

University of Missouri

UNDERGRADUATE CATALOG 2004-06

(Original)

“With thy watchwords Honor, Duty...”
Old Missouri, the Alma Mater

A STATEMENT OF VALUES

The University of Missouri-Columbia, 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.

University of Missouri-Columbia

Alma Mater

“Old Missouri”

Old Missouri fair Missouri

Dear old varsity.

Ours are hearts that fondly love thee

Here’s a health to thee.

Proud art thou in classic beauty

Of thy noble past

With they watch words honour, duty,

Thy high fame shall last

Every True Son/Daughter

Every true son, so happy hearted,

Skies above us are blue,

There’s a spirit so deep within us,

Old Missouri here’s to you (rah rah!);

When the band plays the Tiger war song,

And when the fray is through,

We will tramp, tramp, tramp, around the columns,

With a cheer, for Old Mizzou!

HIT IT!

HOORAY, HURRAH, MIZZOU, MIZZOU!

HOORAY, HURRAH, MIZZOU, MIZZOU!

HOORAY, HURRAH, AND A BULLY FOR OLD MIZZOU,

RAH! RAH! RAH! RAH!

MIZ-ZOU-RAH! MIZ-ZOU-RAH! MIZ-ZOU-RAH, TIGERS!

Fight Tiger

Fight, Tigers, fight for Old Mizzou,

Right behind you, everyone is with you,

Break the line and follow down the field,

And you’ll be, on the top, upon the top;

Fight, Tigers, you will always win,

Proudly keep the colors flying skyward,

In the end we’ll win the victory,

So Tigers, fight for Old Mizzou!

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Calendar

FALL SEMESTER 2004	DAY	DATE
Orientation and Registration	Wednesday & Thursday	August 18 & 19
Registration	Friday	August 20
Class work begins @ 8:00 a.m.	Monday	August 23
Labor Day Holiday (no classes)	Monday	September 06
Thanksgiving recess begins @ close of day*	Saturday	November 20
Class work resumes @ 8:00 a.m.	Monday	November 29
Class work ends @ close of day*	Friday	December 10
Reading Day	Saturday	December 11
Final examinations begin	Monday	December 13
Fall semester closes @ 5:00 p.m.	Friday	December 17
Commencement	Saturday/Sunday	December 18 & 19

WINTER SEMESTER 2005	DAY	DATE
Orientation and Registration	Thursday	January 13
Registration	Friday	January 14
Martin Luther King Holiday (no classes)	Monday	January 17
Class work begins @ 8:00 a.m.	Tuesday	January 18
Spring Recess begins @ close of day*	Saturday	March 19
Class work resumes @ 8:00 a.m.	Monday	March 28
Class work ends @ close of day*	Friday	May 06
Reading Day	Saturday	May 07
Final examinations begin	Monday	May 09
Winter semester closes @ 5:00 p.m.	Friday	May 13
Commencement	Saturday & Sunday	May 14 & 15

SUMMER SESSION 2005

8-WEEK SESSION 2005	DAY	DATE
Orientation and Registration	Friday	June 03
Classwork begins @ 7:30 a.m.	Monday	June 06
Independence Day recess (no classes)	Monday	July 04
8-week session closes @ 5:00 p.m.	Friday	July 29

FIRST 4-WEEK SESSION 2005	DAY	DATE
Orientation and Registration	Friday	June 03
Class work begins @ 7:30 a.m.	Monday	June 06
First 4-week session closes @ 5:00 p.m.	Friday	July 01

SECOND 4-WEEK SESSION 2005	DAY	DATE
Orientation and Registration	Tuesday	July 05
Class work begins @ 7:30 a.m.	Tuesday	July 05
Second 4-week session closes @ 5:00 p.m.	Friday	July 29

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

The faculty is reminded that a substantial number of students may want to observe religious holidays and days of special commemoration. The faculty is encouraged to avoid scheduling exams on such days.

Approved by MU Faculty Council on November 7, 2002

"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."

ACCREDITATION

The University of Missouri-Columbia is accredited by the Higher Learning Commission of the North Central Association of Colleges 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-Columbia does not discriminate on the basis of race, color, religion, sex, sexual orientation, national origin, age, disability, or status as a Vietnam era veteran. Any person having inquiries concerning the University of Missouri-Columbia's compliance with implementing Title VI of the Civil Rights Act of 1964, Title IX 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 Resource Services, University of Missouri-Columbia, 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-Columbia complies with the Americans with Disabilities Act and other applicable laws and regulations. If you have a disability and need accommodations in connection with registration or advisement, please contact Disability Services, A038 Brady Commons, Voice (573) 882-4696, TTY (573) 882-8054, as soon as possible so that appropriate arrangements can be made. If you need this information in an alternative format (Braille, large print, audiotape or computer disk), Disability Services can provide assistance.

FAMILY EDUCATION RIGHTS AND PRIVACY ACT (FERPA)

The University of Missouri-Columbia policies and procedures adhere to this federal law passed in 1974. It is sometimes still referred to as the Buckley Amendment. In accordance with the 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, email address, date and place of birth, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, 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.

Students may prohibit the University from releasing this information without their consent. To request this restriction, students may contact the Office of the University Registrar-Registration, 130 Jesse Hall, or may print and complete the restriction form available on the University Registrar's web site.

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-Columbia 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 operating 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.

TIGER PRIDE POINTS

- The University of Missouri-Columbia, with its 20 schools and colleges, is Missouri's flagship university, with the breadth of programs associated with a nationally competitive institution.
- MU is one of only 34 public US universities, and the only public institution in Missouri, to be selected for membership in the Association of American Universities and designated "Doctoral/Research Extensive" by the Carnegie Foundation for the Advancement of Teaching. AAU members are the nation's most prestigious research institutions. The other AAU member in Missouri is Washington University.
- One of only six public universities in the country with medicine, veterinary medicine and law all on one campus, Mizzou has a statewide role in professional education. The University is the top provider of practicing physicians for Missouri. More than two-thirds of Missouri veterinarians are MU graduates. One-quarter of all attorneys in Missouri were educated at MU's law school. MU's academic medical center treats patients from every county.
- MU attracts more Curators Scholars, Bright Flight Scholars and valedictorians than any other college or university in the state. Nearly one-third of MU freshmen ranked in the top 10 percent of their high school classes, and half come from the top 20 percent.
- Approximately one-fifth of MU's budget comes from state appropriations. The sources of the remainder of the budget include private gifts, grants, student tuition and fees, and auxiliary enterprises.
- MU is unique in Missouri in the comprehensiveness of its educational inquiry. The campus provides a rich environment in which students and teachers can reach beyond traditional fields of study and expand their educational experiences. A broad spectrum of programs is available outside the classroom, including seminars and colloquia, speeches and lectures by well-known public figures, open houses, concerts, a film series, museums, and musical and dramatic productions.
- Whether students enter the job market immediately after graduation or continue to advanced study, they find that an MU education — with its broad liberal arts foundation, emphasis on writing and reasoning skills, and directed study in a specialized field — prepares them well. Nearly 3,000 companies and organizations regularly recruit MU students, including about 200 Fortune 500 companies.

IMPORTANT FACTS

History

The University of Missouri was established in Columbia in 1839 as the first public university west of the Mississippi River—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.

In 2004, MU celebrated 165 years of service to the citizens of Missouri. As the largest of the four campuses of the University of Missouri System, MU continues its historic mission through its emphasis on excellence in teaching, research and service.

Students

- Students come from all 50 states and more than 100 countries. Diversity of backgrounds, opinions and lifestyles improves the overall quality of the student experience.
- The University has more than 20,000 undergraduate students, who choose courses from a broad range of academic disciplines.
- The University also has more than 4,000 graduate students enrolled in more than 90 different degree programs. The graduate student enrollment includes more than 1,000 professional 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 1,353-acre Columbia campus has 280 buildings, including those of the University of Missouri System administration, equine center, Research Park and the health sciences complex.
- More than 5,000 trees and 650 varieties of plants accent the natural beauty of the MU campus, which has been designated as a botanic garden.
- There are 19 residence halls on campus as well as 45 national social fraternities and sororities, including one Latin sorority and five historically African-American sororities and fraternities.
- Columbia, Missouri has consistently been ranked by *Money* magazine and others as one of the nation’s top places to live because of its excellent quality of life.

GRADUATE STUDY

The Graduate School enrolls more than 4,000 students and offers more than 90 graduate degree programs. The MU Graduate Catalog is available from the Graduate School at 210 Jesse Hall (573) 882-6311, <http://gradschool.missouri.edu>.

PROFESSIONAL SCHOOLS

The University of Missouri is the only state-supported institution in Missouri offering professional and doctoral degrees, and many of these are available only on the Columbia campus.

School of Law

The school was established in 1872 and has been a powerful force in Missouri and the nation ever since. Graduates have served at the highest levels of national, state and local governments. Many Missouri laws have been written by MU alumni. The School of Law educates lawyers who practice in Missouri and throughout the world. The law school has a national reputation, especially in dispute resolution. The Center for the Study of Dispute Resolution has been rated the premier program in the country for three consecutive years. (See Dual Enrollment and Roberts Scholars information later in this catalog.)

For more information about the School of Law, call (573) 882-6042.

School of Medicine

Established in 1841, the school offers an innovative problem-based curriculum that provides medical students with early exposure to clinical training. The MU medical school is recognized nationally for its primary care and rural health focus. 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. The Health Sciences Center provides health care for patients from every Missouri county. The School of Health Professions and the Sinclair School of Nursing are described elsewhere in this catalog.

For more information about the School of Medicine, call (573) 882-3944.

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 all species of animals. Graduates are qualified for private practice or employment in government, industry and academic environments.

The college has a national reputation for small class sizes and state-of-the-art facilities. The 140,000-square-foot Veterinary Medical Teaching Hospital, Clydesdale Hall, boasts programs in oncology, cardiology and community practice.

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) 882-3768.

MU owes its existence to 900 citizens of Boone County. In 1839, they pledged \$117,921 in cash and land to win the bid to locate the new state university in Columbia. At the time, Columbia had eight dry-goods stores, one bookstore and one church.

WELCOME TO MIZZOU

MISSION STATEMENT

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 research university. 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 and service 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 daily 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 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 projects with faculty.

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

We ensure the growing quality of Missouri's University through an economic model that supplements taxpayer support with rational tuition and student aid structures, public-private partnerships and aggressive fund raising. 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.

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

Approved: December 19, 2003

Chancellor Richard L. Wallace

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

EMPHASIS AREAS ARE IN ITALICS

UNDERGRADUATE COLLEGES AND SCHOOLS

AF&NR 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

EDUC College of Education

ENGR College of Engineering

HP School of Health Professions

HES College of Human Environmental Sciences
SO WK School of Social Work*

JOURN School of Journalism

NURS School of Nursing

*School within a College

UNDERGRADUATE MAJORS (Degree Programs)

Accountancy (BUS) BS Acc

Agribusiness Management (AF&NR) BS

Agricultural Economics (AF&NR) BS
Financial Planning

Agricultural Education (AF&NR) BS
Leadership, Teacher Certification

Agricultural Journalism (AF&NR) BS

Agricultural Systems Management (AF&NR) BS

Architectural Studies (HES) BS HES
Architectural Studies, Interior Design

Animal Sciences (AF&NR) BS

Anthropology (A&S) BA

Art (A&S) BA, BFA

Art History and Archaeology (A&S) BA

Biochemistry (AF&NR) 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 Languages
Classical Humanities, Greek, Latin

Communication (A&S) BA

Communication Science and Disorders (HP) BHS

Computer Engineering (ENGR) BS CoE

Computer Science (A&S) BA

Computer Science (ENGR) BS

Consumer and Family Economics (HES) BS HES
Personal Financial Management Services, Personal Financial Planning

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

Fisheries and Wildlife (NAT R) BSFW

Food Science and Nutrition (AF&NR) BS

Forestry (NAT R) BSF
Forest Resource Management, Individualized Studies, Industrial Forest Management, Urban Forestry

French (A&S) BA

General Agriculture (AF&NR) BS
Sustainable Agriculture

General Studies (A&S) BGS

Geography (A&S) BA
General Geography, Geographic Information Systems, Regional/Cultural, Physical/Environmental, Urban/Population

Geological Sciences (A&S) BS

German (A&S) BA

History (A&S) BA

Hotel and Restaurant Management (AF&NR) BS

Human Development and Family Studies (HES) BS HES
Child Development and Education, Child Life Specialist, Family and Consumer Sciences Education, Family Studies, General Human Development and Family Studies, Human Development, Human Development and Family Studies, and Social Work (Dual Degree)

Industrial Engineering (ENGR) BS IE

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 (JOUR) BJ
Advertising, Broadcast News, Magazine, News Editorial, Photojournalism

Linguistics (A&S) BA

Mathematics (A&S) BA, BS
Mathematical Finance and Insurance (BS only)

Mechanical Engineering (ENGR) BS ME

Middle School Education (EDUC) BS Ed
Language Arts, Mathematics, Science, Social Studies

Microbiology (A&S) BA

Music (A&S) BA, BM

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, Tourism Development

Philosophy (A&S) BA

Physics (A&S) BA, BS

Plant Sciences (AF&NR) BS
Crop Management; Landscape Horticulture; Ornamental Plant Production and Operations Management; Plant Biology; Plant Breeding, Genetics and Biotechnology; Plant Protection; Precision Agriculture; Turfgrass Management

Political Science (A&S) BA

Physical Therapy (HP) BHS
Preprofessional Psychology (A&S) BA
Radiologic Sciences (HP) BHS
Radiography, Nuclear Medicine Technology
Religious Studies (A&S) BA
Respiratory Therapy (HP) BHS
Russian (A&S) BA
Secondary Education (EDUC) BS Ed
Art Education, Biology, Business and Marketing Education, 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 Studies (A&S)
Afro-Romance Literatures in Translation (A&S)
Agricultural Economics (AF&NR)
Agricultural Education (AF&NR)
Agricultural Leadership (AF&NR)
Agricultural System Management (AF&NR)
Animal Sciences (AF&NR)
Anthropology (A&S)
Architectural Studies (HES)
Art (A&S)
Art History and Archeology (A&S)
Biological Sciences (A&S)
Black Studies (A&S)
Business (BUS)
Chemistry (A&S)
Classics (A&S)
Classical Humanities, Greek, Latin
Computer Science (A&S)
Computer Science (ENGR)
Consumer and Family Economics (HES)
East Asian Studies (A&S)
Economics (A&S)
English (A&S)
English Writing (A&S)
Entomology (AF&NR)
Film Studies (A&S)
Food Science and Nutrition (AF&NR)
Forestry (NAT R)
French (A&S)
Geographic Information Sciences (A&S)
Geography (A&S)
Geological Sciences (A&S)
German (A&S)
History (A&S)
Hotel and Restaurant Management (AF&NR)
Human Development and Family Studies (HES)
International Agriculture (AF&NR)
Italian Area Studies (A&S)
Journalism (JOURN)

Latin American Studies (A&S)
Leadership and Public Service (A&S)
Linguistics (A&S)
Mathematics (A&S)
Medical/Health Physics (Grad)
Military Science (A&S)
Music (A&S)
Natural Resources (NAT R)
Nuclear Engineering (Grad)
Nutritional Science (HES)
Peace Studies (A&S)
Personal Financial Management Services (HES)
Pest Management (AF&NR) (Subject to Change)
Philosophy (A&S)
Physics (A&S)
Plant Pathology (AF&NR)
Plant Sciences (AF&NR)
Political Sciences (A&S)
Psychology (A&S)
Radioenvironmental Sciences (Grad)
Religious Studies (A&S)
Romance Literatures in Translation (A&S)
Rural Sociology (AF&NR)
Russian (A&S)
Russian Area Studies (A&S)
Social Justice (HES)
Sociology (A&S)
Soil and Atmospheric Sciences (NAT R)
South Asian Studies (A&S)
Spanish (A&S)
Sustainable Agriculture (CAFNR)
Statistics (A&S)
Textile and Apparel Management (HES)
Theatre (A&S)
Woman Studies (A&S)

CERTIFICATES

Environmental Studies (Provost)
General Honors (Provost)
Geographical Information Systems (A&S)

HOW TO READ THE CATALOG

The *Undergraduate Catalog* for the University of Missouri-Columbia has been organized to enhance readability. The initial sections are related to University-wide programs, policies and procedures. The second section provides the listing of academic offerings, organized by the academic units (also may be called colleges or schools) that offer the courses and/or the degrees (major, minor or certificate) that students seek to earn. In addition to the Table of Contents, the Faculty listing and Index at the back of the catalog are invaluable for locating a person or topic quickly. An electronic version is also on the MU web site.

Graduate and professional programs (Law, Medicine and Veterinary Medicine) have separate catalogs.

WHAT CATALOG APPLIES TO WHOM UNDER WHAT CIRCUMSTANCES

These policies concern the application of the University of Missouri-Columbia'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 track 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 adviser, 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 supercede this policy. Students should consult with an adviser in all cases.

CATALOG 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-Columbia'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 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: Academic performance is represented by academic standing, of which there are three levels: regular, academic probation, and ineligible to re-enroll. (See Academic Procedures, Rules and Regulations later in this catalog for further details.)

Regular Academic Standing: Students whose term and cumulative GPA 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 academic probation. Students on academic probation must establish a 2.0 cumulative GPA within two successive terms of enrollment; otherwise they are ineligible to re-enroll.

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

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 adviser's approval.

A&S: Either the College of Arts and Sciences or the Arts and Science Building, next to Brady Commons.

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.

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.

CAAP Test: The CAAP (Collegiate Academic Assessment Proficiency Test) is required of all undergraduates in the year prior to graduation. The goal of the CAAP exam is to assess University general education. The CAAP exam consists of five sections: writing, reading, mathematics, critical thinking and science reasoning and is typically administered in the capstone class. Students are required to take only one of the sections (requiring 40 minutes) as assigned by the Testing Center.

CAFNR: College of Agriculture, Food and Natural Resources. Sometimes listed as A,F&NR.

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.

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.

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

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 overrides.

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 overrides.

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

Course Types: (See How to Read a Course Description section of the catalog.)

- **Lab:** The “practice” portion of a course in which experimentation, class projects or other exercises, in conjunction with material presentation, are performed. May also refer to a room in which these activities are completed.
- **Lecture:** A course or part of a course that is primarily in a face-to-face format. While it is usually presented in a group setting led by a faculty member, the course might also include group activities.
- **Independent Study:** A course or section for a specific individual to work one-on-one with a faculty member. May be an on-campus course or one offered through the Center for Distance and Independent Study.
- **Recitation:** A course or section that is designated for a small discussion group.

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 the College of Arts and Science.)

Credit: One credit represents approximately three hours of a student's time each week for one term. This may mean one hour in lecture or laboratory, in addition to two hours spent in preparation.

According to State of Missouri policy, a credit hour is a permanently transcribed instructional activity in which one semester credit hour shall consist of a minimum of 750 minutes (for example, 15 weeks x 50 minutes per week) of classroom experiences, such as lecture, discussion, or similar instructional approaches, or a minimum of 1,500 minutes of such experiences as laboratory, studio or equivalent experiences. Both of the above are exclusive of registration and final examination time. Greater amounts of supervised practicum or internship instruction are normally required to be the equivalent of one credit.

Cross-level Course: A cross-level course is a course that is cross-listed, with one course being undergraduate-level (numbered less than 5000) and the other course being graduate-level or professional-level (5000 or greater.)

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.

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

list later in the catalog.)

DARS Report: MU uses a degree audit system called DARS for short. Many academic units and departments use these reports to assist in advising students. Students may look at their own DARS reports using STAR MU. They may also email copies to their University-issued email account. For instructions on using STAR MU (the on-line registration system), go to the MU web site.

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 Program: A primary field of specialized study that is also referred to as a major. (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*.)

Dual Enrollment: Enrollment in undergraduate and graduate credit simultaneously. Also, this may be the enrollment in two or more institutions simultaneously. Routinely, “dual enrollment” refers to high school students who are also enrolled in college-level courses. (See Dual Enrollment section in Academic Procedures, Rules and Regulations.)

Electives: Courses that students may choose to take, as contrasted with required courses.

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.)

Financial Enrollment: Students must make a minimum payment to retain classes they have reserved during registration. Meeting this minimum requirement makes a student “financially enrolled” and eligible to begin the term. Additional payments must be made to fulfill the student's financial obligation to MU. (See section on Fees and Fee Payment in the catalog.)

Full-time Student: Undergraduate students must be enrolled in a minimum of 12 credits for the winter and fall semesters and 6 for the summer to be considered full time for most purposes.

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 University General Education section of the catalog.)

GPA of Record: The GPA is the 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” is not regarded as a graded course for that student.

Grading Option: The grading system used to assign a grade. Letter grades are routinely assigned unless a course was set up to use only the S/U grading option. Students may choose, in some cases, to opt for S/U grading or to enroll in a course as a Hearer. (See Grades section later in the catalog.)

