**STAT 4150: Applied Categorical Data Analysis (3).** The study of statistical models and methods used in analyzing categorical data. The use of computing is emphasized and calculus is not required. No credit for students who have previously completed Statistics [STAT] 4830. No credit toward a graduate degree in statistics. Prerequisite: STAT 3500, 7070, 4710/7710, or 4760/7760 or instructor's consent.

**STAT 4210: Applied Nonparametric Methods (3).** Statistical methods when the functional form of the population is unknown. Applications emphasized.

Comparisons with parametric procedures. Goodness of-fit, chi-square, comparison of several populations, measures of correlation. Prerequisite: Statistics [STAT] 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

**STAT 4310: Sampling Techniques (3).** Theory of probability sampling designs. Unrestricted random sampling. Stratified sampling. Cluster sampling. Multistage or subsampling. Ratio estimates. Regression estimates. Double sampling. Prerequisite: Statistics [STAT] 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

**STAT 4410: Biostatistics (3).** Study of statistical techniques for the design and analysis of clinical trials, laboratory studies and epidemiology. Topics include randomization, power and sample size calculation, sequential monitoring, Carcinogenicity bioassay and case-cohort designs. Prerequisite: Statistics [STAT] 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

**STAT 4420: Applied Survival Analysis (3).** Parametric models; Kaplan-Meier estimator; nonparametric estimation of survival and cumulative hazard functions; log-rank test; Cox model; Stratified Cox model; additive hazards model partial likelihood; regression diagnostics; multivariate survival data. Prerequisite: Statistics [STAT] 3500, 4710/7710 or 4760/7760 or consent of instructor.

**STAT 4430: Applied Longitudinal Data Analysis (3).** Repeated measurements; event history studies; linear and nonlinear mixed effects models; growth models; marginal mean and rate models; pattern-mixture models; selection models; non-informative and informative drop-out; joint analysis of longitudinal and survival data. Prerequisite: Statistics [STAT] 3500, 7070, 4710/7710, or 4760/7760 or instructor's consent.

**STAT 4450: Applied Statistical Methods for Bioinformatics (3).** Random variables; Point estimation; Multiple t-test; Likelihood principle; Analysis of variance; Probabilistic methods for sequence modeling; Gene expression analysis; Protein structure prediction; Genome analysis; Hierarchical clustering and Gene classification. Prerequisite: Statistics [STAT] 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

**STAT 4510: Applied Statistical Models I (3).** Introduction to applied linear models including regression (simple and multiple, subset selection, estimation and testing) and analysis of variance (fixed and random effects, multifactor models, contrasts, multiple testing). No credit toward a graduate degree in statistics. Prerequisite: Statistics [STAT] 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

**STAT 4530: Analysis of Variance (3).** Study of analysis of variance and related modeling techniques for cases with fixed, random, and mixed effects. Exposure to designs other than completely randomized designs including factorial arrangements, repeated measures, nested, and unequal sample size designs. Prerequisite: Statistics [STAT] 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

**STAT 4540: Experimental Design (3).** Examination and analysis of modern statistical techniques applicable to experimentation in social, physical or biological sciences. Prerequisite: Statistics [STAT] 3500 or 4510/7510 or 4530/7530 or instructor's consent.

**STAT 4560: Applied Multivariate Data Analysis (3).** Testing mean vectors; Discriminant analysis; Principal components; Factor analysis; Cluster analysis; Structural equation modeling; Graphics. Prerequisite: Statistics [STAT] 3500, 7070 4710/7710 or 4760/7760 or instructor's consent. No credit towards a graduate degree in statistics.

**STAT 4610: Applied Spatial Statistics (3).** Introduction to spatial random processes, spatial point patterns, kriging, simultaneous and conditional autoregression, and spatial data analysis. Prerequisite: Statistics [STAT] 4510 or instructor's consent. Recommended: basic knowledge of calculus and matrices.

**STAT 4640: Introduction to Bayesian Data Analysis (3).** Bayes formulas, choices of prior, empirical

Bayesian methods, hierarchical Bayesian methods, statistical computation, Bayesian estimation, model selection, predictive analysis, applications, Bayesian software. Prerequisite: Statistics [STAT] 3500 or 4510/7510 or instructor's consent.

**STAT 4710: Introduction to Mathematical Statistics (3).** (same as Mathematics [MATH] 4315). Introduction to theory of probability and statistics using concepts and methods of calculus. Prerequisite: MATH 2300 or instructor's consent. No credit for MATH 4315.

**STAT 4750: Introduction to Probability Theory (3).** (same as Mathematics [MATH] 4320). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems. Prerequisite: MATH 2300 or instructor's consent.

**STAT 4760: Statistical Inference (3).** (same as Mathematics [MATH] 4520). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses. Prerequisite: Statistics [STAT] 4750/7750.

**STAT 4810: Nonparametric Methods (3).** A first course in Non-parametric statistical methods based on ranks. Both theory and application are emphasized. Two-sample problems. K-sample problems. Tests for independence. Contingency tables. Goodness-of-fit tests. Prerequisite: Statistics [STAT] 4710/7710 or 4760/7760 or instructor's consent.

**STAT 4830: Categorical Data Analysis (3).** Discrete distributions, frequency data, multinomial data, chi-square and likelihood ratio tests, logistic regression, log linear models, rates, relative risks, random effects, case studies. Prerequisite: Statistics [STAT] 4710/7710 or 4760/7760 or instructor's consent.

**STAT 4850: Introduction to Stochastic Processes (3).** Study of random processes selected from: Markov chains, birth and death processes, random walks, Poisson processes, renewal theory, Brownian motion, Gaussian processes, white noise, spectral analysis, applications such as queuing theory, sequential tests. Prerequisite: Statistics [STAT] 4750/7750 or instructor's consent.

**STAT 4870: Time Series Analysis (3).** A study of univariate and multivariate time series models and techniques for their analyses. Emphasis is on methodology rather than theory. Examples are drawn from a variety of areas including business, economics and soil science. Prerequisite: Statistics [STAT] 4710/7710 or 4760/7760 or instructor's consent.

**STAT 4970: Senior Seminar (3).** A capstone course required of and open only to senior statistics majors. Students will participate in statistical consulting, attend colloquia, and review articles in professional journals. Writing of reports will be emphasized. Prerequisite: senior statistics major and 12 completed hours of statistics courses or instructor's consent.

**STAT 4999: Departmental Honors in Statistics (1-3).** Special work for Honors candidates in statistics. May be repeated for credit.