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

HES: College of Human and Environmental Science.

Honors Course: A course limited to honor-eligible students.

Honors Credit: Credit earned for taking a General Honors or Departmental Honors course. (See Course Numbering System.)

HP: School of Health Professions.

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

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.)

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 overrides.

Readmission: (See Admissions sections for information on the readmission process and standards.)

Readmission after Being Ineligible to Re-enroll: A student who has been ineligible to re-enroll for a period of one year may be readmitted only upon the approval of the dean of the division in which the student desires to enroll. As a condition of readmission, the dean may set forth stipulations with regard to minimum standards of academic work that must be maintained by the student. If the student after readmission again becomes ineligible to enroll, that ineligibility to re-enroll is normally considered permanent.

Recommended: A course or standard that it is beneficial or preferred for the student to have taken before enrolling in a particular 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-Columbia, registration refers to the process in which students select course work for a term and, via one of three ways, reserve spaces (enroll) in the courses in the University’s computer system. This may be done by phone (PAWS), by computer (STARMU) or in person in the Brady Commons registration site.

Regularly Admitted: A student admitted into a degree-seeking program who meets the University’s admission requirements, including core courses and grades, class rank and test scores.

Repeatable 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.

S/U Grading: Grading method that assigns grades of Satisfactory or Unsatisfactory rather than A-F letter grades. If a student receives a U, this would be a D- in letter grades. (See Grades section of the catalog.)

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.

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

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.)

T.A.: Teaching Assistant. They may also be called Graduate Teaching Assistants (GTA).

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.

Truman: The name of the University of Missouri’s mascot.

Upper Division: Undergraduate courses numbered 3000-4000.

Variable Credit: For some courses, the student may choose the number of credits. For these courses, a range of possible credits is shown in the course description.

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

UNIVERSITY ORGANIZATION

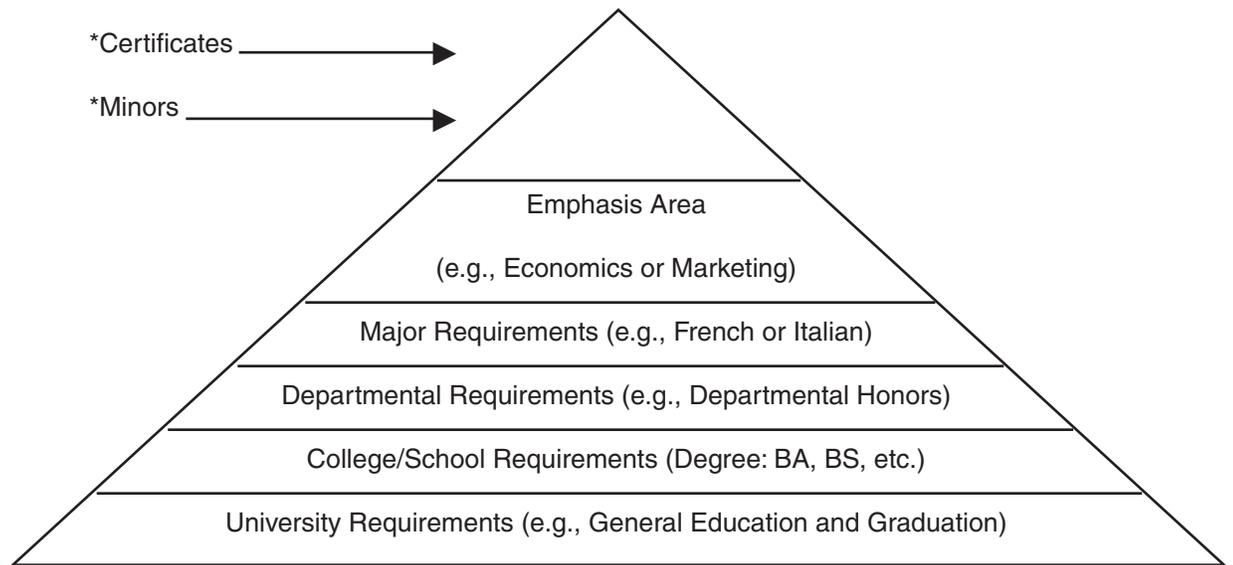
The largest academic units at the University of Missouri are its colleges and schools. Each college and school may consist of smaller units called departments. Some colleges have divisions within them as well. By long tradition, some of the smaller units are also called schools.

The academic year is divided into two semesters (fall and winter) and summer sessions. On a trial basis, 2-3 week intersessions are offered in January and May. The January intersession is considered part of the winter 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 accompanying 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 usually have separate requirements. Completion of a minor, may, however, be part of a degree requirement.

DEGREES AND DEGREE PROGRAMS

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

The following definitions are provided to explain the academic structure of MU. Specific requirements are listed elsewhere in the catalog.

Degree: Students earn a degree (bachelor, master or doctorate level) based upon the total summary of courses taken. A bachelor's includes the University general education and additional major requirements. MU offers a variety of bachelor-level degrees. Examples include the Bachelor of Science and Bachelor of Arts. For a complete list, see the degree list. Degrees are noted on the transcript and the diploma.

Major (degree program): A major (or degree program) is the subject area in which the student has focused his or her studies, within the 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 emphasis areas are listed on the transcript.

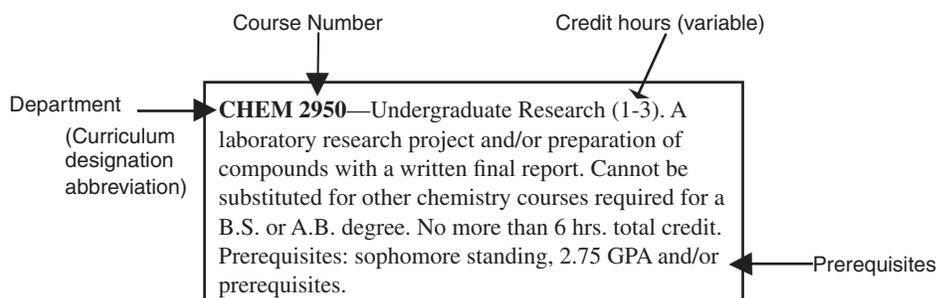
Minor: A minor is a smaller grouping of courses (15-18 credits of course work) focused on a particular subject area outside the student's degree program. Minors must be earned in conjunction with a degree program of study. A minor is noted on the transcript. To earn a minor, students must contact the 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. A certificate is noted on the transcript and a separate certificate document is issued from the Office of the University Registrar.

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.

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

Effective with the fall 2004 semester, the University of Missouri-Columbia moved from a three-digit course numbering system to a four-digit system. Undergraduate courses are those numbered below 5000. A crosswalk of old numbers to new ones may be found at: https://sis.iats.missouri.edu/sis/course_num_select.cfm.

Skill Development courses	0000-0999	Courses that do not count toward degree requirements
Freshmen-level courses	1000-1999	Entry-level courses
Sophomore-level courses	2000-2999	Intended primarily for second-year or sophomore students
Junior/Senior-level courses	3000-3999	Upper-division courses that may NOT be cross-listed with graduate-level courses
Junior/Senior-level courses	4000-4999	Upper-division courses that may be cross-listed with graduate-level courses
Undergraduate Research courses	4950-4959	Upper-division, undergraduate research courses
Capstone courses	4970-4994	
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	
Departmental Honors courses	4996-4999	
Professional-level courses	5000-6999	See Medical, Law and Veterinary school catalogs.
Graduate-level courses	7000-9999	See Graduate School catalog.

"H" after a number indicates that it is a General Honors course.

CURRICULUM DESIGNATION ABBREVIATIONS

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

Abbreviation	Department Name	Division
ACCTCY	Accountancy	BUS
AERO	Aerospace Studies	A&S
AG EC	Agricultural Economics	A,F&NR
AG ED	Agricultural Education	A,F&NR
AG JRN	Agricultural Journalism	A,F&NR
AG S M	Agricultural Systems Management	A,F&NR
AGRIC	Agriculture	A,F&NR
ANESTH	Anesthesiology	MED
AN SCI	Animal Science	A,F&NR
ANTHRO	Anthropology	A&S
ARCHST	Architectural Studies	HES
ART	Art	A&S
AR H A	Art History and Archaeology	A&S
ASTRON	Astronomy	A&S
ATM SC	Atmospheric Science	NAT R
BIOCHM	Biochemistry	A,F&NR
BIO EN	Biological Engineering	A,F&NR
BIO SCI	Biological Sciences	A&S
BL STU	Black Studies	PROV
BUS AD	Business Administration	BUS
CP&D	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	A&S
CLASS	Classics	A&S
COMMUN	Communication	A&S
COOP	Cooperative Education Program	NON D
C S&D	Communication Sciences and Disorders Program	HP
CS	Computer Science	A,F&NR
C&F EC	Consumer and Family Economics	HES
C&I-V	Curriculum and Instruction - Vocational	EDUC
C&I	Curriculum and Instruction	EDUC
DMU	Diagnostic Medical Ultrasound	HP
DERM	Dermatology	MED
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 MED	Emergency Medicine	MED
ENGINR	Engineering	ENGR
ENGLSH	English	A&S
ELSP	English Language Support Program	PROVST
ENTOM	Entomology	A,F&NR
ENV ST	Environmental Studies	PROVST
F&C MD	Family and Community Medicine	MED
FILM S	Film Studies	A&S
FINANC	Finance	BUS
F & W	Fisheries and Wildlife	NAT R

CURRICULUM ABBREVIATIONS (CONT.)

Abbreviation	Department Name	Division
FS	Food Science	A,F&NR
FOREST	Forestry	NAT R
FRENCH	(French) Romance Languages and Literatures	A&S
GEN ED	(University General Education) Interdivisional	PROVST
G N HES	General Human Environmental Sciences	HES
ES	Environmental Sciences	HES
G STDY	General Studies	A&S
GEOG	Geography	A&S
GEOLOG	Geological Sciences	A&S
GERMAN	German	A&S
EXAM	Graduate Examination	GRAD
GRAD	Graduate School	GRAD
GREEK	Greek	A&S
HMI	Health Management and Informatics	MED
HTH PR	Health Professions	HP
HEBREW	(Hebrew) German and Russian Studies	A&S
HIST	History	A&S
GN HON	(Honors General) Honors College	PROVST
G N HES	Environmental Sciences	HES
H RM	Hotel and Restaurant Management	A,F&NR
H D FS	Human Development and Family Studies	HES
IMSE	Industrial and Manufacturing Systems Engineering	ENGR
IS<	Information Sciences and Learning Technology	EDUC
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	V MED
LATIN	(Latin) Classical Studies	A&S
LAW	Law	LAW
LINGST	(Linguistics) Interdepartmental	A&S
MANGMT	Management	BUS
MRKTNG	Marketing	BUS
MATH	Mathematics	A&S
M A E	Mechanical and Aerospace Engineering	ENGR
MPP	Medical Pharmacology and Physiology	MED
MEDIC	Medicine	MED
MED - ID	School of Medicine – Interdisciplinary	MED
MIL SC	Military Science	A&S
MICROB	Molecular Microbiology and Immunology	MED
MISC	Miscellaneous	MISC
MUSIC	Music	A&S
NAT R	Natural Resources	NAT R
NAVY	Naval Science	ENGR
NEUROL	Neurology	MED
NU ENG	Nuclear Engineering	GRAD
NUC MED	Nuclear Medicine	HP
NURSE	Nursing	NURS
NUTRIT	(Nutrition) Interdepartmental	A,F&NR

CURRICULUM ABBREVIATIONS (CONT.)

Abbreviation	Department Name	Division
NUTR-A	Nutrition Area-Graduate	GRAD
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
PEST M	(Pest Management) Entomology	A,F&NR
PHIL	Philosophy	A&S
PM - REH	Physical Medicine and Rehabilitation	MED
PH THR	Physical Therapy	HP
PHYSCS	Physics	A&S
PL PTH	Plant Microbiology and Pathology	A,F&NR
PLNT S	Plant Science	A,F&NR
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	PUB AD
RA SCI	(Radiological Sciences) Health Professions	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	A,F&NR
RUSS	(Russian) German and Russian Studies	A&S
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
SSC	Student Success Center	SSC
STUDY	Study Abroad	MISC
SURGRY	Surgery	MED
TDP	Teacher Development Program	EDUC
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
V P & T	Veterinary Pharmacology and Toxicology	VET M
WGST	Women's and Gender Studies	PROVST

How to Navigate Through MU: Academic and Administrative Regulations

ADMISSION INFORMATION

Admission Procedures

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. Students can also apply via the World Wide Web: <http://www.missouri.edu>.

The criteria described below are employed to determine admissibility to the University of Missouri-Columbia. 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	1010-1040	54 (top 46%)
21	970-1000	62 (top 38%)
20	930-960	69 (top 31%)
19	890-920	78 (top 22%)
18	840-880	86 (top 14%)
17	800-930	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 800 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 800 are generally not admissible to MU.

Conley Scholars Program (School of Medicine)

High school seniors from Missouri and states bordering Mis-

souri with a minimum ACT composite score of 30 or a minimum SAT verbal plus math score of 1300 are eligible to apply to the Conley Scholars Program (CSP). This program guarantees acceptance into the School of Medicine upon completion of undergraduate and CSP requirements.

Conley Scholars are required to take a minimum of one year of course work in biology, organic chemistry and physics, earning at least B grades in these required courses. They also must maintain a minimum cumulative GPA of 3.3 and a cumulative science GPA of 3.3. Additionally, program participants must complete 20 credits in honors courses leading toward the Honors Certificate and meet the expectations of the School of Medicine for outstanding personal development.

Application materials are available in each Missouri high school or in the Office of Medical Education, School of Medicine. Deadline for applying is February 1. After review of completed application files, selected applicants are invited to interview at the Medical School. Notification of admission status is made by April 30.

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 30 or an SAT score of 1320 or higher
- A cumulative GPA of 3.5 for all undergraduate work at the completion of all undergraduate course work
- Entrance to law school in the fall after completion of a bachelor's degree from MU

Students who fulfill these three requirements are assured of admission to the School of Law. The score on the Law School Admission Test is not a factor in admission. However, the LSAT score does determine eligibility for law school academic scholarships.

Qualified students must enroll under the Roberts Scholars program during their freshman year and must so advise the University Admissions Office. At the time they apply for admission to the law school, students will be required to complete normal admission requirements. Completed applications must be received by January 1 of the year in which students intend to enter law school. 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.

See Dual Enrollment also.

Pre-veterinary Medicine Scholars Program

MU freshmen and high school seniors with an ACT composite score of 30 or a minimum SAT score of 1300 are eligible to apply to the Pre-veterinary Medicine Scholars Program. This program guarantees acceptance into the Veterinary Medical College upon completion of undergraduate and PVMSP requirements.

Pre-veterinary Scholars are required to average 15 credits each semester, earn an A or B grade in required courses and maintain a minimum cumulative GPA of 3.3. Program participants must also observe veterinarians at work and attain a minimum composite score above the 50th percentile on the Medical College Admissions Test.

Application materials are available in the Veterinary Medical College's Office of Academic Affairs.

The average ACT score of freshmen entering MU in 2003 was 25.4, almost five points higher than the national average of 20.8.

A formula-style racing car, developed by a student-led team in the College of Engineering, placed second out of 140 in the 2003 national Formula SAE Competition.

AgScholars Program

MU freshmen and high school seniors with an ACT composite score of 27 or more are eligible to apply to the AgScholars Program. This program guarantees acceptance into the Veterinary Medical College upon completion of undergraduate and AgSP requirements.

AgScholars are required to average 15 credits each semester, earn an A or B grade in required courses and maintain a minimum cumulative GPA of 3.3. Program participants must also observe veterinarians at work and attain a minimum composite score above the 50th percentile on the Medical College Admissions Test.

Application materials are available in the Veterinary Medical College's Office of Academic Affairs.

Nursing Scholars

All Nursing Scholars must be admitted to the Honors College. Students who are 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. Transfer students must have a 3.5 cumulative GPA after 30 college credits and current students must have a 3.5 cumulative GPA after two semesters at MU. Students must maintain a 3.3 or higher cumulative GPA. Students who are accepted as Nursing Scholars are guaranteed acceptance into the clinical nursing major.

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, and 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 and to McNair research conferences that include graduate fairs. 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: Dr. Vicki Curby CurbyV@missouri.edu or NaTashua Davis, DavisNat@missouri.edu at 882-1962, 536 Clark Hall. (www.missouri.edu/~mcnair)

Dual Credit and AP Advanced Placement Credit

MU gives credit for some AP course work and for dual credit. Many students earn Advanced Placement 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 or by requesting a brochure from the Admissions Office in 230 Jesse Hall. College credit also may be received for dual credit once the official 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.)

Transfer Students

Admission for transfer students is based on past academic performance and probability of success at MU. Transfer applicants must have all official transcripts from all colleges attended sent to the Admissions Office before the application can be evalu-

ated. Transfer admission requirements vary among programs; interested students should request further information from the Office of Admissions or check with the individual college and school. It is the responsibility of the transfer student to check with the school, college, department or program concerning specific requirements.

Course work completed at an accredited institution of higher education and oriented toward a baccalaureate degree normally is accepted at MU if the grade is C or better. However, not all credits transferred to MU fulfill specific requirements for a particular degree. No more than 64 credits transferred from a two-year institution will count toward an MU degree, unless specified by an approved articulation agreement.

Official transcripts from each college or university attended must be mailed to the Office of Admissions, 230 Jesse Hall, Columbia, MO 65211. Students seeking admission to the College of Arts and Science or the School of Journalism also must submit a high school transcript. All credentials submitted for admission will be retained by MU.

Transfer from a Regionally Accredited Missouri College

Articulation Agreements

Contact departmental advisers 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 average 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. Any course that leads to an undergraduate degree on any campus of the University of Missouri System is accepted in transfer toward the same degree on each campus of the UM System offering that degree.

Appeal of Transfer Decisions

The University of Missouri-Columbia provides an appeal process for transfer students who wish to appeal decisions on admission and transfer of credits.

Appeals are heard by a faculty committee and the Admissions Review Committee. Appeals may be initiated by writing to the Director of Admissions, 230 Jesse Hall, Columbia, MO, 65211.

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. This office is responsible for answering all initial inquiries about admission to the University.

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. Easy Access students may enroll only as part-time students (maximum of 6 credits each semester or 3 in the summer). 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 - Registration, 130 Jesse Hall.

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 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.

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. (MU defines full-time as 12 or more credits during the fall and winter 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-Registration, 130 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 130 Jesse Hall, (573) 882-7881.

TRANSFER WITHIN MU – CHANGING DEGREE PROGRAMS

Transfer from one MU College or School to Another

Students may transfer from one MU school or college to another in accordance with college and school policies as noted below and in the college and school sections of the catalog. Currently enrolled students may obtain a Transfer of Division form from their academic unit. Signatures are needed from the deans of the colleges or schools the student is entering.

REGISTRATION

Procedural Overview

The University of Missouri uses online (STAR MU), phone (PAWS) and in-person registration. Students learn the processes during Summer and Winter 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. Students must be admitted prior to being eligible to register for courses. Once a student is admitted, a Paw Print, or single sign-on, is assigned. Students are also assigned a student identification number (six digits in length) and a PIN (four digits in length). These are used to access the registration process and protect the student's private information. In some cases, students may also need a four-digit term registration password. These are distributed by the academic unit (college or school). For more information, contact the Office of the University Registrar-Registration, 130 Jesse Hall, (573) 882-7881.

Summer and Winter Welcome

New students who will begin course work in the fall term are invited to Summer Welcome. During the two-day event, students complete their registration. All students may be enrolled in up to three courses prior to attending Summer Welcome. Students participate in orientation sessions to assist in the transition to MU. Guests such as parents or spouses may accompany students.

There are additional fees for guests.

New students who will begin course work in the winter term are invited to Winter Welcome. During this one-day event, students complete registration. The orientation sessions are streamlined for winter starters.

Students receive detailed information regarding these two welcome programs in the mail after they are admitted to MU.

Adding a Course

Students may add a course up to the seventh day of a 16-week session. Classes less than 16 weeks in length will be prorated. For individual deadlines, contact the Office of the University Registrar-Registration, 130 Jesse Hall, (573) 882-7881.

- An adviser's and dean's approval may be required; it is suggested that you consult with your academic advisement unit for guidance.
- Courses that start after the first day of the semester may be added prior to the first day of instruction by visiting the Brady Commons Registration Center, 205 Brady Commons, or 130 Jesse Hall.
- Problems, special readings or research courses may be added at any time in the semester with an add/drop form signed by the student's academic advising unit. The form is processed by the Office of the University Registrar staff in Brady Commons or 130 Jesse Hall.
- Add/drop forms are valid for 24 hours.