#### STUDENT SUCCESS CENTER COURSES

**SSC 1020: University Freshmen Seminar (1).** (same as Interdisciplinary Studies [INTDSC] 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities. Prerequisite: Restricted to first time college student. No credit for students who have earned credit for Agriculture, Food and Natural Resources [AFNR] 1115, INTDSC 1001, Information, Science Learning Technologies [IS LT] 1110, Education, Leadership and Policy Analysis [ED LPA] 3100 or an equivalent first-year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in Student Success Center [SSC] 1020 and SSC 1150 in the same semester.

**SSC 1020H: University Freshmen Seminar - Honors (1).** (same as Interdisciplinary Studies [INTDSC] 1020). To maximize student's potential to

achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities. Prerequisite: Restricted to first time college student. No credit for students who have earned credit for Agriculture, Food and Natural Resources [AFNR] 1115, INTDSC 1001, Information, Science Learning Technologies [IS LT] 1110, Education, Leadership and Policy Analysis [ED LPA] 3100 or an equivalent first-year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in Student Success Center [SSC] 1020 and SSC 1150 in the same semester. Honors eligibility required.

**SSC 1150: Learning Strategies for College Students (1-3).** Students' learning strategies are assessed, and their needs are given greatest emphasis. Learning through reading and listening are given major consideration as are the corollary skills of vocabulary expansion, studying and note taking.

**SSC 1151: Learning and Motivation (3).** To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Restricted to first time college students. No credit for students who have earned credit for Agriculture, Food and Natural Resources [AFNR] 1115; Interdisciplinary Studies [INTDSC] 1001; Information, Science Learning Technologies [IS LT] 1110; Education, Leadership and Policy Analysis [ED LPA] 3100, or an equivalent first-year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students not allowed to be enrolled in Student Success Center [SSC] 1020, 1150 or 1151 in the same semester.

**SSC 1500: Disney Internship (0).** Internship: Experiential learning as a "cast member" of the Walt Disney World College Program. Students work for a semester at the Walt Disney World resort and have the option of taking Disney Classes. Prerequisites: instructor's consent; departmental signature. Graded on S/U basis only.

**SSC 2100: Career Explorations (1-3).** Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center.

**SSC 2150: Tutoring University Students: Theory & Practice (3).** An introduction to tutoring university students. Provides a pedagogical foundation for tutoring college students in content areas. Topics include but are not limited to diversity, the tutoring relationship, plagiarism, learning strategies, and best practices. Students will observe tutorials during the first part of the course and will conduct their own tutorials later in the semester. Graded on A/F basis only. Prerequisite: Instructor's consent.

**SSC 3100: Advanced Disney Internship (0).** Advanced Internship: Experiential learning opportunity with the Walt Disney World College Program. Students work for a semester at the Walt Disney World resort and have the option of taking Disney classes. This is a second internship that is more field-specific and carries with it more responsibilities. Prerequisite: instructor's consent, departmental signature. Graded on S/U basis only.

#### TEXTILE AND APPAREL MANAGEMENT COURSES

**T A M 1100: Introduction to the Textile and Apparel Industry (3).** Surveys the development, production and marketing of softgoods merchandise from concept to consumer.

**T A M 1200: Basic Concepts of Apparel Design and Production (3).** Introduction to design techniques, coordination of fabric with design, selection of support materials, and basic understanding of garment assembly operations.

**T A M 1300: Softgoods Retailing (3).** Surveys merchandising and retailing principles with specific

applications to the softgoods industry. Prerequisite: Textile and Apparel Management [T A M] 1100

**T A M 1400: Softgoods Consumer Behavior (3).** Analysis of softgoods consumer behavior; softgoods consumption's contribution to the broader social world; models of consumer behavior which underscore the complex interrelationships between the individual softgoods consumer and his/her social reality.

**T A M 2120: Professional Seminar (1).** Exploration of issues in professional activity/success including: evaluating opportunities, oral and written communication for presenting oneself, the articulation of professional/private life, and professional ethics. Prerequisites: second semester junior, first semester senior, or prior to internship.

**T A M 2200: Science of Textiles (3).** Fundamental concepts of textiles. Chemical composition, molecular arrangement, and physical structure of natural and manufactured fibers. Yarn and fabric manufacturing and various finishing techniques. Impacts of such characteristics and techniques on function, performance, and quality. Graded A-F only.

**T A M 2280: Apparel Production (4).** Introduction to sewn products industry applications in which students assemble sample garments and products on industrial equipment. Order of operations is emphasized and industry specific software is introduced. Prerequisite: Textile and Apparel Management [T A M] 1200 or taking concurrently and T A M 2200.

**T A M 2300: Retail Finance and Merchandise Control (3).** Emphasizes assortment and financial planning utilizing computer applications in the retail environment. Prerequisites: Textile and Apparel Management [T A M] 1300 or Marketing [MRKTNG] 3000, Mathematics [MATH] 1100 and computer familiarity. Math Reasoning Proficiency Course.

**T A M 2380: Integrated Apparel Design and Production I (3).** A beginning apparel product development course integrating patternmaking, apparel assembly decision-making and materials selection. Graded on A/F basis only. Prerequisites: Textile and Apparel Management [T A M] 2280 and instructor's consent.

**T A M 2381: Integrated Apparel Design and Production I Lab (1).** Beginning course Computer Aided Patternmaking. Graded on A/F basis only. Prerequisites: Textile and Apparel Management [T A M] 2280. Must be taken concurrently or after 2380.

**T A M 2400: Global Consumers (3).** This course uses consumer behavior and cultural frameworks, integrated with critical and creative thinking processes to develop global perspective that is sensitive to diverse consumers' needs and preferences for products and services in the global marketplace. Graded on A/F basis only.

**T A M 2480: Apparel and Textile Presentation Techniques (3).** Apparel and textile presentation processes. Introduction to a range of traditional and innovative presentation techniques using various media. Prerequisites: Textile and Apparel Management [T A M] 1200. Graded A-F basis only.

**T A M 2500: Social Appearance in Time and Space (3).** An investigation of the motives and meanings that individuals negotiate through the use of dress in presenting themselves as players in complex social contexts. The emphasis is on cross-cultural, historical, and contemporary settings. Prerequisite: English [ENGLSH] 1000.

**T A M 2580: Digital Textile and Apparel Applications (3).** Use of computer aided design technology to create designs for textiles and apparel. Includes portfolio development. Prerequisite: Textile and Apparel Management [T A M] 1200. Graded on A-F basis only.

**T A M 3001: Recent Trends in Textiles and Apparel Management (1-3).** For upper-class students who wish additional knowledge and understanding in specific subject matter areas.

**T A M 3110: Textiles and Apparel in the Global Economy (3).** Economic, social, and political dimensions of the textile complex and trade in a global

economy; implications for production, distribution, and consumption of products. Prerequisite: Textile and Apparel Management [T A M] 1100 and 6 hours of economics.

**T A M 3120: Apparel Manufacturing and Merchandising (3).** Investigation of the complex interaction of manufacturing, marketing, and merchandising in the apparel industry, achieved through instructional and experiential study. Includes study trip. Additional fees required. Prerequisite: Textile and Apparel Management [T A M] 1200 or 2200, minimum 2.5 GPA required, and instructor's consent.

**T A M 3140: Apparel Manufacturing and Merchandising (3).** Investigation of the complex interaction of manufacturing, marketing, and merchandising in the apparel industry, achieved through instructional and experiential study. Includes study trip. Additional fees required. Prerequisite: Textile and Apparel Management [T A M] 1200 or 3280, minimum 2.5 GPA required, and instructor's consent.

**T A M 3210: Computer Aided Design (3).** Use of computer aided design technology to create designs for textiles and apparel. Prerequisite: instructor's consent.

**T A M 3280: Principles of Apparel Manufacturing (3).** A study of the apparel manufacturing industry including the decision making involved in marketing, merchandising, and producing apparel. Prerequisites: Textile and Apparel Management [T A M] 1200, T A M 2200 or instructor's consent.

**T A M 3281: Principles Apparel Manufacturing Lab (1).** Emphasis on computer technology applications using industry based systems of digitizing and marker making. Should be taken concurrently with Textile and Apparel Management [T A M] 3280.

**T A M 3380: Integrated Apparel Design and Production II (3).** An intermediate apparel product development course integrating patternmaking, apparel assembly decision-making and materials selection. Prerequisite: Textile and Apparel Management [T A M] 2380. Graded on A-F basis only.

**T A M 3400: Clothing, Behavior, and Society (3).** Utilization of contextual perspective to examine and to understand use of clothing as a tool in symbolic interaction. Prerequisite: Textile And Apparel Management [T A M] 2500 or instructor's consent.

**T A M 3410: The Clothing/Textile Consumer: Research and Analysis (3).** Examines the effects of economic, social and marketing factors on the clothing consumption process. Legislative and quality issues related to clothing and textiles are also discussed. Prerequisites: 3 hours of merchandising or marketing or microeconomics; 3 hours in statistics.

**T A M 3480: Technical Design (3).** Technical product development for the global sewn products industry. Prerequisite: Textile and Apparel Management [T A M] 3380. Graded on A-F only basis.

**T A M 3510: History of Western Dress (3).** Surveys the history of Western dress from prehistory through the 18th Century. Prerequisite: English [ENGLSH] 1000.

**T A M 4001: Topics in Textiles and Apparel Management (cr.arr.).** Selected current topics in field of interest.

**T A M 4085: Problems in Textiles and Apparel Management (cr.arr.).** Selected current problems in field of interest. Prerequisites: junior standing and instructor's consent.

**T A M 4087: Seminar in Textiles and Apparel Management (1-4).** Reports and discussion of recent work in area of concentration.

**T A M 4100: Electronic Commerce Applications (3).** Integration of theory, design, management, and application processes used in Electronic Commerce. Prerequisite: Textile and Apparel Management [T A M] 3100.

**T A M 4110: Global Sourcing (3).** Global sourcing refers to how and where manufactured goods or components will be procured. In today's global softgoods industry, sourcing has become a major competitive strategy for both manufacturers and retailers. Graded

on A/F basis only. Prerequisite: junior standing required.

**T A M 4130: Supply Chain Management (3).** This course examines how the supply chain management can be used to gain a competitive advantage in the softgoods industry. Prerequisite: Textile and Apparel Management [T A M] 3110 and junior standing.

**T A M 4140: Web-Based Marketing Research (3).** This project-oriented course will focus on principles of marketing research applicable to textile/apparel online environments. Students will learn how to develop, utilize, and analyze web-based research. Prerequisites: 3 hours of statistics and junior standing.

**T A M 4200: Fundamentals of E-Commerce (3).** An overview of the development, present status, barriers, and future of e-commerce from a managerial point of view. Prerequisite: junior standing.

**T A M 4300: Softgoods Brand Management (3).** Management of branded product lines produced by textile and apparel firms; strategic implications of the development of brand equity toward increasing customer loyalty. Prerequisites: Textile and Apparel Management [T A M] 1100 or 1300 and Marketing [MRKTNG] 3000.

**T A M 4310: Global Retailing (3).** This course will examine how to apply retail concepts and activities to overseas markets, how to evaluate potential overseas markets, and how to develop global retail strategies. Prerequisite: Textile and Apparel Management [T A M] 1300.

**T A M 4480: Creativity and Problem Solving (3).** Exploration of the creative process and sources of inspiration. Emphasis on research, design development for a variety of markets. Prerequisite: Textile and Apparel Management [T A M] 3380. Graded A-F only.

**T A M 4500: History of Textile Manufacturing and Trade (3).** Focuses on changing issues affecting the textile and apparel industry today and examines those issues from both historic and current perspectives. Prerequisite: Textile and Apparel Management [T A M] 2500 or T A M 3510 or instructor's consent.

**T A M 4510: 19th and 20th Century Western Dress (3).** A study of nineteenth and twentieth century Western dress as influenced by time, place, and culture. Prerequisites: Textile and Apparel Management [T A M] 2500 or T A M 3510, or Theatre [THEATR] 1320 or instructor's consent.

**T A M 4549: International Experiential Learning in Textiles and Apparel (cr.arr.).** International experience of textile and apparel management, including visitation of foreign industries, government agencies, and cultural/historical sites. Destination may vary. Course may be repeated up to 3 times. Prerequisite: instructor's consent; Minimum GPA of 2.5. Graded on A/F basis only.

**T A M 4949: Field Training in Textiles and Apparel Management (cr.arr.).** Practical aspects of internship experience coordinated with the university curriculum. Available for various areas of emphasis. Prerequisites: 2.5 GPA, Textile and Apparel Management [T A M] 2120, instructor's consent, and necessary prerequisite for area of emphasis.

**T A M 4960: Readings in Textiles and Apparel Management (cr.arr.).** Selected current readings in field of interest. Prerequisites: senior standing and instructor's consent.

**T A M 4980: Apparel Production Management (4).** Integration of consumer, trend and aesthetic research to develop and produce a competitive apparel product line using a multifunctional team approach. Graded on A/F basis only. Prerequisites: Textile and Apparel Management [T A M] 3840 or 4480 or taking currently.

**T A M 4990: Retail Marketing and Merchandising (3).** Analytical management techniques appropriate for evaluation of retailing productivity. Emphasis on the use of these techniques and others in the development of a comprehensive retail marketing strategy. Prerequisites: Textile and Apparel Management [T A M] 2300, Accounting [ACCTCY] 2036, Marketing [MRKTNG] 3000.