Section Changes

Course-section changes occur when a student moves from one meeting time of a course to another, within the same course. An add/drop form is not needed. Section changes are initiated by the student. Students will not be permitted to change sections in any course after the expiration of one week of classes in a regular session or the equivalent thereof in a shorter session or for a shorter-length class.

Easy Access Registration

Students who are non-degree seekers at MU may enroll in up to 6 undergraduate credits on a space-available basis. Registration is held just before the term. Interested students should contact the Office of the University Registrar-Registration for additional information or check the MU web site for dates and times of registration. International students must demonstrate English language skills with appropriate TOEFL scores. Students who have been dismissed from MU must wait one full year before registering via Easy Access. Students registering through Easy Access are subject to University academic requirements and other policies, which dictate that students may be dismissed for low academic performance.

Senior citizens enrolled in Easy Access are eligible for discounted fees if they meet certain conditions. Contact the Office of the University Registrar, (573) 882-7881, for more information.

Center for Distance and Independent Study

A broad curriculum of approximately 110 university courses are available through independent study. Each course has been approved and is offered by an academic department at one or more of the campuses of the University of Missouri. Independent study provides a valuable learning alternative for students when scheduling conflicts, financial problems or other barriers interrupt the flow of education. Students can enroll in independent study any time of the year and take up 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 adviser or dean's office before enrolling in an independent study course.

The independent study curriculum includes traditional print-based and online courses. Students who enroll in these print-based courses receive a study guide that provides all lesson assignments and instructions needed to complete the course. Students can submit completed lesson assignments to the Center for processing in person, by mail, or online for most print-based courses. In addition, the Center offers an online curriculum. Students who enroll in these online courses use the Internet to access their lessons and complete their assignments.

Textbook and other supplementary materials required to complete independent study courses are available and can be purchased from the Center's bookstore. Most courses require two supervised examinations, which are administered at the Center and other designated testing areas.

The Center for Distance and Independent Study bulletin is available in Ellis Library, the Office of Admissions at 230 Jesse Hall, the Brady Commons activities office, and at the Center for Distance and Independent Study at 136 Clark Hall, Columbia, Mo, 65211, (573) 882-2491 or 1-800-609-3727.

The web site of the Center for Distance and Independent Study is at: <http://cdis.missouri.edu>. Students can request a course bulletin, preview course offerings, enroll in or withdraw from a course, submit lessons for computer-evaluated and online courses, access their online courses, send the Center a message, check their status in independent study courses, change their address, view their account balance, and request to have an exam sent to an exam proctor.

ACADEMIC PROCEDURES, RULES AND REGULATIONS

The academic rules and regulations of the University of Missouri-Columbia 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.

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-Columbia 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-Columbia 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-Columbia 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-Columbia 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-Columbia 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-Columbia after the granting of academic renewal.

Procedures:

- Students should discuss their desire to pursue academic renewal with an academic adviser 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-Records, 126 Jesse Hall, (573) 882-4249.

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-Columbia 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

Students who are called to active duty as part of a Reserve or National Guard unit call-up during an academic term and are unable to complete their work have three options:

- They may choose to withdraw from school, in which case they are given a 100 percent refund of all academic fees including the Educational Fee, Student Facility and Activity Fee and any instruction-related miscellaneous fees that may have been assessed. In such cases, no course numbers, titles or grades will appear on the student's academic record. All that will appear on the record is the date of the withdrawal (the date on which orders require the individual to report for active duty) with an explanatory statement.
- A student and instructor can consider the use of the I grade under appropriate circumstances. The time such students spend on active duty shall not be included in the time allowed for the removal of an I grade (i.e. one calendar year from the date of its recording).
- The student and instructor may choose for the student to complete or have completed all of the course work and receive a grade prior to the date to report for active duty. This arrangement may work if students are called up near the end of an academic term and is subject to the approval of the instructor.

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. A brochure, *Credit by Examination*, available from the Admissions Office, provides additional information. 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: Pre-calculus (5)
- MATH 1360: Geometric Concepts for Teachers (3)
- MATH 1500: Analytic Geometry and Calculus (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 ACT math score.

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 may not change from earning credit to a hearer or from a hearer to earning credit after the tenth day of the term.
- Classes less than 16 weeks in length are prorated. Contact the Office of the University Registrar-Registration, (573) 882-7881, for deadlines for each semester.
- Students must obtain dean's approval from the academic advising unit on an add/drop form prior to processing it in the Brady Commons Registration Center, 205 Brady Commons, or the Office of the University Registrar-Registration, 130 Jesse Hall.
- 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, or D, and the "+" or "-" sign if appropriate, or S for the course. A course in which the student receives a grade of W, F, U, 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.

Correspondence Courses

See Center for Distance and Independent Study.

Course Repeat Policy

When a grade received in an initial attempt, for an undergraduate course at University of Missouri-Columbia, is a C-, D+, D, D- or

F, the grade will be replaced in the calculation of the grade point average 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 credits will be dropped from the calculations of the student's grade point average. 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 grade point average 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 completed fall semester 2000 or after.*

Any course being repeated may not be taken on an S/U basis.

This policy does not guarantee that openings will be available in course(s) if and when students wish to retake them and that instructors will not ordinarily know whether a student is enrolled in a course for the second time. When a course is repeated, all applicable 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 for that course.

Students are strongly encouraged to talk with an adviser to determine whether re-enrollment is advisable (certain department or divisional policies may be important in this connection), and whether doing so will contribute to increased student acceptability of consequences of choices, decisions, etc. Further, students should be aware that repeating a course may have an effect 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.

This policy is applicable to undergraduate students only. Copies of the formalized Course Repeat Policy and Request for GPA Adjustment Forms can be obtained at students' academic units, or printed from the University Registrar's web page.

Credit by Exam

See Advanced Standing.

Dual Enrollment

Undergraduate/ Graduate Enrollment

With the approval of the school or college and the graduate dean's office, final-semester seniors in the upper half of their classes and within 15 credits of completing graduation requirements may enroll dually for up to 6 graduate credits in their undergraduate division and the Graduate School for courses sufficient to make a full program. Specific circumstances exist in which exceptions to this rule are made; college and school rules should be consulted.

Dual enrollment must be completed in the graduate office within one month after the start of the fall and winter semesters and within three weeks of the start of the summer session. *Students who graduate with excess credit without registering in the Graduate School will not receive graduate credit for that work.*

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

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 winter 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 winter 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 winter 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, or I are not included in determining the grade point average.

The University of Missouri GPA includes all grades, credits and quality points attempted at any campus of the University of Missouri, including all grades, credits and points for any course that is repeated. In computing the grade point average for students' transfer work from any campus of the University

of Missouri System, the grades and quality points are used that would have been assigned if the courses had been taken on the campus calculating the GPA. Repeated courses, marked R, are excluded from the GPA calculation.

GPA Calculator Web Site

To calculate a grade point average, go to the GPA Calculator Web Site at http://registrar.missouri.edu/Records_Transcripts_and%20Degree_Audit/Records/gpa_calculator.htm.

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 the internal purposes of a school or college, its faculty may adopt a variant of the campus grading system.

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, 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 tied to a specific letter grade are 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.

Students seeking Missouri teacher certification must receive a C (2.0) or better in written and oral communication and mathematics in each of the courses required in these areas within the University general education requirements of the College of Education. Students also must obtain a C (2.0) or better in the professional education courses required. Students should contact the associate dean in the College of Education for further information.

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-MU. The Office of the University Registrar-

MU 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 winter 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 adviser.

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 the end of the first two weeks of a semester. Contact the Office of the University Registrar-Registration for specific dates for each semester and for classes of irregular or non-standard length.

How Dropping/Withdrawing from a Class Affects the GPA

Completing a drop-course transaction during the term before the 26th day of the term is called “dropping” a course. It will have no effect on the grade point average. After the last day to drop, students are “withdrawing” from a course if they choose to leave the course. 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 26th day of the fall or winter 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 26th day are required to obtain the signature of the course instructor on the Class 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 class 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 205 Brady Commons or 130 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, and if the student is financially enrolled for the term, 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 the Withdrawing from the University and Refund sections in this catalog.)

Change of Grade

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, on a specially designated form completed by the instructor at the time the I grade is awarded, will include:

- The name of the student
- The course number, title and credits

One of America's best college buys, MU is highly ranked in quality and value by U.S. News and World Report, The Fiske Guide to Colleges, and many others.

- Semester and year of enrollment
- The signature of the instructor
- 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

A copy of the form will accompany the grade report to the Office of the University Registrar, which will in turn notify the appropriate dean.

The time allowed for the removal of I grade is normally one calendar year from the date of its recording (assuming that the student is in continuous enrollment during the time period). If not altered, a grade of F will be assigned automatically. (This does not apply to courses taken for graduate credit or prior to the fall 2003 semester.) When the incomplete work is completed and graded, proper notification of the grade to be assigned is provided to the University Registrar and the student.

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.
- Grade will remain I until the instructor submits a grade change. However, if the grade is not changed within one calendar year, it will automatically be changed to an F grade. (Effective fall 2003)
- Questions may be directed to the Office of the University Registrar-Records, (573) 882-0103.

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-Records on a form provided for that purpose.

Note: Grade corrections must be processed within one semester of the original reporting date. Summer is included as one semester.

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-Records, (573) 882-0103.

Hearer

See Auditing a Course.

Holds

There are several types of holds, which are restrictions that may block registration. Students are notified in their registration email if they have a hold. They should go to the office indicated in the memo 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:

Freshman	0 to 29 credits
Sophomore	30 to 59 credits
Junior	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. For instance, students who have completed 15 credits and are enrolled in 15 credits for the current semester will receive registration appointment times with sophomore-level students for the next semester.

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. Center for Distance and Independent Study courses authored by MU faculty are acceptable as are courses offered for credit through MU Direct. (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 either at Brady Commons Registration Center, 205 Brady Commons, or the Office of the University Registrar-Registration, 130 Jesse Hall. (See the section under Grades on withdrawing from a course, as well as the Refund section.)

NOTE: Students may not withdrawal from all courses or their last course via PAWS or STARMU. This must be done in the academic advising unit.

FINANCIAL 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 on paper or online. Paper FAFSAs are available from high school counselors or from financial aid offices at area colleges and universities including MU. Online FAFSAs for both first-time and renewal applicants are available at www.fafsa.ed.gov.

Graduating high school seniors may apply for academic scholarships by completing the Scholarship Application for Entering Freshmen Students by December 1 of the student's senior year. The application is printed in the Application Packet available from the Office of Admissions and is available online. Continuing MU students and new transfer students may apply for scholarships by completing the online form. The Continuing and Transfer Student Scholarship Applications must be submitted by February 1 of each year. All online applications may be found at www.sfa.missouri.edu.

FEE ASSESSMENT

Fees and Expenses

Information on all current fee rates may be found on the MU Cashiers web site.

Undergraduate Educational Fee

All students enrolled at the University of Missouri are required to pay Educational Fees based on the number of credits of instruction they are receiving. Courses taken as a hearer (auditor) are charged at their normal credit value when computing the amount of fees to be paid.

Non-Resident Educational Fee

Students who are not residents of Missouri, as defined by the *Residence and Educational Fee Assessment Rules*, will be assessed Educational Fees at non-resident rates. The Office of Admissions at 230 Jesse Hall will furnish, upon request, the brochure *Residence and Educational Fee Assessment Rules*.

Student Activities Fee

Students registered for 12 credits in the fall or winter semesters or 6 credits in the summer, in classes taught on the Columbia campus, are required to pay the Student Activities Fee. For less than full-time enrollment, the Student Activities Fee is calculated per credit, and for any fraction thereof. No Student Activities Fee is charged for classes taught off campus. This fee is allocated to various campus organizations and improvement plans.

Information Technology Fee

An Information Technology Fee is assessed per credit for all students enrolled in all courses. This fee is allocated to the campus computing division, to offset the costs of usage, maintenance and upgrading of the computer facilities and services for students.

Recreation Facility Fee

Students enrolled in more than 6 credits will be assessed a Recreation Facility Fee. Students who are enrolled in fewer than 3 credits, or who are taking classes off campus, will not automatically be charged the Recreation Facility Fee, but may opt to include the charge if they would like to access the recreation facilities.

The Recreation Facility Fee allows students to use campus-based indoor and outdoor facilities as self-service participants. Recreation facilities include an aquatic complex, basketball courts, a fitness center, racquetball courts, indoor and outdoor tracks and tennis courts.

Prepaid Health Fee

This mandatory fee is charged to all full-time undergraduate students enrolled in 12 credits or more for fall or winter and 6 credits for the summer term. Students who are enrolled less than full time or who are taking classes off campus will not automatically be charged the Prepaid Health Fee, but may opt to include the charge if they need the services of the Student Health Center.

The fee allows students to consult a health practitioner at the Student Health Center in non-emergency situations, at no cost to the student, including some limited lab work.

Credit Hour Surcharges

Applied Music Fee

This once-per-semester, flat fee is charged to all students enrolled in an applied music course or courses.

Cooperative Work-Study Program

A processing fee is charged for students registered with the College of Engineering and other select departments for work

experience as part of the degree program. No credit is awarded for the semester enrolled in this program.

Music Ensemble Fee

A fee for music ensemble courses is assessed but is offset by a scholarship award.

Supplemental Fees

Fees charged per credit for courses taught within certain departments (e.g. Journalism, Engineering, Health Professions, etc.).

Study Abroad Fee

This processing fee is charged once per academic year to all students enrolled in the MU Study Abroad Program.

Optional Charges

Optional charges are offered to students enrolled at the University of Missouri-Columbia. The availability of options may vary each semester. Examples include All-Sports Pass, MU Alumni Association, MU Parents Association, MU Theater Tickets, Student Museum Association, Savitar Yearbook, Major Medical Insurance, Concert Series Student Discount Passport, Student Museum Associate and University Club Membership. Contact the Cashiers Office at (573) 882-3097 for more information concerning these options.

Miscellaneous Fees and Charges

Expendable Materials Fee

These fees are charged for specific courses offered by the Art Department requiring the extensive use of materials in classroom instruction.

Late Registration Fee

Any student registering on or after the first day of classes is charged a non-refundable Late Registration Fee in addition to all other fees. No Late Registration Fee is charged to students who are adding courses to their existing schedules.

Residence Halls

For information on residence hall charges and billing, contact the Department of Residential Life, 125 Jesse Hall, (573) 882-7275, or 1-800-225-6075 (in Missouri or Illinois). Online, visit <http://www.reslife.missouri.edu/>.

FEE PAYMENT

Time and Method of Payment

Students must make satisfactory payment arrangements or registration is subject to cancellation. Students are required to make satisfactory payment arrangements with the Cashiers Office before being allowed to register again. Students are responsible for payment whether or not they receive a bill.

The following arrangements may be made for payment of fees:

- Pay the “billed balance due” from the monthly billing statement in full by the due date as it appears on the bill.
- Alternatively, students may pay the “minimum payment due” from the monthly billing statement by the due date as it appears on the bill.

- If anticipated financial aid exceeds the total amount due on the student account, a letter of automatic financial enrollment is included in the semester's first monthly billing statement. A credit balance appears on the monthly billing statement and no payment is required to retain the student's classes.
- If fees are to be paid by a third-party sponsor, such as an agency or embassy, the student's financial enrollment may be completed by verifying with Sponsored Billing that a billing authorization has been received. However, the student may still be responsible for a minimum payment for any balance not to be paid by the sponsor. If so, a minimum payment must be paid by the due date of the monthly billing statement to retain the student's classes.

Note: Students who elect the minimum payment plan must pay a one percent monthly finance charge on the unpaid billed balance. Also, students who fail to pay by the scheduled due date on their monthly billing statement are subject to a Late Payment Fee. Continued failure to pay an outstanding debt may result in escalated collection efforts including placement with a collection agency and the addition of the collection agency fee to the student account.

The Cashiers Office accepts the following methods of payment for fees:

- In person at 15 Jesse Hall: money orders, cashiers checks, travelers checks, personal checks, credit cards (Visa, Mastercard and Discover) or cash
- By Mail: money orders, cashiers checks, travelers checks, personal checks, and credit cards (Visa, Mastercard and Discover)
- By phone using automated touch-tone voice response, (573) 884-CASH: credit cards (Visa, Mastercard and Discover)
- By phone via account representative, (573) 882-3097: credit cards (Visa, Mastercard and Discover)

Note: Transcripts and diplomas will not be released if a student's financial obligation to MU is past due.

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 less a \$20 Cancellation Fee.

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

Full refund:	Before classes begin, less \$20 Cancellation Fee
90 percent refund:	Class days 1-8
50 percent refund:	Class days 9-19
25 percent refund:	Class days 20-38
No refund:	After the 38th day of classes

Class days are counted by excluding 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 appropriate *Schedule of Courses* and Cashiers Office web site

list 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 is the date shown on the add/drop or other applicable form, the postmarked date if the withdrawal is by mail, or the system-generated date if the withdrawal is by telephone or STAR MU.

Refunds are subject to the following conditions:

- No refund shall exceed the amount of fees paid, less a \$20 Cancellation Fee.
- Refunds based on credit card payments will be electronically refunded to the credit card.
- Financial Aid refunds are located in the Cashiers Office, 15 Jesse Hall. Refunds require a student signature or may be direct deposited into the student's bank account. Contact the Cashiers Office for more information concerning direct deposit of refunds.
- Deductions may be made from the refund amount for any amount owed for any other financial obligations to the University of Missouri-Columbia.
- Financial aid awards may also be adjusted downward as a result of this activity. Therefore, a drop in credits or withdrawal does not automatically result in a refund.

A student who believes that 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-Registration, 130 Jesse Hall. All appeals of refunds must be submitted within three months of the withdrawal date of the course work in question. A final appeal may be made to the Vice Provost for Enrollment Management within 10 days of receipt of decision. The decision of the Vice Provost for Enrollment Management is final.

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 College Guarantee program, Gallagher Grants, and Advantage Missouri Program. 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://www.missouri.edu/~forcash/>.

Getting to Graduation: 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.

UNIVERSITY REQUIREMENTS

Students must complete all University requirements, including graduation and University general education 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 course¹ must be completed in a student's major or in a 3000 or higher level MU WI course approved as part of the curriculum by the faculty of a student's major.
- Complete an approved capstone course¹ with MU course work in the student's major
- Complete 30 of the last 36 credits with MU courses
- Complete no fewer than 120 credits, with no more than 64 credits transferred from a two-year institution, unless specified by an approved articulation agreement
- Complete all University general education requirements (See the University General Education Requirements section later 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

¹Must be completed with a grade of C - or better.

ACADEMIC ASSESSMENT

The Board of Curators has required that all undergraduate students participate in the assessment process at several points during their undergraduate careers. The assessment process is designed to gather data to be used to improve teaching, learning, and programs at the University. Under the process:

- All newly entering freshmen are expected to take the ACT prior to enrolling.
- All students are expected to participate in the assessment of proficiency in their major fields as seniors.
- Students are expected to participate in the assessment of University general education during their undergraduate careers.
- Students may be expected to participate in other assessment activities (writing or questionnaires) as undergraduates.

University General Education Assessment

Prior to graduation, all students will participate in a University general education assessment examination known as the CAAP Exam or test. The assessment program is determined by the MU Academic Assessment Committee and addresses University general education competencies of MU students in areas to include 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
- Admission tests taken by preprofessional students, such as SAT, MCAT, and VAT
- Portfolio review
- Performance review
- Capstone project
- Faculty-developed exit examinations
- Exit interviews

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

General education requirements are the foundation of knowledge upon which all University of Missouri-Columbia 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 adviser to ensure adequate progress towards the selected degree and major.

Common University General Education Requirements for all MU degrees:

- College Algebra (MATH 1100 or 1120) or transferable equivalent¹ (3 credits)
- English Exposition and Argumentation (ENGLSH 1000 or 1000H) or transferable equivalent¹ (3 credits)

There were two people in the first MU graduating class, and they were honored with a three-hour commencement ceremony.

- Writing Intensive course I¹ 2³ (3 credits)
- American History or Government² (3 credits)
- Math Proficiency Course¹ 2 (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 on the following page.
 - Must include 9 credits in these sciences: biological science, physical science, and / or mathematical science⁴
 - including at least one biological or physical science and its related laboratory component
 - representing two different areas of science
 - Must include 9 credits of behavioral and social science
 - including at least one course classified as behavioral science and one course classified as social science
 - Must include 9 credits of humanities and/or fine arts
 - including courses from at least two different departments in these areas

¹ Must be completed with a grade of C- or better.

² Designated courses may also be used toward the distribution requirement.

³ Course must be taken at MU unless requirement is waived via completion of an AA degree from a regionally accredited Missouri institution.

⁴ Must be courses in mathematics or statistics with College Algebra as a prerequisite.

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.

CHECKLISTS FOR STUDENTS

GETTING STARTED

Checklist for Freshmen

- Determine which college or school (academic unit) admission has been granted. Students who are unsure should check with the Office of Admissions in 230 Jesse Hall, (573) 882-7786.
 - Students entering a program that admits first-year students into the major: contact that department to declare the major officially or to inquire when it is appropriate to do so.
 - Students entering a program that has selective admissions: check with an academic adviser in the program to make appropriate course selections and find out the requirements to be admitted into the program.
- Students who are unsure of their major or feel that the current major is not right for them: consult with the academic adviser to discuss other options. Students may want to visit the Student Success Center to work with the Career Center

or an academic adviser to see what majors or careers might be of interest to them.

- Look through the *Undergraduate Catalog*, the online academic guides on the University Registrar's web site and the online *Schedule of Courses*. The catalog lists requirements for each major, prerequisites for courses and course descriptions. The *Schedule of Courses* lists offerings by terms, prerequisites, meeting times, special examination dates, etc. The academic guides provide requirement information, an eight-semester guide to suggested courses as well as career and other major-related information.
- Develop a list of possible courses to take for the next semester. It is important to meet with an adviser regularly for assistance with long-range academic guidance. At a minimum, students should meet with their academic advisers to prepare for registration each semester. Students who do not know how to contact the academic adviser should check with the academic unit. When meeting with an adviser, students should bring a list of possible courses, academic goals and concerns.
- Enroll as soon after the initial registration appointment time as possible. Currently-enrolled students should receive an email each semester telling them when they can register; this information is also available on STARMU.
- There are three ways to register: on the computer using STARMU (www.missouri.edu), on the phone using PAWS, (573) 882-3700 or in person at 205 Brady Commons or 130 Jesse Hall. To register using STARMU or PAWS, students need their student number and PIN, and, depending on the academic unit, may need a term password.
- Get involved in a student organization or in volunteer activities.
- Begin looking into study abroad or internship opportunities.
- Make sure that permanent and local addresses are updated with the Office of the University Registrar. Addresses may be updated using STARMU.
- Pay fees by the due date on the bill.

STAYING ON TRACK

Checklist for Sophomores

- Review the checklist for first-year students.
- Consult with an academic adviser in the academic unit to determine what courses and grade point average are required for the major. Some academic units and some departments within academic units have competitive admission requirements. To check degree progress, consult a degree audit (DARS), if available.
- Visit the International Center or attend a fair to learn more about study-abroad opportunities.
- Start researching internship opportunities by visiting the MU Career Center or the Office of Service Learning or by talking with the academic adviser or faculty in the selected major.
- Continue involvement with student organizations and volunteering. Consider taking on more leadership responsibilities.
- Make sure that permanent and local addresses are updated with the Office of the University Registrar-MU.
- Register and pay fees by the appropriate deadlines.

PREPARING FOR THE FINAL STEP

Checklist for Juniors

- Continue contact with academic unit(s) to determine if any official forms need to be filed.
- Meet with an academic adviser to verify appropriate degree progress.

- Make necessary arrangements for internships, study abroad or field experiences if appropriate.
- Begin building an employment portfolio. Students should visit the MU Career Center or the career services office of the academic unit.
- Begin research if planning to apply to professional or graduate programs. Prepare for and take any required professional/graduate examinations.
- Make sure that permanent and local addresses are updated with the Office of the University Registrar. Addresses may be updated using STAR MU.
- Register and pay fees by the appropriate deadlines.

FINISHING UP...ISSUES THAT CONCERN YOUR LAST SEMESTER(S)

Checklist for Seniors

- Determine what type of application is necessary for graduation in the selected academic unit and file the form at the appropriate time.
- Confirm that all requirements will be fulfilled by the end of last term of enrollment. See the academic unit for a degree check.
Students who experience academic difficulty with any course(s) during their senior year should contact the academic unit to determine a plan of action to complete the undergraduate degree.
- Take the University General Education Assessment (CAAP) exam and any department/major area assessment exams that are required for graduation. (These may have been completed previously.)
- Obtain information concerning graduation activities from the academic unit awarding the degree(s). Information concerning the Honors Convocation will be sent by the Office of the University Registrar in an email to each student's University account. Dates and times of ceremonies are listed on the University Registrar's web site.
- Check with the University Bookstore or attend the University Bookstore Graduation Fair for information concerning caps, gowns, announcements, class rings, etc.
- Begin an employment search or make application to graduate or professional schools. For assistance, visit the MU Career Center or the career services office of the academic unit.
- Make sure that permanent, parent and local addresses are updated with the Office of the University Registrar to ensure receiving graduation information.
- Make sure the permanent address to be used after graduation is updated to ensure that the diploma is sent to the correct address.
- Pay any outstanding fees to ensure release of diploma(s) and transcripts.

How to Get Through it All: Student Services

ACADEMIC RESOURCE CENTER

Academic Retention Services makes available support programs and services for under-represented ethnic minority students that give personalized attention to their interests and needs as they

pursue their undergraduate degrees at MU. Several campus-wide programs are coordinated with other campus units to facilitate full participation in all aspects of the university community, (i.e., Summer Transition Program, MAP PROGRAM, Coca-Cola Ambassadors Program, and STARS Leadership Development Program). Through many informal, co-curricular activities, such as orientation, monthly workshops, intercession advising, mid-semester progress checks, and academic recognition activities, students can receive invaluable information to assist them in reaching their fullest potential and maximizing their undergraduate experience. The office is located in the Student Success Center. *For additional information, stop by or call (573) 882-9208.*

CAMPUS WRITING PROGRAM (CWP)

Writing Intensive courses help produce an educated, articulate citizenry capable of reasoning critically, solving complex problems, and communicating with clear and effective language. The writing requirement at MU (ENGLSH 1000 or 1000H, followed by two WI courses) is part of a 35-year-old trend in US higher education known as "writing across the curriculum," or "writing in the disciplines." Since 1987, every undergraduate degree granted by MU has been strengthened by the WI requirement. More than 125 courses from disciplines across the University are offered each semester. For current information on WI status, see <http://cwp.missouri.edu>. *For further information, contact the Campus Writing Program, 325 General Classroom Building, (573) 882-4881.*

COUNSELING CENTER

The Counseling Center, 119 Parker Hall, provides free, confidential counseling for individuals with personal, educational or vocational concerns. Group counseling, testing services, a biofeedback and stress management clinic and a self-help center also are available. *Call (573) 882-6601 for more information or visit the web site at <http://www.missouri.edu/~councwww/>*

DISABILITY SERVICES

The Office of Disability Services provides accommodations and support services, within the resources of the University, that ensure all students with disabilities the opportunity to competitively pursue a college education limited only by their abilities, not their disabilities. Services include support for learning disabilities and attention deficit disorder, testing accommodations, auxiliary aids and classroom accommodations, and personal assistant referrals and training. Accommodations may include:

- Extended time on exams
- Distraction-reduced testing rooms
- Alternate formats for texts
- Note takers
- Readers, and scribes
- Adaptive equipment
- Interpreters

For more information, write the office at A038 Brady Commons or call (573) 882-4696 or (TTY) (573) 882-8054.

INFORMATION & ACCESS TECHNOLOGY (IAT) SERVICES

From high-speed Internet access to personal web space and long-distance service, IAT Services is MU's resource for technology.

IAT Services offers a wide variety of products and services to the campus community, including:

- Internet and wireless Internet service
- Email access
- Web site hosting
- Computer software training
- Cable television
- Local and long-distance phone service
- Conveniently located computing sites
- Computer repair

The IAT Services Web site is a great starting point for up-to-date information on technology services at MU: <http://iatservices.missouri.edu/>.

INTENSIVE ENGLISH AND ENGLISH LANGUAGE SUPPORT PROGRAMS

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 and note-taking. 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 or visit the web site: <http://www.missouri.edu/~iepmu>.

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 educational experience.

ISSS oversees University compliance with federal immigration laws pertaining to student and scholar nonimmigrant 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 Fulbright, Ford Foundation, Muskie, and Ron Brown Fellows. ISSS promotes intercultural understanding within the MU community through a variety of 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 provides medical care to students for acute and chronic illnesses and injuries, mental health services, individual discussions and group presentations on timely health

topics, and immunizations including those needed to meet University requirements. The Health Center is located on the corner of Hitt Street and Hospital Drive on the fourth floor of the University Physicians Medical Building (UPMB). *For more information or an appointment call (573) 882-7481.*

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 advisers in this office.

Relationships between students and their advisers 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 advisers 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.*

Academic Retention Services

See Academic Resource Center 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 Lab and the On-Line 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 TRiO) grant, funded by the US Department of Education. The goal of the SSS/TRiO 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, GMAT, TOEFL and other tests, which may be scheduled at convenient individual appointment times year-round. Testing Services also administers interest, personality and ability tests related to counseling. *The Testing Services main office is located at 205A Parker Hall, (573) 882-4801. Computer Based Testing is at 207 Parker Hall, (573) 884-0911.*

WOMEN'S CENTER

The Women's Center offers services and programs on the changing roles of women. The Center provides workshops, seminars and individual counseling for students. It has a collection of resources including books, periodicals and video tapes. Information about campus and community events is available. *The Women's Center is located in 229 Brady Commons, (573) 882-6621.*

Beyond the Classroom: Academic Enrichment

INTERNATIONAL CENTER

The Center provides coordination of study abroad, international student 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, NSEP 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 staffs 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) report to the Center.

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/>.*

LIBRARIES

The collections of University libraries include more than 3 million volumes, 6.67 million microforms and more than 16,000 journal titles in both paper and electronic formats. Services include the current periodicals reading room, copy services, reserve desk and electronic reserves (ERes), recorded sound collection, reference assistance, instruction in the use of library resources, library services for persons with disabilities and more than 190 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 and Saint Louis University. 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.

- **Freedom of Information Center**, in the School of Journalism, 127 Neff Annex, 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. *Call (573) 882-4856 for more information.*
- **Library of the State Historical Society**, in Ellis Library, has an extensive collection of Missouriiana and early West documents and memorabilia. *Call (573) 882-7083 for more information.*

STUDY ABROAD

The Study Abroad staff coordinates nearly 400 MU-sponsored programs in more than 50 countries throughout the world. In addition, they coordinate applications for Fulbright, Gilman, Freeman Asia and other scholarships for research and study overseas. *The office is located in the International Center in N52 Memorial Union, (573) 882-6007.*

MUSEUMS AND EXHIBITS

The Museum of Art and Archaeology is the third largest art 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 14,000 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). The museum is free and open to the public Wednesday through Saturday from 10 a.m. until 4 p.m. For further information, call (573) 882-3591.*

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.*

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

Fishery and Wildlife Collections provide teaching 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.*

Honors College

Honors College

CONTACT INFORMATION

Stuart Palonsky, Director
Julie Melnyk, Associate Director
(573) 882-3893
umchonorscollege@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-Columbia. 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 two-semester Social and Behavioral Science Sequence** is designed to engage students in the seminal insights of the social and behavioral sciences as they are embedded in the historical experiences of the American people.
- **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 for first-year students.
- **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 at the Honors College.

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. Incoming freshman 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 application.

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 winter 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 College Community Involvement Program 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 one intellectually and socially stimulating setting. Honors Students are not required to live in Honors Housing.

Laurels

The *Laurels* newsletter, published electronically, keeps honors students abreast of current Honors College events and opportunities such as Honors College scholarships. Available before registration each semester, a special issue of *Laurels* provides descriptions of classes offered and brief biographies of the professors.

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 winter semester lose honors eligibility. Students wishing to reapply to the Honors College must meet the eligibility requirements for current students.

Initial Course Requirements

Beginning fall 2003, 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 winter 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, GN HON 1080H/ 2085H and 2950H/ 4950H, and Learning-by-Contract. 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 winter 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.

GENERAL HONORS 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.

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 jour-

nals, a short bibliography and a research paper on their service in the community. Honors eligibility required.

GN HON 2021—HCCIP Mentor Program (3). HCCIP Mentor Program offers students the opportunity for service with at-risk youth. Participants serve as tutors, role-models, and friends for 12 to 16 year old youth who are at-risk of dropping out of school or not attending college.

GN HON 2021H—HCCIP Mentor Program (3). HCCIP Mentor Program offers students the opportunity for service with at-risk youth. Participants serve as tutors, role-models, and friends for 12 to 16 year old youth who are at-risk of dropping out of school or not attending college. 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 (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 (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 (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—HCCI 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. 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 2111—Humanities: The Ancient World (3). (same as General Honors 2111H). 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. The art history slide presentations will treat the same eras.

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 2112—The Middle Ages and the Renaissance (3). (same as General Honors 2112H). 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.

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 2113—The Early Modern World: The 17th-19th Centuries Enlightenment (3). (same as General Honors 2113H). 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.

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 2114—The Modern Era (3). (same as General Honors 2114H). 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 works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

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 2241H—Creating a New Nation (3). This course will use influential social science ideas to illuminate significant issues in U.S. history through the Civil War. Honors eligibility required.

GN HON 2242H—Creating the Modern Society (3). This course will do the same as Honors 2241H for critical issues in the history of the United States since 1865. Honors eligibility required.

GN HON 2310H—Honors Behavioral Science Colloquium (2-3). Honors eligibility required.

GN HON 2450H—Hnrs 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, assessible 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 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 (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

**College of
Agriculture,
Food and
Natural Resources**

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 an optional emphasis area in *Financial Planning*
- Agricultural Education with emphasis areas in *Teacher Certification and Leadership*
- Agricultural Journalism
- Agricultural Systems Management
- Animal Sciences
- Biochemistry
- Food Science
- General Agriculture with an optional emphasis area in *Sustainable Agriculture*
- Hotel and Restaurant Management
- Parks, Recreation and Tourism with emphasis areas in *Leisure Service Management, Natural Resource Recreation Management, Tourism Development*
- Plant Sciences with emphasis areas in *Crop Management; Landscape Horticulture; Ornamental Plant Production and Operations Management; Plant Biology; Plant Breeding, Genetics, and Biotechnology; Plant Protection; Precision Agriculture; Turfgrass Management*
- 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 Resource Management, Industrial Forest Management, Individualized Studies, Urban Forestry*

Minors

- Agricultural Economics
- Agricultural Education
- Agricultural Systems Management
- Animal Sciences
- Entomology
- Food Science
- Forestry
- Hotel and Restaurant Management
- International Agriculture
- Agricultural Leadership
- Natural Resources
- Pest Management
- Plant Pathology
- Plant Sciences
- Rural Sociology
- Soil and Atmospheric Sciences
- Sustainable Agriculture

ADMINISTRATION

Thomas L. Payne, Vice Chancellor and Dean/Director, MO
Agriculture Experiment Station

Paul Vaughn, Associate Dean, Academic Programs
John Gardner, Associate Dean, Research, Outreach, Associate
Director Agriculture Experiment Station
Dave Baker, Assistant Dean/Director, Ag Extension
Jim Spain, Assistant Dean, Academic Programs
Kenneth C. Schneeberger, Assistant Dean, Special Programs
Roy Robinson, Director of Study Abroad

College of Agriculture, Food and Natural Resources
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

The mission of the College of Agriculture, Food and Natural Resources (CAFNR) includes quality teaching, cutting-edge research and the extension 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 also 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-Columbia 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 Experiment Station, Academic Programs, Agricultural Extension and International Programs, have had great influence on Missouri.

ADMISSIONS

Students admitted to the University of Missouri-Columbia 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.)

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 128 credits. In addition to University general education requirements and graduation requirements, the College of Agriculture, Food and Natural Resources requirements are listed below. (See The School of Natural Resources requirements later in this catalog.) For University General Education requirements, see University General Education Requirements in the front of the catalog.

Major core requirements

Communications	6
COMMUN 1200: Introduction to Speech Communication	3
Elective (selected from)	3
ENGLSH 2010: Intermediate Composition	
ENGLSH 2030: Professional Writing	

AG ED 2220: Verbal Communication in Ag, Food & Natr. Resources	
AG JOURN 3210: Fundamentals of Communication	
AG JOURN 3240: Communicating on the Web	
AG JOURN 3270: Effective Print Communication Design & Photography	
COMMUN 3441: Nonverbal Communication	
COMMUN 3572: Argument and Advocacy	
COMMUN 3575: Business and Professional Communication	
COMMUN 3576: Persuasive Speaking	
THEATR 1400: Acting for Non-Majors	
RU SOC 2225: Science, Technology, and Society	
C S&D 1110: Manual Communication I	
A,F&NR 2190: International Agriculture Experience Foreign language (Intensive Spanish)	

Mathematics3

Statistics or an additional math course

Physical and biological sciences 11

CHEM 1100: Atoms and Molecules with Lab OR CHEM 1320: General Chemistry 2 with Lab	3
CHEM 1330: General Chemistry 3 with Lab OR BIOCHM 2110: The Molecules of Life OR BIOCHM 2112: Biotechnology in Society OR a higher-level biochemistry course	3
BIO SC 1010: General Principles and Concepts of Biology (3) AND BIO SC 1020: General Biology Lab (2) OR BIO SC 1030: General Principles and Concepts of Biology with Lab (5) OR BIO SC 1200: General Botany with Lab (5) OR BIO SC 1500: Intro. Biological Systems with Lab (5)	5

Social and behavioral sciences9

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:	3
Agricultural economics, anthropology, black studies, economics, educational psychology, geography, history, human development and family studies, peace studies, political science, psychology, rural sociology or women studies	

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

Select courses from art, art history, foreign civilization or cultures, classical studies, communications, environmental design, journalism/ag journalism, foreign language, literature, music, philosophy, religious studies and theatre

Additional CAFNR Requirements

A minimum of 50 credits must be completed in courses numbered 2000 or above; a minimum of 24 of the 50 credits must be in courses numbered 3000 or above.

Students who complete their work at MU must complete a minimum of 32 credits in departments within the College of Agriculture, Food and Natural Resources. A minimum of 20 agriculture 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 junior-college transfer student may transfer up to 18 agriculture credits. However, a transfer student from either a junior college or a four-year institution must complete a minimum of 20 credits in MU agriculture courses.

Of the credits taken during the last year for a BS degree in the College of Agriculture, Food and Natural Resources, a maximum of 9 credits can be taken at another accredited institution. These 9 credits are to be electives only. Approval of adviser, adviser 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.

Minors

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 in two tracks of courses (a minimum of 9 credits in the College of Agriculture, Food and Natural Resources): two courses in the core track and three courses in the option track. Core track courses are required for all students taking the minor. Option track courses permit concentration in a discipline or geographic area of interest to the student.

Minor in Agricultural Leadership

Each student must take a total of four courses (12 credits) of formal courses and 3 credits of Leadership Practicum for a total of 15 credits. The Leadership Practicum is intended to provide students the opportunity to further develop and apply leadership principles and skills. The practicum experience can be in the student's major area but must be approved by the coordinator of the leadership minor and should include one or more of the leadership faculty as an adviser.

Minor in Sustainable Agriculture

The minor in Sustainable Agriculture requires a minimum of 18 credits. Fifteen credits must be completed in the approved course work, and 3 credits must be obtained in a capstone experience. This capstone experience must be an internship or international experience at the 3000-level or above.

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-Columbia. 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 when the dean approves the application form, which must be accompanied by a program of study.

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 adviser 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, 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.

The honors student's program of study must be signed by a member of the honor student's advisory committee and by the undergraduate adviser chair. It must be submitted to the CAFNR associate dean's office before the close of the semester in which the honors program application was approved.

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 3.30 or more. A student whose GPA falls below 3.30 will be allowed a two-semester grace period to raise the GPA to the 3.30 level.

Changes in the program of study must be signed by the student, each advisory committee member, the undergraduate adviser 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 follows the policies below. (See Academic Standing in the front section of this catalog.)

While on academic probation, the term GPA must be greater than or equal to 1.6 for freshman (0-29 credits), 1.8 for sophomores (30-59 credits) and 2.0 for juniors and seniors (60 credits or more). If not, the student is subject to suspension.

A student who has been suspended and, after readmission, again becomes subject to academic suspension, will be ineligible to re-enroll for at least one semester (academic dismissal).

STUDENT SERVICES

Advising

When entering the college, each student is assigned a faculty adviser to assist in defining career goals and planning courses for a program of study that leads to graduation. The faculty adviser 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 adviser early in the semester. The student should consult with the faculty adviser when planning or changing the academic program. The adviser must approve and sign the program of study for graduation.

Questions dealing with advisement should be directed to the Associate Dean, 2-64 Agriculture Building, (573) 882-8301.

Career Placement 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, resume writing, mock interviews, job-seeking tactics, instructional videotapes and periodical files. For students or alumni interested in employment services, the college offers information on prospective employers and job listings.

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, 2-64 Agriculture Building, (573) 882-0088.

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 Agricultural Divisional Student Council. Honorary organizations such as Alpha Zeta and Gamma Sigma Delta promote the ideals of scholarship and leadership and recognize outstanding achievements by students in the college.

AGRICULTURE COURSES

AGRIC 1101—Special Topics in Agriculture (1-3). Selected topics not offered in other courses. Prerequisite: instructor's consent.