**T A M 4998: Experiential Learning in Textiles and Apparel (cr.arr.).** This course is designed to provide students with hands-on-experiences in the softgood industry. The purpose is to link classroom learning to business cultural centers, museums, workshops, and/or service learning opportunities achieved through experiential study. Additional field study fees might be applicable, depending on experience. Prerequisite: instructor's consent and minimum GPA of 2.5. May be repeated for credit. Graded on A/F basis only.

## THEATRE COURSES

**THEATR 1005: Topics in Theatre - Humanities/Fine Arts (cr.arr.).** Organized study of selected topics. Subject and credit may vary from semester to semester. May be repeated with departmental consent. Prerequisite: instructor's consent.

**THEATR 1100: The Theatre in Society (3).** Examines the form and meaning of theatre in civilizations of the West from the ancient Greeks to modern times. Restricted to Freshman and Sophomores only.

**THEATR 1200: Voice and Articulation (2).** Techniques for improving speaking voice; theories underlying techniques. Attention to student's articulation, pronunciation, voice quality, general expressiveness.

**THEATR 1250: World Theatre Workshop (2).** (same as Black Studies [BL\_STU] 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**THEATR 1320: Beginning Scenic Construction Lab (3).** Practical experience constructing and rigging theatrical scenery, properties, and stage lighting. Requires evening crew assignment.

**THEATR 1340: Beginning Costume Construction Lab (3).** Learn the basic sewing skills used in costume construction, through lecture, demonstration and practical application. Requires evening crew assignment.

**THEATR 1360: Stage Makeup (1).** Character analysis, facial anatomy, color for stage and television makeup. Practice in application.

**THEATR 1400: Acting for Non-Majors (3).** Basic theory and practice of acting for the non theatre major. Restricted to Freshman and Sophomores only.

**THEATR 1420: Stage Movement for the Actor (2).** Basic work in the techniques that comprise movement training for the actor.

**THEATR 1720: African-American Theatre History (3).** (same as Black Studies [BL\_STU] 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

**THEATR 2005: Topics in Theatre (3).** Organized study of selected topics. Subject and credit may vary from semester to semester. May be repeated with department consent. Prerequisite: instructor's consent.

**THEATR 2150: African-American Cinema (3).** (same as Black Studies [BL\_STU] 2150). Study of the impact of cinema and the entertainment industry on the social perceptions of African-Americans and on African-American culture.

**THEATR 2200: Introduction to Performance Studies (3).** This course focuses on the writing of adaptations for the stage through performance. Students develop skills in critical reading, writing, listening, speaking and analysis of performance as they study oral and literary texts, autobiography and narratives.

**THEATR 2300: Production Workshop I (1).** Work backstage in support of university theatre productions. Scenery, lighting, costumes, properties or other responsibilities. May be repeated. Prerequisite: instructor's consent. Graded on a S/U basis only.

**THEATR 2330: Stage Management (1).** Study of the role of the theatre stage manager. Practice in

becoming effective in planning and stage managing theatre productions. Graded on A/F basis only.

**THEATR 2360: Stagecraft (3).** Fundamentals of properties and scenic construction stressing terminology and practical production experience. Prerequisite: Theatre [THEATR] 1320.

**THEATR 2410: Performance Workshop (1).** Credit for performance in University Theatre Production. Must audition and be cast to receive credit. May be repeated. Graded on S/U basis only.

**THEATR 2510: Introduction to Theatre Design (3).** Design principles and elements as they relate to theatre performance. Use of drawing and creative 3-dimensional exercises to develop design concepts. Recommended to students interested in directing, playwriting, and design for the theatre.

**THEATR 2710: Introduction to Theatre History (3).** Survey of major periods emphasizing the produced play in its historical context.

**THEATR 2800: Principles of Script Analysis (3).** Methodologies of script analysis for theatrical purposes. Extensive writing will be required. Prerequisite: English [ENGLSH] 1000.

**THEATR 2920: Beginning Playwriting (3).** (same as English [ENGLSH] 2560). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**THEATR 3005: Topics in Theatre (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent. Prerequisites: junior standing and instructor's consent.

**THEATR 3005H: Topics in Theatre - Honors (cr.arr.).** Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent. Prerequisites: junior standing and instructor's consent. Honors eligibility required.

**THEATR 3100: Summer Repertory Theatre (cr.arr.).** Participation in production of Summer Repertory Theatre. May be repeated. Prerequisite: instructor's consent.

**THEATR 3200: Performance of Literature (3).** (same as English [ENGLSH] 3570 and Communication [COMMUN] 3570). Analysis and oral interpretation of literary works. Graded on A/F basis only. Prerequisite: sophomore standing.

**THEATR 3230: Vocal Performance Technique (3).** This course develops the ability to use the voice as a creative and expressive instrument through a comprehensive study of speech and voice dynamics which include the exploration of proper breathing, relaxation, tonal placement, and non-regional articulation.

**THEATR 3300: Production Workshop II (1).** Credit earned in a technical project in support of a University Theatre production. Scenery, costumes, properties, or other responsibilities. May be repeated to total of 3 hours. Prerequisite: instructor's consent. Graded on S/U basis only.

**THEATR 3310: Costume Crafts (3).** To develop the skills and techniques needed in executing costume crafts, including millinery, corsetry, painting and dyeing, and embellishment.

**THEATR 3320: Theatrical Patternmaking (3).** Patternmaking for the theatre. Basic knowledge of sewing required. Prerequisite: Theatre [THEATR] 1340 or Textile and Apparel Management [T A M] 1200.

**THEATR 3330: Advanced Costume Construction (3).** Learn advanced techniques in theatrical costuming through lecture, demonstration and practical application. Prerequisite: Theatre [THEATR] 1340 and instructor's consent.

**THEATR 3340: Scene Painting (2).** Studio practice in techniques of painting scenery for the Theatre. Prerequisite: instructor's consent.

**THEATR 3420: Acting I (3).** Basic theory, practice of acting, stage movement.

**THEATR 3430: Acting II (3).** Script analysis, character and role development in modern and contemporary non-realistic theatrical forms. Rehearsal and presentation of scenes, based on contemporary dramatic and performance theory. Prerequisite: Theatre [THEATR] 2800.

**THEATR 3530: Computer Graphics in Theatre Design (3).** The use of graphics and CAD software to create theatre designs. The course will progress from 2D CAD drafting to 3D image rendering. Prerequisite: sophomore standing.

**THEATR 3540: Advanced Stage Makeup (1).** Advanced practical experience in stage makeup techniques. Projects might include: mask making, ventilation, advanced character applications. Practice in application. Graded on A/F basis only. Prerequisite: Theatre [THEATR] 1360 and instructor's consent.