AGRIC 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.

AGRIC 1115—Foundations for College Success (2). Designed to facilitate skill acquisition and establishment of career expectations by freshman. Purpose of a liberal education, writing skills, overview of a land grant university, development of a four-year plan, management

skills, international agriculture and ethics are course components. Prerequisite: freshman only; instructor's consent required.

AGRIC 2112—Computing and Information Systems II (3). Designed for students who excelled in Agriculture 1111. The course is project oriented and includes further instruction on the subjects taught in AGRIC 1111.

AGRIC 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.

AGRIC 2190—International Agriculture Experience (cr.arr.). This course is designed to provide credit for students involved in

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

Services for Sponsored International Students

The mission of the International Agricultural Programs Office is to provide guidance and support for international students sponsored by agencies requiring specialized handling of students and their programs. This office provides thorough monitoring of students' programs to ensure that they achieve individual educational objectives and adhere to the expressed requirements of the sponsoring agency.

For more information on the management fee and the services included, write or call the International Programs Office, 215 Gentry Hall, (573) 882-7740.

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 and Co-ops

To gain on-site work experience, students may participate in one of the several internship or co-op programs offered in the College of Agriculture, Food and Natural Resources. Students are placed with college-approved government agencies, employers or organizations that furnish facilities and instruction to increase knowledge and strengthen leadership and communication skills.

A co-op is a full-time, repeated work experience with the same employer, normally beginning in the sophomore year. Work periods may alternate with semesters enrolled in the college. An internship is an experience in the student's major area of study and is typically completed in the junior or senior year after some course work in the major.

Students eligible for internships and co-ops must be in good academic standing in a degree program with adequate prerequisite qualification. For more information on internships and co-ops, write or call the Career Services Office, 2-64 Agriculture Building, (573) 882-0088.

international activities through the College of Agriculture, Food and Natural Resources. These activities may include course work at another institution internationally, professional and personal development activities, working on special projects, and cultural awareness. Prerequisite: student's advisor and instructor's consent.

Department of Agricultural Economics

J. Bruce Bullock, Chair
 Agricultural Economics
 College of Agriculture, Food and Natural Resources
 200 Mumford Hall
 (573) 882-3545
 Fax (573) 882-3958
 BullockB@missouri.edu

FACULTY

- PROFESSOR** J. B. Bullock, M. L. Cook, B. J. Deaton, T. Johnson, N. Kalaitzandonakes, S. F. Matthews, W. H. Meyers, A. A. Prato, J. I. Stallmann, H. Williamson Jr, A. W. Womack
- ASSOCIATE PROFESSOR** M. S. Kaylen, M. J. Monson, K. C. Moore, C. M. Poulos
- ASSISTANT PROFESSOR** H. S. James, P. G. Klein, L. M. J. McCann, J. Parcell, M. E. Sykuta, Y. Xia
- RESIDENT INSTRUCTION ASSOCIATE PROFESSOR** J. L. Dauve
- RESEARCH ASSOCIATE PROFESSOR** C. B. Valdivia, P. Westhoff
- RESEARCH ASSISTANT PROFESSOR** D. S. Brown, L. Jenkins
- INSTRUCTOR** D. E. Lehman

The Department of Agricultural 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 Agricultural, Resource 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
- Rural Policy Research Institute, conducting policy-relevant research

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.....	21
AG EC 1041: Applied Microeconomics.....	3
AG EC 1042: Applied Macroeconomics	3
AG EC 2123: Introduction to the Mathematics of Agricultural Economics	3
AG EC 2183: The Agricultural Marketing System	3
AG EC 3251: Agricultural Prices	3
AG EC 3282: Agribusiness Finance	3
AG EC 4990: Senior Capstone Seminar	3
Supporting courses	24
AGRIC 1111: Computing and Information Systems I OR CS 1020: Introduction to Computing OR	
ACCTCY 2258: Computer Based Data Systems	3
MATH 1300: Finite Mathematics	3
ACCTCY 2036: Accounting I OR ACCTCY 2136H: Honors Accounting I.....	3
ACCTCY 2037: Accounting II OR ACCTCY 2137H: Honors Accounting II	3
STAT 2500: Introduction to Probability and Statistics I OR AG EC 2225: Statistical Analysis.....	3
ECONOM 3229: Money and Banking	3
PL SCI: Any course in Plant Sciences OR BIO SCI 1200: General Botany with Lab OR	
FOREST: Any approved course	3
AN SCI: Any course in animal sciences.....	3
Agricultural production	6
Courses in biological engineering; agricultural systems management; animal sciences; entomology and pest management; fisheries and wildlife; food science; forestry; hotel and restaurant management; natural resources; parks, recreation and tourism; plant pathology; plant science (includes agronomy and horticulture); and soil and atmospheric science	
Electives	26
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 2.5 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	3
AG EC 4972: Agri-Food Business and Cooperative Management	3

Department of Agricultural Economics

Business core requirements..... 6
Accounting, finance, management, marketing, or agricultural economics courses approved by the department

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 2.5 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.

Options and Tracks

The Agricultural Economics degree offers 3 options.

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.

Option core requirements 18
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 3

Students in the farm and ranch professional option must complete 6 credits within one track, excluding any courses that are explicitly required under the farm and ranch management option. Note: options and tracks do not appear on transcripts or diplomas. (See a listing of tracks and the applicable courses below.)

Agricultural Economics Option

In addition to the course requirements for the College of Agriculture, Food and Natural Resources and the Department of Agricultural Economics, students in the agricultural economics option must complete 9 credits of course work within each of two tracks. Note: Options and tracks do not appear on transcripts or diplomas.

Tracks

Natural resources and policy track

- AG EC 2156: Intro to Environmental Law (3)
- AG EC 2070: Environmental Economics & Policy (3)
- AG EC 3230: Ag & Rural Economic Policy (3)
- AG EC 3270: Conservation & Use of Protected Areas (3)
- AG EC 3286: Econ of Managerial Dec Making (3)
- AG EC 4356: Environmental Law & Policy (3)

- RU SOC 1120: Population & Ecology (3)
- RU SOC 4370: Environment & Society (3)
- NAT R 1060: Ecology & Conservation of Living Resources (3)

International agriculture track

- AG EC 2150: World Food & Agriculture System (3)
- AG EC 3230: Ag & Rural Economic Policy (3)
- AG EC 3271: International Agricultural Development (3)
- AG EC 3272: International Food Trade & Policy (3)
- AG EC 3286: Econ of Managerial Dec Making (3)
- AG EC 4940: Internship Exp in Ag (if international) (1-3)
- AF&NR 2190: International Experience (maximum 3 credits)

Agricultural marketing track

- AG EC 2223: Agricultural Sales (3)
- AG EC 3224: New Products Marketing (3)
- AG EC 3272: International Food Trade & Policy (3)
- AG EC 3294: Agricultural Marketing & Procurement (3)
- AG EC 4972: Agri-Food Business & Cooperative Mgmt (3)
- AG EC 4971: Agribusiness Management Strategy (3)

Financial Planning Option

The Financial Planning option 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 Economics, the following courses are required within this option:

Core requirements 25
AG EC 3256: Agribusiness & Biotechnology Law..... 3
ACCTCY 4353: Introduction to Taxation 3
C&FE C 2083: Introduction to Personal Financial Management 1
C&FE C 2183: Personal & Family Finance..... 3
C&FE C 3283: Financial Planning: Computer Applications 3
C&FE C 4382: Financial Planning: Risk Management 3
C&FE C 4383: Financial Planning: Investment Management 3
C&FE C 4386: Financial Planning: Employee Benefits & Retirement Planning 3
C&FE C 4393: Financial Planning: Estate & Gift Planning 3

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. No more than 3 credits can be substituted from economics courses. A student earning an agribusiness management major is not eligible for an agricultural economics minor.

Sample Eight-Semester Program

Bachelor of Science degree with a major in Agribusiness Management

Check the *Undergraduate Catalog* for prerequisites.

Fall I	Winter I	Fall III	Winter III
AG EC 1010..... 1	AG EC 1011 1	Humanities 3	AG EC 3282 3
AG EC 1041..... 3	AG EC 1042 3	Business elective..... 3	Electives 4
MATH 1100/1120 3	ENGLSH 1000 3	AG EC 3251 3	AG EC 3286 3
History or political science..... 3	Plant science..... 3	COMMUN elect..... 3	AG EC 3256 3
AGRIC 1111 3	CHEM 1100 3	BIOCHM 2112..... 3	Humanities 3
Animal science..... 3	MATH 1300..... 3	Total..... 15	Total 16
Total..... 16	Total 16		
Fall II	Winter II	Fall IV	Winter IV
COMMUN 1200/1200H..... 3	BIO SCI 1010..... 3	AG EC 4971..... 3	AG EC 4972 3
AG EC 2123..... 3	BIO SCI 1020..... 2	Business elective..... 3	AG EC 4990 3
ECONOM 3229/3229H . 3	STAT 2500..... 3	Prod Ag 3	Electives 9
ACCTCY 2036 3	ACCTCY 2037..... 3	Electives 6	
AG EC 2183..... 3	Humanities 3	AG EC 4940..... 3	
	Prod Ag..... 3	Total..... 18	Total 15
Total..... 15	Total 17		

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.

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.

AG EC 2070—Environmental Economics and Policy (3). (same as Environmental Studies 2070). Examines current environmental and natural resource issues using and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

Prerequisite: ENGLSH 1000.

AG EC 2123—Introduction to the Mathematics of Agricultural Economics (3). Familiarize students with the use of calculus and other quantitative tools in developing and analyzing fundamental economic concepts. Prerequisites: AG EC 1041, 1042 and MATH 1300.

AG EC 2150—The World Food and Agriculture System (3). Study of global food and agricultural systems. Analysis of economic, geographic, biologic, social and institutional factors influencing world food and agricultural production, marketing, consumption and trade. Prerequisites: AG EC 1041 and 1042.

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 system that transforms agricultural products into food products. Examines functions and institutions in marketing and distributing food from both micro and macro perspectives. Prerequisite: AG EC 1041, 1042 and ENGLSH 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: AG EC 1041.

AG EC 2225—Statistical Analysis (3). El-

ementary statistical inference. Prerequisite: AG EC 1040 and MATH 1300.

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 3224—New Products Marketing (3). Learning experience to develop skills in marketing new ag 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: ENGLSH 1000, AG EC 1041 or equivalent.

AG EC 3230—Agricultural and Rural Economic Policy (3). Study and analysis of past and present government policies affecting agriculture and rural economy. Prerequisite: 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: junior standing.

AG EC 3251—Agricultural Prices (3). Variations in prices of agricultural products; underlying factors. Prerequisites: AG EC 1041, 1042, 2123 or MATH 1320 and STAT 2500 or

AG EC 2225.

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: AG EC 1041.

AG EC 3270—Conservation and Use of Protected Areas (3). Evaluation of socioeconomic, cultural and ecological values influencing the establishment, development and management of publicly-owned protected areas including national parks and forests, wildlife refuges, wilderness and wild/scenic rivers. Prerequisites: AG EC 1041 or equivalent and AG EC 2070.

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: 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: 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: AG EC 1041 and ACCTCU 2037.

AG EC 3285—Problems in Agricultural Economics (1-3). Supervised study in a specialized phase of agricultural economics. Prerequisite: 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: 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: AG EC 2183.

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: AG EC 1041.

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 AG EC 3260, 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: 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 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: AG EC 3260 or AGRIC 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: AG EC 2183, 3282, 3286, ENGLISH 1000 and AGRIC 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: AG EC 2183, 3256, 3286 and 4971

AG EC 4990—Senior Seminar in Agricultural Economics (3). Applications of economic concepts to formulate positions on issues. Includes discussion sessions, student team presentations and guest lecturers. Prerequisite: 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: ECONOM 3251, STAT 1400 or equivalent.

Department of Agricultural Education

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FACULTY

PROFESSOR H. R. Terry, P. R. Vaughn
ASSOCIATE PROFESSOR B. L. Garton, R. M. Torres

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 next generation's understanding of agriculture and its role in society and the global economy.

Students pursuing a degree in agricultural education choose between two emphasis areas. Teacher certification emphasis prepares students to meet state teacher licensure requirements and teach agriculture, food and natural resources to secondary and adult learners through the public schools. Leadership emphasis focuses on developing students' leadership, communication and human relation skills. Students learn how to plan, manage and disseminate information in non-formal educational settings. Students in both the teacher certification and leadership options 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 other academic degree programs within the University of Missouri or from other colleges or universities must have at least a 2.3 GPA on 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://www.aged.missouri.edu/>.

Emphasis Areas

Students within the agricultural education major will select the Teacher Certification emphasis or Leadership emphasis.

Teacher Certification Emphasis

The teacher certification emphasis prepares students to meet state teacher licensure requirements to teach agriculture in the 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 Teacher Development Program in the College of Education. The capstone experience involves a semester-long teaching internship in a selected secondary agriculture program.

Emphasis core requirements.....	29
AG ED 1000: Orientation to Agricultural Education	1
AG ED 3310: Teaching Farm and Personal Financial Management	2
AG ED 4310: Rationale and Structure of Ag Educ 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
Teacher Development Program – College of Education.....	15
TDP 2000: Inquiry into Learning I	4
TDP 2020: Inquiry into Learning II	4
TDP 4040: Inquiring into Schools, Community and Society I	3
TDP 4060: Inquiring into Schools, Community and Society II	2
C&I 4560: Teaching Reading in the Content Areas	2
Agricultural economics.....	3
AG EC 2183: Agricultural Marketing System OR AG EC 3224: New Products Marketing	
Animal science.....	6
AN SCI 2165: Intro to Ruminant Livestock Production.....	3
AN SCI 2175: Intro to Monogastric Livestock Production..	3
Food science	3
FS 1030: Food Science and Nutrition OR Food Science Elective	
Plant science	3
PL SCI 2110: Plant Growth and Culture	
Agricultural systems management	6
AG S M 1020: Intro to Agricultural Systems Management	3
AG S M elective	3
Horticulture	3
PL SCI 2075: Home Horticulture OR PL SCI 3230: Plant Propagation	
Natural resources	3
SOILS 2100: Introduction to Soils	
Leadership	3
AG ED 2250: Professional Leadership Development OR AG ED 2260: Team and Organizational Leadership	

Agriculture.....10
 AF&NR electives

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

Agricultural education.....20

AG ED 1000: Orientation to Agricultural Education 1
 AG ED 2220: Verbal Comm in AF&NR 3
 AG ED 2250: Professional Leadership Development 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
 AG ED 4993: Internship in Agricultural Education 4

Additional requirements.....9

PSYCH 1000: General Psychology..... 3
 AG JRN 3210: Fundamentals of Communication 3
 AG JRN 3240: Communicating on the Web OR
 AG JRN 3270: Eff Print Comm Design and
 Photo Basics 3

Supporting courses (minimum 9)

ACCTCY 2010: Introduction to Accounting
 ENGLSH 2030: Professional Writing
 HRM 3253: Human Resource Management
 MANGMT 3000: Fundamentals of Management
 RU SOC 2010: Leadership in Today's World
 RU SOC 2225: Science, Technology and Society

Agricultural economics.....9

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

Animal science elective3

AN SCI 2165: Intro to Ruminant Livestock Production OR
 AN SCI 2175: Intro to Monogastric Livestock Production

Food science3

FS 1030: Food Science and Nutrition OR
 Food Science Elective

Plant and soil science

PLNT S 2110: Plant Growth and Culture 3

Natural resources3

SOIL 2100: Introduction to Soils OR
 natural resources elective

Electives25

AF&NR electives 12
 General electives 13

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 at least 6 credits at the 3000 level or above.

Sample Eight-Semester Program

Bachelor of Science with a major in Agricultural Education

Fall I

AG ED 1000 1^
 ENGLSH 1000..... 3*
 HIST 1100..... 3*
 AG EC 1041..... 3*
 AN SCI 2165..... 3^
 FS 1030..... 3^
Total..... 16

Fall II

TDP 2000 4^
 COMMUN 1200 3*
 AG S M 3^
 FS 2114 3^
 THEATR 1400 3*
Total..... 16

Fall III

AG ED 3310 2^
 AG ED 4310/4311 3/1^
 AG JOURN 3210 3*
 BIOCHM 2112..... 3*
 PLNT S 2075 3^
 AG EC 2223..... 3^
Total..... 18

Fall IV

AG ED 4330 3^
 TDP 4060 2^
 C&I 4560 2^
 AG S M 4120 3^
 PLNT S 3230 3^
 AG EC 3224..... 3^
Total..... 16

*-Denotes University General Education Requirements

^ -Denotes Degree Program Requirements

Check the *Undergraduate Catalog* for course prerequisites.

Winter I

POL SC 1100..... 3*
 MATH 1100..... 3*
 AG EC 1042 3*
 BIO SC 1010 3*
 BIO SC 1020 2*
 PLNT S 2110..... 3^
Total 17

Winter II

TDP 2020 4^
 CHEM 1100 3*
 AN SCI 2175 3^
 AG ED 2220 3*
 MUSIC 1311 3*
Total 16

Winter III

AG ED 4320..... 3^
 AG ED 4321 1^
 TDP 4040 3^
 AG EC 2183 3^
 STAT 1400..... 3*
 SOIL 2100 3^
Total 16

Winter IV

AG ED 4087 3^
 AG ED 4995 12^

Total 15

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. Prerequisite: sophomore standing.

AG ED 2250—Professional Leadership Development (3). Review of the principles and practices associated with effective professional leadership. Students will examine and practice interpersonal skills that contribute to leadership success. Prerequisite: ENGLSH 20 and sophomore standing.

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 Farm and Personal Financial Management (2). Principles of farm and personal financial management. Topics include record keeping, depreciation, tax management, credit management, and budgeting. Emphasis on teaching financial management concepts.

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 experimental learning and leadership development activities, managing the complete program, and professional development. Prerequisite: concurrent enrollment in AGR 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 AGRED 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 AGRED

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: AGR ED 4320.

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.

Department of Agricultural Journalism

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FACULTY

ASSISTANT PROFESSOR AND COORDINATOR
 W. Allen, S. Wood-Turley

The College of Agriculture, Food and Natural Resources, in cooperation with the School of Journalism, offers a degree program in agricultural journalism. The curriculum provides students with training to enter a variety of occupations in the magazine and newspaper fields, radio and television, photography, public relations, advertising and web-based communications.

Students must meet certain School of Journalism GPA requirements. Check with an adviser for details.

The department offers the Bachelor of Science with a major in Agricultural Journalism.

Sample Eight-Semester Program

Bachelor of Science with a major in Agricultural Journalism

<p>Fall I AG JRN 1160, Introduction to Agricultural Journalism2 ENGLISH 1000, Composition3 AG EC 10413 HIST 3 or 43 BIO SCI 10103 AG JRN 2150, CornerPost staff1 Total.....15</p> <p>Winter I AG EC 1042.....3 MATH 1100, College Algebra.....3 BIO SCI 10202 RU SOC 10003 JOURN 1100.....3 Total.....14</p>	<p>Summer International Studies recommended6</p> <p>Fall II JOURN 2000, Cross Cultural Journalism3 JOURN 2100, Reporting3 Chemistry 11003 COMMUN 12003 AG EC Elective.....3 Total.....15</p> <p>Winter II JOURN 4000, Communications Law3 BIOCHM 2110.....3 STAT or other approved MP course3 AG EC Elective.....3 FS 10303 Total.....15</p>
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Major Program Requirements - Agricultural Journalism

The flexibility in the curriculum permits students to obtain a broad background in agriculture, food and natural resources as well as journalism, plus specialization in any of these fields. Students also may select one of the School of Journalism options: advertising, magazine, news-editorial, newspaper publishing, photojournalism or broadcast news. Internship experience is strongly encouraged.

Major core requirements.....	59
Journalism	39
JOURN 1100: Principles of American Journalism.....	3
JOURN 2000: Cross-cultural Journalism.....	3
JOURN 2100: News.....	3
JOURN 4000: Communications Law	3
JOURN 4200: Principles of Strategic Communication.....	3
JOURN 4400: Editing	3
JOURN 4406: Newspaper Editing OR	
JOURN 4408: Magazine Editing	3
JOURN 4450: Reporting.....	3
Journalism electives	15
Agricultural journalism.....	5
AG JRN 1160: Introduction to Agricultural Journalism	2
AG JRN 4420: Agriculture and the Media (senior capstone, winter only).....	3
Business and/or economics	6
Agriculture science.....	9

<p>Summer JOUR 4450, Reporting.....3</p> <p>Fall III JOURN 4408, Magazine Editing.....3 JOURN electives.....3 AG JRN Elective.....3 Elective3 Total.....12</p> <p>Winter III JOURN Electives6 Other Electives.....10 Total.....16</p> <p>Summer Internship recommended..2</p>	<p>Fall IV JOURN Electives6 Other Electives.....6 ANSCI 1065.....3 Total.....15</p> <p>Winter IV Senior Capstone3 JOURN Electives6 Elective6 Total.....15</p>
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**AGRICULTURAL
JOURNALISM COURSES**

AG JRN 1160—Introduction to Agricultural Journalism (2). Overview of agricultural issues in the media; career opportunities; speakers from print and broadcast agricultural media. Prerequisite: instructor's consent.

AG JRN 2150—Problems in Agricultural Journalism (1-6). For undergraduates majoring in agricultural journalism. May be repeated. Prerequisite: instructor's consent.

AG JRN 2940—Internships in Agricultural Journalism (1-3). Prerequisite: instructor's consent, 75 or more credit hours completed. May be repeated for credit.

AG JRN 3201—Topics in Agricultural Journalism (1-3). Instruction in select subject matter areas in the field of communications. Prerequisite: instructor's consent.

AG JRN 3210—Fundamentals of Communications (3). Instruction in effectively communicating in various styles, from business e-mails to news writing. Emphasis on concise writing; grammar and word usage; backgrounding and interviewing techniques; understanding the media. Prerequisites: ENGLSH 1000, sophomore standing.

AG JRN 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: AG JRN 1160 or 3210 and instructor's consent.

AG JRN 3270—Effective Print Communication Design and Photography Basics (3). Provides students an opportunity to learn basic skills necessary to produce professional quality printed communication pieces. Audience definition photography and design are some topics addressed. Prerequisites: AG JRN 1160 or 3210 and instructor's consent.

AG JRN 3385—Problems in Agricultural Journalism (1-4). Opportunity to apply journalism skills to agricultural subjects; opportunity to integrate communication processes within single medium or across media. Prerequisites: junior standing, and/or instructor's consent. Section 1: Senior Practicum; Section 2: Topics. May be repeated. Prerequisite: junior standing and instructor's consent.

AG JRN 4940—Internships in Agricultural Journalism (1-3). Prerequisite: instructor's consent, 75 or more credit hours completed. May be repeated for credit.

AG JRN 4945—Senior Practicum in Agricultural Journalism (3). Students will write for CAFNR publications, develop a media research project, and learn to market their writing skills. Prerequisites: junior standing and instructor's consent.

AG JRN 4970—Agriculture and the Media Senior Seminar Capstone (3). (Agricultural Journalism capstone course). Provides background, knowledge of trends and experience with agricultural media. Prerequisites: instructor's consent, AG JRN seniors take last Winter semester before graduation.

Department of Agricultural Systems Management

Leon G. Schumacher, Chair
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FACULTY

ASM PROGRAM CHAIR L. Schumacher
PROFESSOR W. Downs
ASSOCIATE PROFESSORS D. Baker, S. Borgelt,
C. Fulhage, L. Schumacher, A. Thompson
ASSISTANT PROFESSORS B. Adams, W. Cassidy,
K. Sudduth, J. Zulovich
PROFESSOR EMERITUS D. Currence, J. Frisby, B. Hires

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:

Major core requirements	31
Required courses.....	6
AG S M 1040: Physical Principles for Agricultural Applications	
AG S M 4970: Agricultural Systems Management	
At least four courses from the following	12
AG S M 2220: Agricultural/Industrial Structures	
AG S M 2360: Mobile Hydraulics	
AG S M 4420: Surface Water Management	
AG S M 4440: Water Quality and Pollution Control	
AG S M 4140: Electricity: Wiring and Equipment	
AG S M 4320: Agricultural Equipment and Machinery	
Courses to reach a minimum of 31 credits in ASM courses	
AG S M 2320: Internal Combustion Power	
AG S M 2340: Pesticide Application Equipment	
AG S M 4120: Advanced Agricultural/Industrial Materials and Processes (2-3)	
AG S M 4220: Materials Handling and Conditioning	
AG S M 3350: Problems (1-5)	
AG S M 1001: Topics in Agricultural Systems Management	
AG S M 4460: Irrigation and Drainage	
AG S M 4020: Agricultural Safety and Health	
AG S M 4940: ASM Internship	

Supporting courses	6
SOIL 2100: Intro to Soils or AN SCI 1011: Animal Science or AN SCI 1065: Animal Science Laboratory Practicum or PLNT S 2110: Plt Growth and Culture	3
Computer course (application software preferred)	3

Business/economics (suggested courses)	21
AG EC 1042: Applied Macroeconomics	
AG EC 1041: Applied Microeconomics	
ACCTCY 2036: Accounting I	
ACCTCY 2037: Accounting II	
AG EC 2183: The Agricultural Marketing System	
MRKTNG 3000: Principles of Marketing	
MANGMT 3000: Fundamentals of Management	
AG EC 3260: General Farm Management	
FINANC 1000: Principles of Finance	
AG ED 3310: Farm and Personal Financial Mgt	
MANGMT 3540: Introduction to Business Law	
AG EC 3257: Rural and Agricultural Law	

Electives	25-27
Elective courses to bring total credits to 128; typically chosen to provide focus in one of the following areas:	
• Natural resource and environment	
• Materials handling and crop processing	
• Power and machinery systems	
• Production agriculture	

Options

Agricultural Equipment Dealership Management Program

The agricultural systems management program has an educational affiliation with the John Deere Company. Students who participate in the Agriculture Equipment Dealership Management program take a comprehensive sequence of courses in agricultural systems management and agricultural business management. John Deere Company participates in curriculum development and student mentoring. Each student plans and completes an internship with a sponsoring dealer. Up to 5 credits may be earned.

Minor in Agricultural Systems Management

To earn a minor in agricultural systems management, the student must complete 15 credits in ASM courses. Of the 15 credits, only 3 may be below the 2000-level.

Sample Eight-Semester Program

Bachelor of Science degree with a major in Agricultural Systems Management

Check the *Undergraduate Catalog* for course prerequisites.

Fall I	Winter I
MATH 1120	ENGLSH 1000
BIO SC 1010.....	Any C & I course.....
BIO SC 1020.....	CHEM 1100
AG S M 1020.....	AG S M 1040
HIST 1030.....	AG EC 1041
Total.....	Total
14	15

Fall II	
AG S M 2360	3
AG EC 1042	3
BIOCHM 2112.....	3
COMMUN 1200	3
RU SOC 1041	3
Total.....	15

Fall III	
AG S M 4140	3
AG EC 2183	3
FINANC 1000.....	3
AG JRN 3210.....	3
AGRIC 2190	3
Total.....	15

Winter II	
AG S M 2340	3
AG S M 2320	3
AG EC 2223	3
SOILS 2100.....	3
STAT 1400.....	3
Elective.....	3
Total	18

Winter III	
AG S M 4220	3
AG S M 4020	3
AG EC 3310	3
THEATR 1320.....	3
ACCTCY 2036	3
AG S M 4940	5
Total	20

Fall IV	
AG S M 4970	3
AG S M 4320	3
PHIL 1000.....	3
ACCTCY 2037	3
AG EC 2183.....	3
Total.....	15

Winter IV	
AG S M 4360	3
AG EC 3257	3
AG S M elective	3
AG S M elective	3
AG S M elective	3
Total	15

AGRICULTURAL SYSTEMS MANAGEMENT COURSES

AG S M 1001—Topics in Agricultural Systems Management (3). Current and new technical developments in agricultural systems management. Prerequisites: 6 hours in 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 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: 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 2001—Topics in Agricultural Systems Management (3). Current and new technical developments in agricultural systems management. Prerequisites: 6 hours in 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: ENGLSH 1000 and sophomore standing.

AG S M 2220—Agricultural/Industrial Structures (3). Structural component selection, materials of construction, heat and moisture control. In the main, a problem-solving course. Prerequisite: MATH 1120, AG S M 1040 and instructor’s consent.

AG S M 2320—Internal Combustion Power (3). Basic internal combustion engine principles, mechanisms, combustion cycles, fuels, fuel injection, electrical systems, engine testing. Prerequisite: 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.

AG S M 2360—Mobile Hydraulics (3). Basic power hydraulic theory. Hydraulic systems, components and circuits. Prerequisite: MATH 1120; sophomore standing.

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 impacts 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. Prerequisite: junior standing.

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. Prerequisite: MATH 1120, junior standing.

AG S M 4320—Agricultural Equipment and Machinery (3). Operation of agricultural machinery. Selection and management of equipment. Prerequisite: 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 4360 and Soil Science 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: SOILS 2100, PLNTS 2110 or instructor’s consent.

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 AG S M courses; a B.S. degree in Agriculture or instructor’s consent.

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: MATH 1120 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: MATH 1120, and junior standing.

AG S M 4460—Irrigation and Drainage (3). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems. Prerequisites: 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 System Management majors. Team project involving extensive use of the students education and requiring comprehensive written and oral reports are required. It includes selection, replacement and cost calculation of machine systems; an introduction to linear programming project scheduling; and an introduction to maintenance management techniques. Prerequisites: senior standing.

Department of Animal Sciences

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FACULTY

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H. A. Garverick, G. W. Jesse, D. H. Keisler, M. S. Kerley,
W. R. Lamberson, D. R. Ledoux, M. C. Lucy,
D. J. Patterson, R. S. Prather, R. E. Ricketts, M. F. Smith,
B. J. Steevens, J. F. Taylor, T. L. Veum, J. E. Williams
ASSOCIATE PROFESSOR E. Berg, K. L. Fritsche,
T. J. Safranski, M. C. Shannon, J. N. Spain, D. E. Spiers
ASSISTANT PROFESSOR E. Antoniou, J. A. Green,
E. B. Rucker, P. Sutovsky
RESEARCH PROFESSOR W. Loch
EXTENSION ASSISTANT PROFESSOR K. C. Olson
RESIDENT INSTRUCTION INSTRUCTOR 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 advisers 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: (For University General Education requirements, see page 31)

Major core requirements	45-48
Communications	6
COMMUN 1200	3
Elective	3
AG 2190	
AG ED 2220	
AG JRN 3210, 3240, 3270	
COMMUN 3441, 3572, 3575, 3576	
C S&D 1110	

ENGLISH 2010, 2030	
Foreign language	
RU SOC 2225	
THEATR 1400	
Mathematics	3
Statistics or an additional math class	3
Physical and biological sciences	13-15
BIO SCI 1010 and 1020 or 1500	5
CHEM 1310 and 1320	5
Organic or biochemistry	3-5
CHEM 2050 OR	
CHEM 2100 and 2120 OR	
BIOCH 2110 OR 2112 OR 3630	
Social and behavioral sciences	9
AG EC 1041 and 1042 or equivalent micro and	
macroeconomics	6
HIST 1100 or 1200 or 1400 or POL SC 1100 or 1700 or	
2100.....	3
Humanities and fine arts	9
Departmental course requirements	52
Freshman year	6
AN SCI 1011: Animal Science	
AN SCI 1065: Animal Science Laboratory Practicum	
Sophomore year	14
AN SCI 2111: Sophomore Seminar: Societal Issues Facing	
Animal Agriculture	
AN SCI 2165: Ruminant Production	
AN SCI 2175: Monogastric Production	
AN SCI 3254: Physiology of Domestic Animals (5)	
Junior year	11
AN SCI 3210: Junior Seminar	
AN SCI 3212: Prin and Application of Animal Nutrition (5)	
AN SCI 3213: Genetics of Agricultural Plants and Animals	
AND	
AN SCI 4323: Applied Livestock Genetics (5)	
Senior year	21
Animal science production systems (select two	
courses)	6
AN SCI 4975: Beef Production & Mgmt	
AN SCI 4976: Adv Dairy Production	
AN SCI 4977: Horse Production	
AN SCI 4978: Swine Production	
AN SCI 4979: Poultry Production	
Animal science products course (select one course).....	3
AN SCI 2114: Live Animal and Meat Evaluation	
AS SCI 3214: Principles of Meat Science	
AN SCI 4354: Physiology & Biochemistry of Muscle as Food	
Animal science electives (select from)	12
AN SCI 4312: Monogastric Nutrition	
AN SCI 4314: Physiology of Reproduction	
AN SCI 4332: Ruminant Nutrition	
AN SCI 4384: Reproductive Management	
Animal Science Production Systems Course(s)	
(4975, 4976, 4977, 4978, 4979)	
Animal Science Products Course (3214, 4354)	
AN SCI 4940: Internship (maximum of 3 credits)	
AGRIC 2190 or approved international study program	
(maximum of 3 credits)	
Approved undergraduate research (junior or senior status;	
maximum of 3 credits)	
Electives	28-31

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.

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-Columbia 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

Sample Eight-Semester Program

Bachelor of Science degree with a major in Animal Sciences

Check the *Undergraduate Catalog* for prerequisites.

Fall I	
AN SCI 1011.....	3
MATH 1100.....	3
CHEM 1310.....	2
HIST 1100.....	3
AG EC 1041.....	3
Total.....	14

Fall II	
AN SCI 2165.....	3
COMMUN 1200.....	3
Statistics.....	3
Humanities.....	3
Elective.....	3
Total.....	15

Winter I	
AN SCI 1065.....	3
AG EC 1042.....	3
BIO SCI 1500.....	5
ENGLSH 1000.....	3
CHEM 1320.....	3
Total.....	17

Winter II	
AN SCI 2175.....	3
AN SCI 2111.....	2
AN SCI 3254.....	5
BIOCHM 2110.....	3
Elective.....	3
Total.....	16

Fall III	
AN SCI 3212.....	5
COMMUN elective.....	3
AN SCI 3214.....	3
Humanities.....	3
Elective.....	3
Total.....	17

Fall IV	
AN SCI 4978.....	3
AN SCI 4976.....	3
AN SCI 4384.....	2
PHYSICS 1220.....	4
Elective.....	3
Elective.....	1
Total.....	16

Winter III	
AN SCI 3213.....	3
AN SCI 4323.....	2
AN SCI 4979.....	3
AN SCI 4314.....	3
Humanities.....	3
Elective.....	3
Total.....	17

Winter IV	
AN SCI 4975.....	3
AN SCI 4354.....	3
AN SCI 4332.....	3
Elective.....	3
Elective.....	3
Elective.....	1
Total.....	16

ANIMAL SCIENCE COURSES

AN SCI 1011—Animal Science (3). Principles of animal science including importance of animal agriculture, genetics, anatomy, physiology and nutrition.

AN SCI 1065—Animal Science Laboratory Practicum (3). This class will include two 3-hour labs and 1 hr RSD per week. An introductory course in skills related to the care and management of livestock and poultry plus a section dealing with research methods. Students will be expected to participate in hands-on development of fundamental skills of animal husbandry.

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—Horse Training and Management (3). Students learn the techniques needed for the basic training of horses to ride. The use and proper fitting of equipment is taught and students learn to teach horses to accept riders and to perform the basic movements needed prior to advancing to specialized training. Prerequisite: AN SCI 1065.

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: ENGLSH 1000. Graded on A/F basis only.

AN SCI 2114—Live Animal and Meat Evaluation (3). (same as Food Science 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: AN SCI 1065.

AN SCI 2125—Dairy Cattle Judging (2). Dairy breeds, comparative judging, selection. Prerequisite: AN SCI 1065.

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: AN SCI 1065.

AN SCI 2140—Companion Animals (3). (same as Veterinary Medicine and Surgery 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 2145—Selecting and Grading of Poultry (2). Includes breeds and varieties of poultry, production judging, flock selection and testing, and grading of eggs and live and dressed poultry. Prerequisite: AN SCI 1065.

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: 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: AN SCI 1065. Graded on A/F basis only.

AN SCI 2940—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: sophomore standing and instructor's consent. Graded on an S/U basis only.

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.

AN SCI 3210—Junior Seminar in Animal Science (1). Lecturers and/or discussion will address topics related to the various course objectives, i.e., career opportunities, resume development, interviewing, graduate or professional school, MU's role in research, teaching extension and international programs and animal science related topics. Prerequisite: junior standing.

AN SCI 3212—Principles and Application of Animal Nutrition (5). Fundamentals of animal nutrition and their application to livestock industry. The laboratory portion of the course will be devoted to ration formulation, feed evaluation and identification. Prerequisite: BIOCHM 2100 or CHEM 2050 or 2100 and MATH 1100 or equivalent.

AN SCI 3213—Genetics of Agricultural Plants and Animals (3). (same as Plant Science 3213). Concepts of molecular, transmission, and population and quantitative genetics. Special emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: BIO SC 1010, 1020 or 1500, MATH 1100.

AN SCI 3214—Principles of Meat Science (3). (same as Food Science 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food. Laboratory stresses the application of scientific principles in the meat industry. Prerequisite: one course

in Biology.

AN SCI 3222—Applied Nutrition (3). Feed composition and utilization, ration formulation, feed evaluation and identification, practical problems.

AN SCI 3231—Principles of Dairy Foods Science (3). (same as Food Science 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: organic chemistry.

AN SCI 3254—Physiology of Domestic Animals (5). Basic concepts of physiology and anatomy as related to domestic animals are covered in lecture and laboratory classes. Enrollment limited. Prerequisites: BIO SC 1010, 1020 or 1500; CHEM 1310, 1320.

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: AN SCI 2114 and 2115.

AN SCI 3280—Advanced Dairy Cattle Judging (2). Continuation of AN SCI 2125. Includes field trips. Prerequisite: AN SCI 2125.

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 4312—Monogastric Nutrition (3). (same as Nutrition 7020 and Nutrition Science 4020). Principles of nutrition, feed formulation and recent research in poultry feeding. Prerequisites: 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: AN SCI 3254 and BIO SC 1500 or equivalent; or 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: BIO SC 1010, 1020 or 1500 and MATH 1100.

AN SCI 4332—Ruminant Nutrition (3). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients. Prerequisites: AN SCI 3212.

AN SCI 4354—Physiology and Biochemistry of Muscle as Food (3). (same as Food Science 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: BIO SC 1010 or equivalent or 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 AN SCI 4314 and 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: AN SCI 3254 or equivalent.

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: junior standing and instructor's

consent. Graded on an S/U basis only.

AN SCI 4975—Beef Production and Management (3). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle. Prerequisites: AN SCI 1065, 2165 and 3212 or instructor's consent.

AN SCI 4976—Advanced 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: AN SCI 1065, 2165 and 3212 or instructor's consent.

AN SCI 4977—Horse Production (3). Systems of horse production: breeding, feeding and

management of horses. Prerequisites: 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: 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: AN SCI 1065, 2175 and 3212 or instructor's consent.

Department of Biochemistry

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FACULTY

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 R. MacDonald, T. Quinn, R. M. Roberts, F. Schmidt,
 K. Sharma, G. Stacey, P. Tipton, W. Volkert

ASSOCIATE PROFESSOR L. Beamer, S. J. Chen,
 S. Deutscher, M. Henzl, D. Lubahn, M. Martin,
 B. Peculis, C. Phillips, J. Tanner, R. Tsika,

RESEARCH ASSOCIATE PROFESSOR A. Simonyi

ASSISTANT PROFESSOR M. Petris, L. Reneker,
 E. Rogers, J. Thelen

RESEARCH ASSISTANT PROFESSOR J. Forrester,
 V. Glinskii, V. Mossine, D. Zhang, X. Zou

RESEARCH MOLECULAR BIOLOGIST J. Miernyk

PROFESSOR EMERITUS B. Campbell, C. Gehrke,
 R. Hillman, E. Moscatelli, B. O'Dell, B. Ortwerth,
 E. Pickett, R. Wixom

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.

Major Program Requirements - Biochemistry

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

Major core requirements

Biochemistry	14
BIOCHM 1090: Introduction to Biochemistry	3
BIOCHM 4270: Biochemistry I.....	3
BIOCHM 4272: Biochemistry II.....	3
BIOCHM 4974: Biochemistry Laboratory	4
BIOCHM 4970: Senior Seminar in Biochemistry	1
Biology (with lab): BIO SC 1500	5

BIO SCI 2200: General Genetics (f) OR
 AN SCI 3213: Genetics of Agricultural Plants and
 Animals (3) OR PL SCI 3215: Genetics of Agricultural
 Plants and Animals (3)

Chemistry	23
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 2120: Organic Chemistry II With Lab	5
CHEM 3200: Quantitative Methods Analysis With Lab.....	4
CHEM 3300: Fundamentals of Physical Chemistry	3

Mathematics	10
MATH 1500: Calculus I	5
MATH 1700: Calculus II	5

Physics	8
PHYSICS 1210: College Physics AND	4
PHYSICS 1220: College Physics	4

Advanced science (biochemistry, biology and chemistry).9

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)

Sample Eight-Semester Program

Bachelor of Science with a major in Biochemistry

Fall I

Biochemistry 1090.....	3
Chemistry 1320.....	3
Mathematics 1500.....	5
Sociology or Psychology ...	3

Total.....14

Fall II

Chemistry 2100.....	3
Biological Sciences 1500...5	
Communications 1200.....	3
Agricultural Economics 1041.....	3
History or Political Science.....	3

Total.....17

Winter I

ENGLSH 1000.....	3
Chemistry 1330.....	3
Mathematics 1700.....	5
Humanities or social science elective.....	3

Total.....14

Winter II

Chemistry 2120.....	5
Biological Sciences 2200...4	
Humanities elective.....	3
Agricultural Economics 1042.....	3
Elective.....	3

Total.....18

Fall III

Biochemistry 4270.....	3
Physics 1210.....	4
Chemistry 3200.....	4
Communications elective.3	
Elective.....	3

Total.....17

Fall IV

Chemistry 3310.....	3
Biochemistry 4974.....	4
Biochemistry 4950.....	1-3
Advanced science elective.....	3
Elective.....	3

Total..... 14-16

Winter III

Biochemistry 4272.....	3
Physics 1220.....	4
Advanced science elective.....	3
Humanities elective.....	3
Social Sciences elective...3	

Total.....16

Winter IV

Biochemistry 4950.....	1-3
Advanced science elective.....	3
Biochemistry 4970.....	1
Humanities elective.....	3
Social Sciences elective...3	

Total..... 11-13

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: CHEM 1320 (or concurrent); instructor's consent.