**THEATR 3550: Sound Design (3).** Beginning sound design for the theatre. Units include basics of researching, recording, and augmenting sound for the use in a theatrical production. Prerequisite: Theatre [THEATR] 1320 and instructor's consent.

**THEATR 3560: Scene Design (3).** Theory/practice of scenic design for the theatre with emphasis on the evolutionary process of design from concept to reality. Prerequisite: Theatre [THEATR] 2510, 3530, or instructor's consent.

**THEATR 3600: Theatrical Directing (3).** Theory and practice of play directing, script selection, casting, play analysis, rehearsal and performance. Prerequisite: Theatre [THEATR] 2800 and instructor's consent.

**THEATR 3700: World Dramatic Literature (3).** (same as English [ENGLSH] 3170). Survey of world drama from Greeks to present, focusing on structure, theory and performance. Prerequisite: Theatre [THEATR] 2710 and 2800.

**THEATR 3750: New American Theatre (3).** Survey of drama of the most recent decade as it documents contemporary mores and amplifies cultural themes. Prerequisite: Theatre [THEATR] 2800.

**THEATR 3770: The Theatre Experience: From Page to Stage and Screen (3).** Stimulates critical thinking about theatrical performance, its relationship to the society of which it is a part, and its past and present significance as an art form, a cultural resource, a social institution, and a commercial enterprise. Prerequisite: sophomore standing; restricted to Journalism Majors.

**THEATR 3920: Intermediate Playwriting (3).** (same as English [ENGLSH] 3560). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production. Prerequisite: Theatre [THEATR] 2920 or ENGLSH 2560.

**THEATR 3930: Screenwriting for Television and Film (3).** (same as Film Studies [FILM S] 3930). Fundamentals of storytelling utilizing tools and structure used by television and film. Prerequisite: English [ENGLSH] 1000.

**THEATR 4005: Topics in Theatre (cr.arr.).** Organized study of selected topics. Topic and credit may vary semester to semester. May be repeated with department consent. Prerequisite: instructor's consent.

**THEATR 4220: Acting III (3).** Period acting styles. Special projects in interpretation, rehearsal, creation of roles. Prerequisites: Theatre [THEATR] 2800 and 3420 or 3430.

**THEATR 4240: Theory and Practice of Theatre of the Oppressed (3).** (same as Peace Studies [PEAST] 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues. Prerequisite: instructor's consent.

**THEATR 4460: Musical Theatre Performance (3).** A practical study for the actor of theatrical songs through character analysis, lyric interpretation and movement. A performance course. Prerequisite: instructor's consent.

**THEATR 4530: Stage Lighting Design (3).** Theory and practice of lighting for theatre production.

Prerequisite: instructor's consent.

**THEATR 4570: Theatrical Costume Design (3).** Basic practice in costume rendering using charcoal, crayon, ink, watercolor and other media. Costume history, both theatrical and general, will be surveyed. Basic problems of theatre design will be considered. Prerequisite: Theatre [THEATR] 1320 or 1340.

**THEATR 4600: Advanced Directing (3).** Advanced principles of theatrical directing; emphasizes stylistic variations. May be repeated once. Prerequisite: Theatre [THEATR] 3600 and instructor's consent.

**THEATR 4700: Studies in Theatre History (3).** Advanced survey of major periods, movements. Prerequisite: senior standing. Repeatable to a maximum of 6 hours with instructor's consent.

**THEATR 4720: American Musicals (3).** (same as Music-History and Literature [MUS\_H\_LI] 4376). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

**THEATR 4730: Theatre Architecture (3).** Examines the renovation of existing buildings into workable theatre spaces. Includes history of theatre architecture. Prerequisite: instructor's consent.

**THEATR 4800: Studies in Dramatic Theory (3).** Analysis of history, meaning and function of selected concepts of contemporary dramatic and performance theory. Prerequisite: senior standing.

**THEATR 4820: Studies in Dramatic Literature (3).** Advanced survey of major movements, periods, writers. Prerequisite: senior standing. Repeatable to a maximum of 6 hours with instructor's consent.

**THEATR 4830: Studies in Dramatic Criticism (3).** Survey of methods of criticism of scripts and performances. Prerequisite: senior standing.

**THEATR 4920: Advanced Playwriting: Problems (3).** (same as English [ENGLSH] 4560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques. Prerequisite: Theatre [THEATR] 3920 or ENGLSH 3560.

**THEATR 4930: Adaptation of Literature for the Stage (3).** (same as English [ENGLSH] 4570). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for the stage.

**THEATR 4935: Adaptation of Literature for Film (3).** (same as Film Studies [FILM S] 4935 and English [ENGLSH] 4935). This upper-division course will explore adaptation principles and practices with a variety of forms for literature that were not originally written for film.

**THEATR 4940: Internship in Theatre (1-6).** Internship: Experimental learning as an actor, designer, technician, publicist/manager, or dramaturg with an approved theatre company. Prerequisites: junior/senior standing and departmental consent. S/U graded only.

**THEATR 4960: Directed Readings in Theatre (1-3).** Independent reading, reports. Prerequisite: instructor's consent.

**THEATR 4990: Capstone in Theatre (1).** Theatre experiences and knowledge gained by students are connected through compilation of resume and portfolio. Student will meet with faculty jury to discuss his/her body of theatrical work. Required for senior theatre students. Prerequisite: instructor's consent. Graded on S/U basis only.

## WOMEN'S & GENDER STUDIES COURSES

**WGST 1001: Topics in Women's and Gender Studies-General (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing.

**WGST 1003: Topics in Women's and Gender Studies-Behavioral (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester

to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing.

**WGST 1004: Topics in Women's and Gender Studies-Social Studies (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing.

**WGST 1005: Topics in Women's and Gender Studies-Humanities (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing.

**WGST 1120: Bodies, Cultures, and Nations (3).** Introduction to the basic issues of Western feminist thought through a study of classical and contemporary sources. Course will consider images, conditions, activities and visions of women as they vary historically and socially.

**WGST 1332: Social Perspectives on Gender, Race and Class (3).** (same as Black Studies [BL\_STU] 1332). Examines the impact of the construction of "female" on different categories of women. Reviews women's multilayered relationships. Stresses both the roles of creator and "victim" within social structures and value systems. No credit for students who have taken Women's and Gender Studies [WGST] 1334.

**WGST 1360: The Female Experience: Body, Identity, and Culture (3).** (same as Sociology [SOCIO] 1360). Study of the experience of being female in American Culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**WGST 1500: The Black Woman in America (3).** (same as Black Studies [BL\_STU] 1500). Review and critique of a variety of materials about Black women from slavery to the social and philosophical impact of the Black woman's struggle on all women. Prerequisites: sophomore standing.