BIOCHM 2001—Topics in Biochemistry (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. Prerequisite: CHEM 1100.

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 (e.g., "proper" limitations, unforeseen spin offs). Prerequisites: CHEM 1100.

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: 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: CHEM 2120.

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: BIOCHM 4270.

BIOCHM 4280—Biochemistry of Human Disease (3). Small group learning of medical biochemistry through systematic analyzes of clinical cases. Emphases are on self-learning, group discussions, and teaching one another. Graded on A/F basis only.

BIOCHM 4374—Molecular Biology Laboratory (3). (same as Biological Sciences 4974). Emphasizes recently developed genetic and biochemical techniques; illustrates how they apply to contemporary problems in biological research. Prerequisites: BIO SC 2200 and BIOCHM 4270 or concurrent enrollment in BIO SC 4976.

BIOCHM 4376—Computer Assisted Sequence Analysis and Molecular Modeling (2). This course uses advanced computer graphics and computational techniques to analyze protein and nucleic acid sequences and their three-dimensional structures. Prerequisites: CHEM 2120.

BIOCHM 4385—Problems in Biochemistry (1-3).

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 (4). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; radioisotope tracers in metabolism; isolation, purification and kinetics of enzymes. Prerequisites: concurrent enrollment in BIOCHM 4270.

BIOCHM 4996—Honors Research in Biochemistry (2-3). Laboratory research for upper level honors students in consultation with Biochemistry faculty.

Department of Entomology

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FACULTY

PROFESSOR G. M. Chippendale, R. D. Hall, M. J. Linit,
T. L. Payne, R. W. Sites
ASSOCIATE PROFESSOR W. C. Bailey, B. A. Barrett
ASSISTANT PROFESSOR T. L. Clark, R. M. Houseman,
Q. Song
RESEARCH ASSISTANT PROFESSOR M. L. Boyd

Entomology is a branch of zoology that deals with the study of insects, the most diverse group in the animal kingdom. Entomology includes basic studies of the life processes of insects and applied studies of how insects affect human society through food and fiber production and human and animal health.

Students receive broad scientific training in entomology and related disciplines to prepare for employment with governmental agencies, universities and private industry or for self-employment in integrated pest management and crop and animal protection.

In addition to minors in entomology and in pest management,

the Department of Entomology offers graduate degree programs. A student desiring undergraduate training in entomology should contact the Department's undergraduate adviser.

Minor in Entomology

The minor consists of 15 credits from the following required and elective courses:

Minor core requirements.....	8
ENTOM 3710: Introductory Entomology	2
ENTOM 3715: Insect Diversity	1
ENTOM 4710: Systematic Entomology	5
Electives	7
ENTOM 4720: Aquatic Entomology (3)	
ENTOM 4730: Insect Pest Management for Plant Protection (3)	
ENTOM 4740: Biological Control (3)	
BIO SCI 3260: Invertebrate Zoology (4)	
ENTOM 3385: Problems (credit arranged)	
ENTOM 4965: Special Readings (credit arranged)	

Options

One of the emphasis areas in the curriculum for a BS with a major in Plant Sciences is plant protection. This interdisciplinary emphasis area is designed to provide students with broad experience with environmentally compatible crop protection. Many of the entomology courses available for a minor are also part of the plant protection course requirements. Consult the Plant Sciences Unit for more information.

ENTOMOLOGY COURSES

ENTOM 2001—Topics in Entomology (cr.arr.). Selected entomology topics not covered in regularly offered courses.

ENTOM 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. cor.

ENTOM 3385—Problems in Entomology (cr.arr.). Individual supervised work to supplement regularly organized courses in entomology introduction to research. Prerequisites: 10 hours Entomology or Biological Sciences.

ENTOM 3710—Introductory Entomology (2). (same as Biological Sciences 3710). Holistic biology of insects, including anatomy, physiology, behavior ecology, and management. Prerequisites: BIO SC 1010, 1020, 1500, or equivalent.

ENTOM 3715—Insect Diversity (1). (same as Biological Sciences 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 ENTOM 3710/BIO SCI 3710.

ENTOM 4001—Topics in Entomology (cr.arr.). Instruction in select subject matter areas in the field of entomology. Prerequisites: ENTOM 3710 and 3715, instructor's consent.

ENTOM 4710—Systematic Entomology (5). Taxonomy of insects; emphasizes biology and classification of orders and major families. Insect collection required. Prerequisites: ENTOM 3710 and 3715 or 10 hours biological sciences.

ENTOM 4720—Aquatic Entomology (3). Identification, life histories, ecology of aquatic arthropods; emphasizes fresh-water insects. For students of wildlife, fisheries management, aquatic biology, advanced entomology. Prerequisites: ENTOM 3710 and 3715 ENTOM 4304 or equivalent.

ENTOM 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: ENTOM 3710 and 3715.

ENTOM 4740—Biological Control of Insects (3). Presents principles of biological control of insects, emphasizing parasites, predators, diseases of insects, characteristics of natural insect populations. Prerequisites: ENTOM 4730.

ENTOM 4965—Special Readings in Entomology (cr.arr.). Independent readings and discussions of topics in entomology selected in consultation with supervising faculty member. Paper required.

Department of Food Science

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FACULTY

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ASSISTANT PROFESSOR S. Cho, C. L. Lorenzen
RESIDENT INSTRUCTION ASSOCIATE PROFESSOR
T. Wilson
RESIDENT INSTRUCTION ASSISTANT PROFESSOR
J. A. Hosmer
RESIDENT INSTRUCTION INSTRUCTOR M. P. Keene

Typical employment areas for graduates of food science 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. A minor is available.

Major Program Requirements - Food Science and Nutrition

Major core requirements

Biological and physical sciences	22
General chemistry and laboratory	5-6
Physics	3-4
Math and statistics	9-12
Calculus	3-5
Social and behavioral sciences	9
Microeconomics	3
Macroeconomics	3
Social science elective	
Food science	39
FS 1030: Food Science and Nutrition	3
FS 2172: Elements of Food Microbiology	3
FS 2199: Seminar in Professional Development.....	1
NUTRIT 1340: Nutrition and Fitness OR	
NUTRIT 2340: Human Nutrition I	3
FS 3250: Physical Principles for Food Processing	3
FS 4310: Food Chemistry and Analysis	4
FS 4315: Food Chemistry and Analysis Laboratory	3
Food processing elective	3
FS 4360: Food Quality Assurance.....	3
FS 4370: Food Microbiology	3
FS 4375: Food Microbiology Laboratory	2
FS 4970: Food Product Development	3

FS 4354: Physiology and Biochemistry of Muscle as Food.....	3
HRM 1995: Principles of Food Preparation.....	5
Additional requirements and electives	26
Business elective	3
Other electives.....	22-25

Food Business Track

Students choosing this course of study are prepared for employment in the sales, marketing and managerial aspects of the food industry, especially production management.

Note: Tracks do not appear on transcripts or diplomas.

Biological and physical sciences	18
General chemistry and laboratory	5
Social and behavioral sciences	9
Microeconomics	3
Macroeconomics	3
Social science elective.....	3
Food science core courses	20
FS 1030: Food Science and Nutrition	3
FS 2172: Elements of Food Microbiology	3
FS 2199: Seminar	1
NUTRIT 1340: Nutrition and Fitness OR	
NUTRIT 2340: Human Nutrition I	3
FS 4310: Food Chemistry and Analysis	4
FS 4360: Food Quality Assurance.....	3
FS 4970: Food Product Development	3
Specialized area courses (select from)	10
FS 3214: Principles of Meat Science (3)	
FS 4314: Processing Muscle Foods (3)	
FS 2114: Meat Classification, Grading and Judging (3)	
FS 3250: Physical Principles of Food (3)	
FS 4315: Food Chemistry and Analysis Laboratory (3)	
FS 4370: Food Microbiology (3)	
FS 4375: Food Microbiology Laboratory (2)	
FS 4354: Physiology and Biochemistry of Muscle as Food (3)	
FS 4301: Meat Selection and Preparation (3)	
Business core courses	
Accounting	6
Agricultural law or food law	
Agricultural business finance	
Agricultural management	
Agricultural marketing	
Agricultural economics electives for minor	
Electives	17

Minor in Food Science and Nutrition

A minor in food science must include FS 1030: Food Science and Nutrition plus a minimum of 12 credits in approved food science courses numbered 2000 or above.

Sample Eight-Semester Program

Bachelor of Science with a major in Food Science

Fall I

Univ. Learning Development (AG 1115).....	2
General CHEM II (Chem 1320)	3
Intro to Food Science (F S 1030)	3
History or Poly Sci.....	3
Algebra (MATH 1100)...	3
Elective	3
Total.....	17

Fall II

Biology (BIO SCI 1010 & 1020 or 1500).....	5
Princ of Food Prep (HRM 1995).....	5
Grapes and Wines (F S 2195)	1
Organic Chemistry (CHEM 2050)	5
Total.....	16

Winter I

General Chem III (CHEM 1330).....	3
Humanities elective	3
Calculus (MATH 1300 or 1400 or 1500).....	5
Exposition & Argumen. (ENGLSH 1000)	3
Elective.....	3
Total	17

Winter II

Phys Princ for Ag Appl (ASM 1040).....	3
Elements of Micro (FS 2172).....	3
General Biochem (BIOCHM 3630.....	3
Humanities Elective	3
Intro Speech Comm. (COMMUN 1200).....	3
Total	15

Fall III

Communication Elective...3	
Elective	3
Econ of Fd & Ag (AgEc 1041)	3
Microbiology (FS 4370) ..3	
Microbiology Lab (FS 4375)	2
Phys Princ for Food Proc (FS 3250)	3
Total.....	17

Fall IV

Food Processing.....	3
Food Chemistry & Analysis (FS 4310)	4
Business elective.....	3
Electives	5
Total.....	15

Winter III

Statistics (Stat 1400)	3
Elective	3
Applied Macroeconomics (AgEc 1042).....	3
Nutrition (NS 1340 or 2340)	3
Psych., Soc. or Rural Soc.3	
Total.....	15

Winter IV

Food Quality Assurance (FS 4360)	3
Food Product Development (FS 4970)	3
Seminar Prof. Develop. (FS 2199)	1
Humanities Elective.....	3
Food Chem & Analysis Lab (FS 4315)	3
Electives.....	3
Total.....	16

FOOD SCIENCE COURSES

F S 1020—World Food and You (3). (same as Plant Sciences 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.

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,w.

FS 2114—Meat Classification, Grading and Judging (3). (same as Animal Science 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 2172—Elements of Food Microbiology (3). Basic course stressing principles of microbiology applied to foods. Prerequisite: sophomore standing.

F S 2195—Grapes and Wines of the World (1). (same as Plant Science 2195). Reviews historical development of the wine industry and associated development of the grape industry, the wine making process, the various types of wine product, wine-producing regions of the world, various classification schemes and quality components.

F S 2199—Seminar in Professional Development (1). Readings and discussion related to professional development for the industry. Prerequisites: sophomore standing.

F S 3214—Principles of Meat Science (3). (same as Animal Science 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food. Laboratory stresses the application of scientific principles in the meat industry. Prerequisite: one course in Biological Sciences.

FS 3231—Principles of Dairy Foods Science (3). (same as Animal Science 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: organic chemistry.

FS 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.

FS 3385—Problems in Food Science (cr.arr.). Supervised study in a specialized phase of food science and nutrition.

F S 4301—Topics in Food Science (cr.arr.). Instruction in specific subject matter areas in the field of food science and nutrition.

FS 4310—Food Chemistry and Analysis (4). Structure, composition and chemical properties of food. Prerequisite: 5 hours Chemistry or Biochemistry.

F S 4311—Investigation of Food Properties (3). Study of the chemical and physical

properties of foods and the interaction of food components. Lecture and laboratory. Prerequisites: Organic Chemistry.

FS 4314—Processing Muscle Foods (3). 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 and F S 3214.

F S 4315—Food Chemistry and Analysis Laboratory (3). The quantitative determination of the constituents of food. Prerequisites: F S 4310 or concurrent enrollment.

F S 4324—Food Production in Foodservice Systems (3-5). A lecture/lab/practicum designed to expose students to concepts of quality food production, evaluation of product and resources and food microbiology application in lab/practicum. Prerequisites: instructor's consent.

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—Frozen, Concentrated and Dry Dairy Foods (3). Technology, chemistry and microbiology related to transformation of milk into frozen, concentrated and dry dairy foods. Prerequisites: one Chemistry course and F S 3231 or equivalent.

F S 4354—Physiology and Biochemistry of Muscle as Food (3). (same as Animal Science

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: BIO SC 1010 or equivalent or F S 3214 or instructor's consent.

F S 4360—Food Quality Assurance (3). Interprets regulations concerned with protection of the nation's food supply. Applies protection and sanitary practices to insure consumers of wholesome and healthful foods. Prerequisite: Microbiology.

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: 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: F S 4370 or concurrent enrollment.

FS4380—Sensory Analysis of Food (4). Principles, theory, methodology of sensory analysis. Recommended: one statistics course.

FS4385—Problems in Food Science (cr.arr.). Advanced problems in a selected field of food science and nutrition.

F S 4940—Field Training in Food Science (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.

FS4960—Readings in Food Science (cr.arr.). Prerequisites: 8 hours of course work in field of subject 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: ENGLSH 1000, senior standing and instructor's consent.

Department of General Agriculture

Paul Vaughn, Associate Dean, Academic Programs
Jim Spain, Assistant Dean, Academic Programs
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FACULTY

See Listing for Faculty in areas of concentration.

The general 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 general agriculture enables students to tailor a program to fit their individual interests. Students earn a BS with a major in General Agriculture.

Students choose general agriculture for a variety of reasons. Some may enter the program with a specific career goal in mind. Others may choose general agriculture to obtain a broader education that will give them more flexibility.

Major Program Requirements – General Agriculture

To complete the requirements for the BS with a major in General Agriculture, 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 Agriculture in College of Agriculture, Food and Natural Resources.)

- Students in general 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 12 credits each from degree programs are also required. (See below.)
- These courses shall not be used to fulfill the requirements of a minor.
- Within each 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 emphasis areas.
- No more than 6 credits in the primary area and up to 3 credits in the additional areas may consist of problems, readings, in-

- ternships, travel courses and other non-structured courses.
- The capstone experience for general agriculture majors can be a capstone course in a concentration area, an internship or an international experience.
- 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 50 credits must be in courses numbered 2000 and above. A minimum of 24 of these 50 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 12 credits in two additional areas. These include:

Agricultural Economics
Agricultural Education
Agricultural Systems Management
Agricultural Journalism
Animal Sciences
Biochemistry
Fisheries and Wildlife
Food Science
Forestry
Hotel and Restaurant Management
Natural Resources
Parks, Recreation and Tourism
Plant Sciences
Rural Sociology
Soil and Atmospheric Sciences
Sustainable Agriculture

Sustainable Agriculture Emphasis Area within General Agriculture:

CAFNR offers an emphasis area in Sustainable Agriculture as part of its General Agriculture degree program. A minimum of 42 credits is required for the emphasis area (major) degree. The emphasis area degree offers students the choice of two primary tracks: (1) Animal and Plant Production Systems Track, and (2) Community and Food Systems Track. Each includes a grouping of required credits as 18+12+12. (Note: Description of track does not show on transcript.)

Animal and Plant Production Systems Track.

**Emphasis Area Core Course Requirements18
15 credits selected from the following, plus 3 credits from an approved internship or international experience.**

1. BIO SC 1060 (3) - Basic Environmental Studies OR
SOIL 2100 (3) - Introduction to Soils and Soil
Science
2. *Choose 2 courses*
AN SCI 1011 (3) - Intro to Animal Sciences
PLNT S 2110 (3) - Plant Growth and Culture
NAT R 1060 (3) - Ecology and Conser. of Living
Resources OR
NAT R 1070 (3) - Ecology and Renewable Resource
Management
3. RU SOC 2201 (3) (temporary number) - Soc. of Food
and Agriculture
4. AG EC 4301 (3) (temporary number) - Ethics in
Agriculture

For each track, 3 credits from an approved internship or international experience must be completed.

This will serve as the student's Capstone experience. A "final product" should result from this experience. The particular form of that product will be agreed upon by the student and Sustainable Agriculture advisor. Note: In the future, a capstone seminar or course (e.g., "Farming Systems" course cross-listed among Rural Sociology, Agricultural Economics and Plant Sciences) may be developed at the 3000+ level to also satisfy this requirement.

12 credits - Core Track Courses

Students are required to select 4 from the following:

1. AN SC 1065 (3) - Animal Science Laboratory Practicum
2. PLNT S 2110 (3) - Plant Growth and Culture OR PLNT S 2120 - Plant Science Laboratory OR BIO SC 1200 - General Botany
3. SOIL 2100 (3) - Introduction to Soils and Soil Science OR BIO SC 1060 (3) - Basic Environmental Studies
4. AG EC 2070 (3) - Intro to Ecological Economics

12 credits - Electives selected from the list below. A minimum of 9 credit hours in regular courses must be selected from one disciplinary area.

- AG EC 2070 - Intro to Ecological Economics
- AG EC 2183 - Introduction to Agricultural Marketing Systems
- AG EC 3224 - New Products Marketing
- AG EC 3260 - General Farm Management
- AG EC 4962 - Planning the Farm Business
- AG SM 4220 - Surface Water Management
- AG SM 4440 - Water Quality and Pollution Control
- AG SM 4420 - Surface Water Management
- AN SCI 2110 - Global Animal Agriculture
- AN SCI 2165 - Introduction to Ruminant Production
- AN SCI 2175 - Introduction to Monogastric Production
- AN SCI 3212 - Principles and Application of Animal Nutrition
- BIOCHM 2112 - Biotechnology in Society
- BIOCHM 2110 - The Living World: Molecular Scale
- BIO EN 3050 - Environmental Control for Biological Systems
- BIO EN 5260 - Soil and Water Conservation Engineering
- BIO SC 3650 - General Ecology
- BIO SC 3710 (or Entomology 3710 - Introductory Entomology)
- BIO SC 3715 (or Entomology 3715) - Insect Diversity (Lab)
- ENTOM 4730 - Insect Pest Management for Plant Protection
- ENTOM 4740 - Biological Control of Insects
- F & W 3001 - Aquaculture
- F & W 3400 - Natural Resources and Water Quality
- F & W 3600 - Introduction to Conservation Biology
- FOREST 2151 - Dendrology
- FOREST 3212 - Forest Health and Protection
- FOREST 4302 - Forest Ecology
- FOREST 4385 - Agroforestry I
- FOREST 4309 - Water Quality and Watershed Management
- GEOL 1200 - Environmental Geology
- GEOL 2450 - Global Water Cycles
- NATR 1060 (3) - Ecology and Conservation of Living Resources
- NATR 1070 - Ecology and Renewable Resource Management
- NATR 4343 - Natural Resources Policy/Administration
- NATR (not yet determined) - Conservation Ethics

- PL PTH 4500 - Theory and Concepts of Plant Pathology
- PL PTH 4510 - Lab
- PLNTS 2075 - Home Horticulture
- PLNTS 2120 - Plant Science Laboratory
- PLNTS 3210 - Principles of Weed Science
- PLNTS 3233 - Plant Propagation
- PLNTS 3234 - Plant Environments
- PLNTS 3260 - Greenhouse Management
- PLNTS 3270 - Forage Crops
- PLNTS 3274 - Grain Crops
- SOIL 2106 - Soil Science Laboratory
- SOIL 2110 - Introduction to Soil Science with Lab
- SOIL 3290 - Soils and the Environment
- SOIL 4308 - Soil Conservation
- SOIL 4312 - Soil Microbiology
- SOIL 4313 - Soil Fertility and Plant Nutrition
- SOIL 4320 - Genesis of Soil Landscapes

**Community and Food Systems Track
Emphasis Area Core Course Requirements 18
15 credits selected from the following:**

1. BIO SC 1060 (3) - Basic Environmental Studies OR SOIL Science 2100 (3) - Introduction to Soils and Soil Science
2. (choose 2 courses)
AN SCI 1011 (3) - Intro to Animal Sciences
PLNT S 2110 (3) - Plant Growth and Culture
NAT R 1060 (3) - Ecology and Conser. of Living Resources OR
NAT R 1070 (3) - Ecology and Renewable Resource Management
3. RU SOC 2201 (3) (temporary number) - Soc. of Food and Agriculture
4. AG EC 4301 (3) (temporary number) - Ethics in Agriculture

12 credits - Core Track Courses

1. AG ED 2220 (3) - Verbal Communication in Agriculture, Food and Natural Resources OR AG JRN 3210 (3) - Fundamentals of Communication
2. AG ED 2250 (3) - Professional Leadership Development OR RU SOC 2010 (3) - Leadership in Today's World
3. AG EC 2070 (3) - Ecological Economics
4. AG EC 3224 (3) - New Products Marketing

12 credits - Electives selected from the list below. A minimum of 9 credit hours in regular courses must be selected from one disciplinary area.