**WGST 2001: Topics in Women's and Gender Studies-General (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 2003: Topics in Women's and Gender Studies-Behavioral (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 2004: Topics in Women's and Gender Studies-Social Studies (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 2005: Topics in Women's and Gender Studies-Humanities (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 2005H: Topics in Women's and Gender Studies-Humanities - Honors (1-3).** Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: sophomore standing and/or Women's and Gender Studies [WGST] 1120. Honors eligibility required.

**WGST 2020: Feminist Theory I (3).** Introduces central themes and problems in feminist thought, including consciousness-raising, motherhood, class, race, sexuality, nationalism, and transnational feminism. Prerequisite: Women's and Gender Studies

[WGST] 1120 or sophomore standing.

**WGST 2030: Gender in India: Colonial Histories, Post-Colonial Challenges (3).** The aim of the course is to identify and interrogate key gender issues in India with an acute awareness of their constructions through western and local knowledges, Indian patriarchy, the nation-state, and globalization. Prerequisite: sophomore standing.

**WGST 2040: Women's Empowerment (3).** Women's Empowerment is a popular catch phrase in politics and research, but What does it mean? How is it measured? If we define and measure it, but find it lacking, how do we empower individuals? This course examines definitions of measurements of and routes to women's empowerment in First World and Third World contexts.

**WGST 2050: 16 and Pregnant: Adolescent Pregnancy in a Global Context (3).** This class will use the popular TV show 16 and Pregnant as a starting point for looking at the issues of teen pregnancy and parenthood in the US, and other contexts.

**WGST 2080: Gender Freedom: Sexuality and Gender Beyond Borders (3).** This interdisciplinary, cross-cultural course investigates modern constructions of sexed and gendered bodies, paying particular attention to those systems of gender-based oppression that suppress multiple gender identities and expressions. Prerequisite: sophomore standing.

**WGST 2180: Introduction to Women's Literature (3).** (same as English [ENGLSH] 2180). A study of traditional and non-traditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. Prerequisite: ENGLSH 1000. No more than six hours may be taken in the Introduction to Women's Literature series.

**WGST 2186: Introduction to Women's Literature, Beginning to 1603 (3).** (same as English [ENGLSH] 2186). See Women's and Gender Studies [WGST] 2180 for course description.

**WGST 2187: Introduction to Women's Literature, 1603 to 1789 (3).** (same as English [ENGLSH] 2187). See Women's and Gender Studies [WGST] 2180 for course description.

**WGST 2188: Introduction to Women's Literature, 1789 to 1890 (3).** (same as English [ENGLSH] 2188). See Women's and Gender Studies [WGST] 2180 for course description.

**WGST 2189: Introduction to Women's Literature, 1890 to Present (3).** (same as English [ENGLSH] 2189). See Women's and Gender Studies [WGST] 2180 for course description.

**WGST 2250: Latinas in the U.S. (3).** This course provides an introduction to the formation of Chicana and Latina identities in the U.S. Some areas covered are: immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation, acculturation, and activism.

**WGST 2260: Studies in Mass Media: Constructions of Gender, Race and Sexuality (3).** This course examines constructions of gender, race, class and sexuality in the US media in the twentieth and twenty first centuries. Emphasis will be placed on media's coverage and uses of various socially constructed identities.

**WGST 2370: French and Francophone Women Writers (3).** (same as French [FRENCH] 2370). This course will address issues of race, gender and class in selected works originally written by women of different historical periods and geographical areas. (metropolitan France, French colonies, and territories such as the Caribbean)

**WGST 2390: Latin American Women's Culture (3).** (same as Spanish [SPAN] 2390). Examines Latin American women across class, race, ethnicity and age, as producers of high and popular culture. We will be looking at how women have been seen in art, religion, popular and high culture and the ways in which women have seen themselves over time. No knowledge of Spanish required. May not be used in area of concentration in Spanish.

**WGST 2400: Social History of U.S. Women (3).** (same as History [HIST] 2400). This course, the social history of US women, offers a general overview of US women, beginning with the colonial period up to the present day.

**WGST 2410: African American Women in History (3).** (same as History [HIST] and Black Studies [BL\_STU] 2410). Covers major issues affecting black women since their introduction into English-speaking North America to the present.

**WGST 2500: Philosophy and Gender (3).** (same as Philosophy [PHIL] 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution. Prerequisite: sophomore standing.

**WGST 2960: Sexual Health Advocacy and Service Learning (3).** Students will critically investigate sexuality and reproductive health within a cultural context including religious, political, social justice, familial, and societal influences. Through assigned readings, reflection, experiential learning, small group activities and discussion, students will increase their awareness of sexual health issues, enhance self awareness, and learn how to effectively educate their peers surrounding issues of sexual health. Prerequisite: sophomore standing.

**WGST 3001: Topics in Women's and Gender Studies-General (3).** Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 3003: Topics in Women's and Gender Studies-Behavioral Sciences (3).** Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 3004: Topics in Women's and Gender Studies-Social Sciences (1-3).** Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 3005: Topics in Women's and Gender Studies-Humanities (3).** Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 3080: Sexuality and Gender Theory (3-6).** (same as English [ENGLSH] 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with department consent. Prerequisite: sophomore standing

**WGST 3180: Historical Survey of Women Writers (3).** (same as English [ENGLSH] 3180). A study of writing by women from the Middle Ages to the present. Prerequisite: sophomore standing.

**WGST 3220: U.S. Women's Political History, 1880-Present (3).** (same as History [HIST] 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division. Prerequisite: sophomore standing.

**WGST 3230: Studies in Sexual Politics (3).** Course explores transnational politics of sex/sexuality, examines the theoretical, historical, analytical, and socio-cultural context of race, gender and sexuality. Students learn a transdisciplinary approach and apply this newly acquired information to analyze shifts in the field of sexuality studies. Course may also be offered with Black Studies [BL\_STU] 3230. Prerequisites: Women's and Gender Studies [WGST] 1120 or 1332. Sophomore standing required. May be

repeated for credit.

**WGST 3240: Nonprofit Work and the Pursuit of Social Justice (3).** This course provides an overview of the work of nonprofit organizations. It will be framed in a social justice paradigm and will explore women's role in nonprofit organizations, why women gravitate to nonprofits, and the implications of their work to achieve social justice. Prerequisite: junior standing.

**WGST 3320: Sociology of Gender (3).** (same as Sociology [SOCIO] 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure. Prerequisites: SOCIOL 1000, 1360 or equivalent.

**WGST 3380: Latin American Women Writers (3).** (same as Spanish [SPAN] 3380). An introduction to major literary and theoretical texts by twentieth century Latin American women in translation. Readings and class work in English. Prerequisite: sophomore standing.

**WGST 3430: Sex Radicals in U. S. History (3).** (same as History [HIST] 3430). Survey of the history of sexuality in the United States. Prerequisite: sophomore standing.

**WGST 3450: Feminist Methodologies (3).** This course is an opportunity to explore the difference that feminism makes in doing research. Students can begin to identify the research tools and strategies suited to questions they want to pursue. Prerequisite: sophomore standing.

**WGST 3530: Global Politics of HIV/AIDS (3).** (same as Geography [GEOG] 3530). Examines AIDS science, sociopolitical causes of the epidemic, global AIDS policy and transnational AIDS activism.

**WGST 3540: Geographies of Sexualities (3).** (Same as Geography [GEOG] 3540) This class will explore the relationship of sexuality and space. The class will focus on the ways that sexuality creates particular spaces, and the ways that sexuality and space shape one another in the midst of nation, gender, religion, race, class, and generation. Sophomore standing required.

**WGST 3560: Documenting Current Controversies in US/Mexican Immigration (3).** This course will explore current controversies in Mexican/US immigration primarily through the use of documentary film. The course will cover a number of topics including nationalism and citizenship, national identity and fluidity, social inequality and others.

**WGST 3570: European Women in the 19th Century (3).** (same as History [HIST] 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's role in the family, workplace and the state. Grading: exams, papers and discussions. Prerequisite: sophomore standing.

**WGST 3670: Themes in Gender and Globalization (3).** This course introduces transnational feminist theories. Considers the practices and material circumstances related to globalization. Explores how class, gender, place/nation, (dis) ability, sexuality and colonial practices complicate our understanding of globalization. Prerequisite: Women's and Gender Studies [WGST] 1120; sophomore standing.

**WGST 3750: Women and Religions (3).** (same as Religious Studies [REL ST] 3750). A rediscovery of the wealth of religious activity which women have created and enacted. Investigates women's roles and rituals in large-scale and local religions, including ancient Goddess religions, Hinduism, Buddhism, Judaism, Christianity, Islam, and African, South American, and native American groups. Prerequisite: sophomore standing.

**WGST 3850: Gender, Hip Hop and the Politics of Representation (3).** (same as Black Studies [BL STU] 3850). This class will examine gender in hip hop while exploring the intra- and interracial politics of representation among those of the hip hop generation.

**WGST 3870: Russian Women and Film (3).** (Same as Russian [RUSS] 3870 and Film Studies [FILM S] 3870) Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles). Prerequisite: sophomore standing or instructor's consent.

**WGST 3960: Strategies for Effective Peer Education (1).** Course is designed to promote effective presentation skills on a variety of health topics, specifically sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management. Prerequisite: instructor's consent.

**WGST 4001: Topics in Women's and Gender Studies-General (3).** Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 4003: Topics in Women's and Gender Studies-Behavioral Sciences (3).** Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 4004: Topics in Women's and Gender Studies-Social Sciences (3).** Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 4005: Topics in Women's and Gender Studies-Humanities (3).** Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's and Gender Studies [WGST] 1120.

**WGST 4020: Feminist Theory II: Problems in Feminist Thought (3).** Examines recent problems and critical debates within feminist theory. Prerequisite: Women's and Gender Studies [WGST] 2020 or instructor's consent.

**WGST 4110: Feminist Research and Criticism (3).** (Same as Sociology [SOCIO] 4110) Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms. Prerequisite: SOCIOL 2950 or equivalent.

**WGST 4120: Women, Art and Society (3).** (same as Art History and Archeology [AR H A] 4120). Analysis of the careers and works of women artists, and images of women (by female and male artists), in selected eras. Prerequisite: instructor's consent.

**WGST 4180: Major Women Writers (3).** (same as English [ENGLISH] 4180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. Prerequisites: two courses in British or American Literature. Repeatable with department's consent maximum of six hours for Women's and Gender Studies [WGST] 4180 and 4480.

**WGST 4181: Themes in Literature by Women (3).** (same as English [ENGLISH] and Black Studies [BL STU] 4181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent. Prerequisite: junior standing.

**WGST 4186: Major Women Writers, Beginning to 1603 (3).** (same as English [ENGLISH] 4186). See Women's and Gender Studies [WGST] 4180 for course description.

**WGST 4187: Major Women Writers, 1603-1789 (3).** (same as English [ENGLISH] 4187). See Women's and Gender Studies [WGST] 4180 for course description.

**WGST 4188: Major Women Writers, 1789-1890 (3).** (same as English [ENGLISH] 4188). See Women's and Gender Studies [WGST] 4180 for course description.

**WGST 4189: Major Women Writers, 1890-Present (3).** (same as English [ENGLISH] 4189). See Women's and Gender Studies [WGST] 4180 for course description.

**WGST 4230: Women, Development, and Globalization (3).** (same as Sociology [SOCIO] 4230 and Black Studies [BL\_STU] 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities. Prerequisites: SOCIOL 2200, Women's and Gender Studies [WGST] 1332, 1334, BL\_STU 1132, or WGST 4420.

**WGST 4310: Adoption, Child Welfare and the Family, 1850-Present (3).** (same as History [HIST] 4310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**WGST 4370: Anthropology of Gender (3).** (same as Anthropology [ANTHRO] 4370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**WGST 4400: Contemporary Issues in Domestic Violence (3).** (same as Social Work [SOC\_WK] 4400). This 3-hour course covers history of battered women's movement, violence theories, policy issues, prevention and intervention practice models for working with battered women, their children, and abusers. Graded on A/F basis only.

**WGST 4420: The Politics of Reproduction and Fertility Control (3).** (same as Human Development and Family Studies [H\_D\_FS] 4670). Examines the social construction of reproduction, including discourses and practices surrounding the body, pregnancy, birth, reproductive technology and diseases. Stresses the ethical issues and social policies affecting women. Prerequisite: junior standing or instructor's consent.

**WGST 4480: Major African Diaspora Women Writers (3).** (same as Black Studies [BL\_STU] and English [ENGLISH] 4480). Study of selected African Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for Women's and Gender Studies [WGST] 4180 and 4480.

**WGST 4487: Major African Diaspora Women Writers, 1603 to 1789 (3).** (same as Black Studies [BL\_STU] and English [ENGLISH] 4487). See Women's and Gender Studies [WGST] 4480 for course description.

**WGST 4488: Major African Diaspora Women Writers, 1789 to 1890 (3).** (same as Black Studies [BL\_STU] and English [ENGLISH] 4488). See Women's and Gender Studies [WGST] 4480 for course description.

**WGST 4489: Major African Diaspora Women Writers, 1890 to Present (3).** (same as Black Studies [BL\_STU] and English [ENGLISH] 4489). See Women's and Gender Studies [WGST] 4480 for course description.

**WGST 4550: Gender and Human Rights in Cross Cultural Perspective (3).** (same as Sociology

[SOCIOLOGICAL] 4550 and Peace Studies [PEACE STUDIES] 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policy-making and activism. Prerequisites: Women's and Gender Studies [WGST] 1120 or SOCIOLOGICAL 2200; senior standing required.

**WGST 4600: Women and Health (3).** A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations.

**WGST 4660: European Women in the 20th Century (3).** (same as History [HIST] 4660). Examines the history of European women from World War I to the present. The course focuses on wars, migration, and the changing nature of family, work and community. Prerequisite: junior standing.

**WGST 4716: Women and the Media (2).** (same as Journalism [JOURNALISM] 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills. Prerequisite: instructor's consent.

**WGST 4730: Women and Politics (3).** (same as Political Science [POL SC] 4730). This course examines women's political participation and public policies towards women in countries around the world. Prerequisites: POL SC 1100; junior standing.

**WGST 4750: Women, Religion and Culture (3).** (same as Religious Studies [REL ST] 4750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions. Prerequisite: REL ST/Women's and Gender Studies [WGST] 3750 or instructor's consent.

**WGST 4780: Women's Folklore and Feminist Theory (3).** (same as English [ENGLISH] 4780). Examines folklore and artistic expression of women in relations to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts). Prerequisite: junior standing or instructor's consent.

**WGST 4873: Women's and Gender Studies Abroad - Humanities (3).** This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies [WGST] curriculum and extend a global perspective to their study and/or career development.

**WGST 4874: Women's and Gender Studies Abroad - Social Science (3).** This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies [WGST] curriculum and extend a global perspective to their study and/or career development.

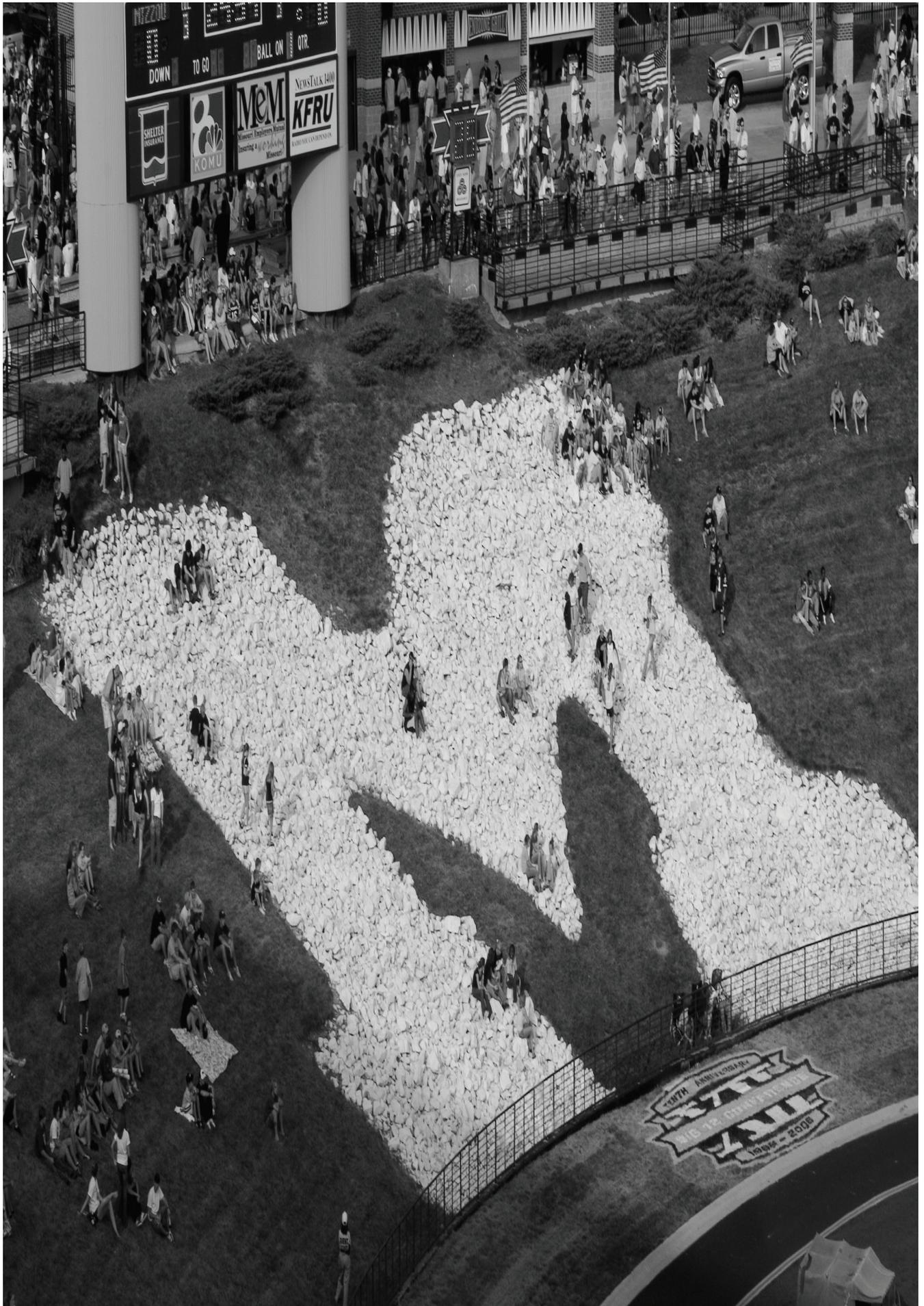
**WGST 4875: Women's and Gender Studies Abroad - Behavioral Science (3).** This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies [WGST] curriculum and extend a global perspective to their study and/or career development.

**WGST 4940: Internship in Women and Gender Studies (3).** Directed professional experience in appropriate feminist related agency or organization. Prerequisite: junior standing; departmental consent. Graded on S/U basis only.

**WGST 4965: Special Readings in Women's and Gender Studies (1-3).** Independent readings in women's and gender studies for highly qualified and motivated students. Topic selected in consultation with supervisory faculty member. Repeatable up to 6 hours. Prerequisite: junior standing and/or Women's

and Gender Studies [WGST] 1120.

**WGST 4990: Senior Research Seminar in Women's and Gender Studies (3).** Seminar for senior students engaged in some area of research in women's and gender studies. Students will compare and evaluate their individual projects and/or collaborate on a common theme. Prerequisite: instructor's consent.





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# Faculty

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# Faculty

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