- AG EC 2070 - Intro to Ecological Economics
- AG EC 3224 - Agricultural Economics 224 - New Products Marketing
- AG EC 3257 - Rural and Agricultural Law
- AG EC 3271 - International Agricultural Development
- AG ED 2250 - Professional Leadership Development (or)
- AG ED 2220 - Verbal Communication in Agriculture, Food and Natural Resources
- AG ED 2260 - Team and Organizational Leadership
- AG ED 4320 - Designing Curriculum and Instruction in Agriculture
- AG ED 4330 - Teaching Agriculture Subjects
- AG JRN 3210 - Fundamentals of Communication
- AG SM 2020 - Environmental Ethics in Agriculture
- BIOCHM 2112 - Biotechnology in Society
- C&F EC 2185 - The Consumer in Our Society
- ECONOM 1111 - Environmental Economics

ECONOM 4360/Peace Studies 4360 - Economic Development
 FS 1020 - World Food and You
 GEOG 2660 - Environmental Geography
 NUTR S 2590 - Community Nutrition
 RU SOC 2010 - Leadership in Today's World
 RU SOC 2225 - Science, Technology and Society
 RU SOC 3235 - Global Perspectives and Realities
 RU SOC 4341 - Building Communities from the Grassroots
 RU SOC 4342 - Empowering Communities for the Future
 RU SOC 4343 - Creating Capacity for Dynamic Communities
 WGST 4230 - Global Perspectives on Women and Development

Advising

Typically, a faculty member from the student's primary concentration area serves as adviser. In addition to helping students plan a program of study, faculty advisers provide support, encouragement and career advice.

Sample Eight-Semester Program

Bachelor of Science with a major in General Agriculture

Check the *Undergraduate Catalog* for prerequisites.

Fall I	Winter II	Fall III	Winter III
*AG EC 1041..... 3	*AG EC 1042..... 3	CAFNR Area..... 3	CAFNR Area 3
*ENGLSH 1000..... 3	*Humanities 3	CAFNR Area..... 3	CAFNR Area 3
*RU SOC 1000..... 3	CAFNR Elective 3	Humanities 3	Elective..... 3
*HIST 1100 or 1200 3	*MATH 1100..... 3	Elective 3	CAFNR Area 3
*AGRIC 1115 or 1111 2-3	*BIO SC 1010 3	Elective 3	Elective..... 3
Total 14-15	Total 15	Total..... 15	Total 15
INTERNSHIP RECOMMENDED			
Fall II	Winter II	Fall IV	Winter IV
CAFNR area..... 3	CAFNR area..... 3	CAFNR Area..... 3	CAFNR Area 3
*CHEM 1100 3	*BIOCHM 2110 3	CAFNR Area..... 3	Capstone..... 3
*COMMUN 1200 5	Math or Statistics..... 3	CAFNR Area..... 3	Elective..... 3
*BIO SC 1020..... 2	Ag Area..... 3	CAFNR Area..... 3	Elective..... 3
*Humanities 3	*COMMUN elective 3	Elective 3	Elective..... 3
Total..... 16	Total 15	Elective 3	Elective..... 3
STUDYABROAD RECOMMENDED		Total..... 15	Total 15

Department of Hotel and Restaurant Management

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FACULTY

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ASSISTANT PROFESSOR S. Cho
RESIDENT INSTRUCTION INSTRUCTOR M. P. Keene
RESIDENT INSTRUCTION ASSISTANT PROFESSOR
 Julie Hosmer

The curriculum leading to the BS with a major in Hotel and Restaurant Management educates students for management careers in the hospitality field. The mission of the HRM program is to develop students to be responsible citizens and successful, ethical hospitality leaders in today's global community. A minor is also available.

The HRM program has a food-service facility that houses demonstration, basic foods and state-of-the-art commercial kitchens. The facility also offers a multi-purpose room, a 20-seat conference room, a lobby area of 1,000 square feet, two classrooms and a library equipped with computers for student use.

The program is fully accredited by the Accreditation Commission for Programs in Hospitality Administration.

Major Program Requirements - Hotel and Restaurant Management

To meet the needs of the industry and provide sound academic education at the undergraduate level, the curriculum emphasizes important areas of learning including general and professional education. All requirements listed below are in addition to University and college requirements, including University general education.

Major core requirements

- Minimum of 50 credits 2000 or above, of which at least 24 credits must be numbered 3000 or above
- Minimum of 32 credits in courses in the College of Agriculture, Food and Natural Resources, with 2.0 overall GPA and a C- or better in courses required for the major

Biological and physical sciences.....	11
<i>General biology and laboratory</i>	5
<i>Chemistry</i>	3
<i>Biochemistry</i>	3
English and communications	9

Statistics	3
Social and behavioral science	9
<i>Microeconomics and macroeconomics</i>	6
<i>Psychology or sociology</i>	3
Hotel and restaurant management.....	48
FS 1030 OR NUTR S 1034	3
HRM 1043: Introduction to the Hotel and Restaurant Industry	3
HRM 1133: Hospitality Law	3
HRM 1995: Principles of Food Preparation	5
HRM 3143: Property Management Systems and Operations	3
HRM 3153: Food, Beverage and Labor Cost Management	3
HRM 3253: Hotel and Restaurant Human Resources Management	3
HRM 3273: HRM Sales and Marketing	3
HRM 4191: Seminar in Professional Development	1
HRM 4235: Commercial Food Production Management ...	5
HRM 4243: Strategic Management for Hotels and Restaurants	3
HRM 4970: Case Studies & Research in Hotel & Restaurant Mgmt.....	3
HRM 4941: Internship in Hotel and Restaurant Management	1
Electives in HRM	9
Business core.....	15
Accounting	6
Finance	3
Management	3
Marketing	3
Business electives	3
Electives	15

Minor in Hotel and Restaurant Management

A minor in hotel and restaurant management may be earned by completing:

Minor Course Requirements:

- HRM 1043 - Introduction to the Hotel and Restaurant Industry
- HRM 3143 - Property Management Systems and Operations (prerequisite: HRM 1043)
- HRM 3153 - Food, Beverage and Labor Cost Management (prerequisite: HRM 1043)
- HRM 4243 - Strategic Management for Hotels & Restaurants (prerequisites: HRM 3143, 3153, STAT 1200, and ACCT 2036)
- HRM 3253 - Hotel & Restaurant Human Resources Management (prerequisites: 1043, Introduction to Psychology, Sociology or Instructor's Consent)
- HRM 3273 - Hotel & Restaurant Sales & Marketing Manage-

Sample Eight-Semester Program

Bachelor of Science with a major in Hotel and Restaurant Management

Check *Undergraduate Catalog* for prerequisites.

Fall I

MATH 1100 or 1120	3
ENGLSH 1000.....	3
HRM 1043	3
SOCIOL 1000 (or equiv.)3	
Humanities elective 1....	3
Total	15

Winter I

FS 1030 or NUTR S 1034	3
FINANC 1000.....	3
COMMUN 1200	3
CHEM 1100	3
HRM 1133	3
Total	15

Dept. of Hotel and Restaurant Management

Fall II	
BIO SC 1010.....	3
BIO SC 1020.....	2
POL SCI 1100 (or equiv.)	3
Humanities elective 2.....	3
AG EC 1041 (or equiv.)	3
HRM 3143	3
Total.....	17

Fall III	
Elective 2	3
ACCTCY 2036	3
HRM 3153	3
MRKTNG 3000	3
Elective 3	3
Humanities elective 3.....	3
Total.....	18

Winter II	
STAT 1200.....	3
HRM 1995.....	5
Communication elective..	3
AG EC 1042 (or equiv.)...	3
Elective 1	3
Total	17

Winter III	
BIOCHM 2110 or 2112...	3
MANGMT 3000.....	3
HRM 3253.....	3
Elective 4.....	3
HRM elective 1	3
Elective 5.....	3
Total	18

Fall IV	
HRM 4235	5
HRM elective 2	3
HRM 3273	3
HRM 4243	3
HRM 4191	1
Total.....	15

Winter IV	
Elective 6.....	3
HRM 4970.....	3
Business elective	3
HRM elective 3	3
Total	12

HOTEL AND RESTAURANT MANAGEMENT COURSES

H R M 1043—Introduction to the Hotel and Restaurant Industry (3). A basic course in hotel and restaurant management operations. Review development of the industry, current trends and an analysis of the various types of operations in the hospitality industry.

HRM1073—Food Purchasing (3). Principles and quality characteristics of food commodities; food purchasing criteria and receiving, storing, and inventory practices for commercial food and beverage operations.

H R M 1133—Hospitality Law (3). Law as it relates to the hotel/restaurant trade; theories of recovery/liability; lawsuits and their prevention; familiarization with legal arguments, lawyers, litigation and threats of litigation.

H R M 1723—Private Club Management and Operation (2). 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. Prerequisite: H R M 1043.

HRM 1995—Principles of Food Preparation (5). Basic principles of food purchasing and selection, storage, preparation and sanitation and equipment identification. Prerequisites: F S 1030, NUTR S 1034, H R M 1043 and CHEM 1100

H R M 2123—Food Buying and Meal Management (2-3). Factors affecting cost of food. Applies principles of food buying and food preparation to menu planning, meal preparation and service. Lecture and laboratory. Prerequisites: H R M 1043 and 1995.

H R M 2143—Hotel & Restaurant Operations Management (3). Principles of cost control and management methods of planning and controlling restaurants; freestanding and in hotels, and the rooms department in hotel operations. Prerequisites: H R M 1043.

H R M 2153—Food Service and Lodging Industry Operational Maintenance (3). Basic course in food service and lodging maintenance and operating principles that emphasize main-

tenance, utilization, rehabilitation, equipment layout and cost considerations. Prerequisite: H R M 1043 and MATH 1100.

H R M 2163—Sanitation Management for Hotels & Restaurants (2). Study of infection control and food handling procedures in hotels and restaurants to prevent food-borne illness and other transmittable illnesses. Prerequisite: H R M 1043.

HRM 2385—Problems in Hotel and Restaurant Management (cr.arr.). Supervised study in a specialized phase of hotel and restaurant management. Prerequisite: H R M major and departmental consent.

HRM 2401—Topics in Hotel and Restaurant Management (cr.arr.). Instruction in specific subject matter areas in the field of hotel and restaurant management.

H R M 3143—Property Management Systems and Operations (3). An in-depth study of non-food operations in a hotel. Areas covered include: Rooms Division operations (reservations, marketing, guest service management, rooms management, guest accounting, night audit, etc.), Housekeeping Management and Computerized Property Management Systems. Prerequisites: H R M 1043 and 1995.

H R M 3153—Food, Beverage and Labor Cost 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: H R M 1043, 1995 and ACCTCY 2036.

H R M 3163—Quick Service Restaurant Operations (3). Analysis of management and operational skills in fast food industry. Procedures, approaches, techniques of management and critical thinking are explored as they relate to fast food industry. Prerequisite: H R M 1043 and 3143.

H R M 3173—Meat Selection and Identification (3). Meat with reference to selection, identification, utilization, wholesale/retail buying. Includes field trip . Prerequisites: H R M 1043 and 1995.

H R M 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: H R M 1043 and 3143 and instructor's consent

H R M 3233—Professional Beverage Management (3). Given the hospitality industry's reliance on beverage revenues, there is a need for a course covering legal aspects/responsibility of serving alcoholic/non-alcoholic beverages; management control; pairing of food and beverages. Prerequisite: H R M 1043.

HRM 3253—Hotel and Restaurant Human Resources Management (3). Recruitment, training, management of personnel required for operations of hotels and restaurants at all employment levels. Prerequisite: H R M 1043, Introduction to Psychology, Sociology or instructor's consent.

H R M 3273—Hotel & Restaurant Sales & Marketing Management (3). Marketing of hospitality services: human factors, consumer demand, planning, professional considerations. Promotional methods: advertising, direct mail, outside/"in-house" selling, merchandising, pricing, public relations, sales promotion. Prerequisites: MRKTNG 3000 and ECONOM.

HRM 3385—Problems in Hotel and Restaurant Management (cr.arr.). Advanced problems in a selected field of hotel and restaurant management. Prerequisite: HRM major, junior standing and departmental consent.

HRM 3401—Topics in Hotel and Restaurant Management (cr.arr.). Instruction in specific subject matter areas in the field of hotel and restaurant management.

H R M 4001—Topics in Hotel and Restaurant Management (cr.arr.). Selected current topics in field of interest. Prerequisite: junior standing.

H R M 4191—Seminar in Professional Development (1). Readings and discussion related to professional development for the industry. Prerequisites: senior standing.

HRM 4235—Commercial Food Production Management (5). Identifies and applies the

skills necessary to plan, produce, and serve meals to customers in a commercial setting. Prerequisites: H R M 3153.

H R M 4243—Strategic Management for Hotels and Restaurants (3). Applies functions and tools of business management to the specialized operation of hotels and restaurants. Prerequisite: H R M 3143, 3153 and ACCTCY 2036

H R M 4940—Field Training in Hotel and Restaurant Management (cr.arr.). Prerequisites: junior or senior standing and instructor's consent.

H R M 4941—Internship in Hotel and Restaurant Management (1-6). Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation. Prerequisites: 90 hours completed and instructor's consent.

H R M 4960—Readings in Hotel and Restaurant Management (cr.arr.). Prerequisites: 8 hours of course work in field of subject and instructor's consent.

H R M 4963—Recent Trends in Hotel and Restaurant Management (1-2). For upper-class and graduate students who wish additional knowledge and understanding in specific subject matter areas.

H R M 4970—Case Studies & Research in Hotel & Restaurant Management (3). Applies business, economic, and social science principles to problem situations found in Hotel and Restaurant Management. Prerequisites: H R M 4243 and 3253

Department of Plant Microbiology and Pathology

James E. Schoelz, Chair
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FACULTY

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J. E. Schoelz, G. Stacey, J. A. Wrather

ASSOCIATE PROFESSORS A. L. Karr

ASSISTANT PROFESSORS W. Gassmann, M. G. Mitchum

RESEARCH ASSOCIATE PROFESSORS J. N. Bruhn,
J. M. Erickson

EXTENSION ASSOCIATE PROFESSORS L. E. Sweets

EXTENSION ASSISTANT PROFESSORS B. S. Corwin

Plant pathology is the study of the origin and essential nature of plant diseases, especially as they relate to functional and structural changes caused in plants. In addition, the microorganisms associated with plants have a broad impact on human society and the environment, from developments in biotechnology, through enhancements in food production, and in protecting our environment. The strategies to manage plant diseases exploit genetic, biochemical and physiological features of the host and pathogen as they relate to the environment.

Students receive broad scientific training in the etiology of plant diseases to prepare them for employment with governmental agencies, universities, industry, and private consulting.

In addition to a minor in plant microbiology and Pathology, the department offers graduate degree programs. A student desiring training in plant pathology should contact the department's undergraduate advisor.

Minor in Plant Microbiology and Pathology

The minor consists of 15 credits from the following required and elective courses:

Minor core requirements.....	8
PL PTH 3510 - Biology of Fungi.....	3
PL PTH 4500 - Theory and Concepts of Plant Pathology	3
PL PTH 4510 - Introductory Plant Pathology Laboratory	2
Electives	7
PL PTH 3500 - Forest Pathology	3
PL PTH 4385 - Problems in Plant pathology.....	3
PL PTH 4520 - Environmental Microbiology	3
PL PTH 4965 - Readings in Plant Pathology.....	1-9

Options

Many of the courses offered by the Department of Plant Microbiology and Pathology are also found in the emphasis areas in the Plant Sciences Department. These interdisciplinary emphasis areas are designed to provide students with broad experience in a variety of subjects, including biotechnology, genetics, plant biology and plant protection. Consult the Plant Sciences Department for more information.

PLANT MICROBIOLOGY AND PATHOLOGY COURSES

PL PTH 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.

PL PTH 3510—Biology of Fungi (3). (same as Biological Sciences 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: BIOSC 1500, 1100, or 1200 or equivalent.

PL PTH 4385—Problems in Plant Pathology (3). Special problem in plant pathology designed for the minor program in Plant Pathology. Problems arranged on an individual student basis.

PL PTH 4500—Theory and Concepts of Plant Pathology (3). To provide information on disease development in plant populations; possible control strategies combined with training in retrieving and critically reviewing research information. Prerequisites: 5 hours Biological Sciences, junior, senior or graduate standing.

PL PTH 4510—Introductory Plant Pathology Laboratory (2). Complements Plant Pathology 4500 through laboratory study of pathogens, disease and life cycles, diagnosis, and method of disease control for agronomic, ornamental and woody plants. Prerequisites: PL PTH 4500 or concurrently.

PL PTH 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.

PL PTH 4965—Readings in Plant Pathology (1-9). Independent readings and discussion of recent research publications. Topics selected in consultation with supervisory faculty member. Prerequisite: instructor's consent.

Department of Plant Sciences

M.J. Linit, Unit Leader
 College of Agriculture, Food and Natural Resources
 1-41 Agriculture Building
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FACULTY

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 J. G. Shannon, R. E. Sharp, D. A. Sleper, G. Stacey,
 M. R. Warmund, J. A. Wrather
ASSOCIATE PROFESSORS W. C. Bailey, B. A. Barrett,
 A. L. Karr, Jr., R. L. McGraw, A. L. McKendry,
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 J. A. Lory, M. Nathan, B. J. Phipps
RESIDENT INSTRUCTION PROFESSOR J. H. Dunn
RESIDENT INSTRUCTION ASSISTANT PROFESSOR
 M. A. Gowdy
PROFESSOR EMERITUS S. C. Anand

The plant sciences undergraduate major is a joint contribution of the departments 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 sciences students are engaged in the science and art of working with plants. Educational opportunities in plant sciences range from basic (genetics, biotechnology and physiology) to applied (crop production and protection, landscape design and turfgrass).

The department offers the BS degree with a major in Plant Sciences. Students in plant sciences 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
- Landscape horticulture
- Ornamental plant production and operations management
- Plant biology
- Plant breeding, genetics and biotechnology
- Plant protection
- Precision agriculture
- Turf grass management

Major Program Requirements – Plant Sciences

In addition to CAFNR requirements and the University's general education and graduation requirements, the Department of Plant Sciences requires the following courses. The student must also select one emphasis area.

Major core requirements

Communications	6
COMMUN 1200: Introduction to Speech Communication	3
One of the following courses	3
ENGLSH 2030: Professional Writing	
AG JRN 3210: Fundamentals of Communication	
AG JRN 3240: Communicating on the Web	
AG JRN 3270: Effective Print Communication Design/Photo	
COMMUN 3441: Non-verbal Communication	
COMMUN 3572: Argument and Advocacy	
COMMUN 3575: Business and Professional Communication	
COMMUN 3576: Persuasive Speaking	
THEATR 1400: Acting for Non-Majors Foreign language	
RUR SOC 2225: Science, Technology, and Society	
AF&NR 2190: International Agricultural Experience	
Math and Science	19-20
Statistics (any course).....	3
CHEM or BIOCHM (not CHEM 1100).....	8
BIO SCI 1200: General Botany With Lab	5
BIO SCI 2200: General Genetics (4) OR	
PLNT S 3215:Genetics of Agricultural Plants and Animals (3).....	3-4

Major field requirements.....54-69

Plant science and soils	14
PLNT S 2100: Introduction to Soils.....	3
SOILS 2106: Soil Science Laboratory	2
PLNT S 2110: Plant Growth and Culture	3
PLNT S 2120: Plant Science Laboratory	2
PLNT S 3130: Undergraduate Seminar.....	1
PLNT S 3225: Plant Breeding & Genetics OR	
PLNT S 3230: Plant Propagation	3

Business and Economics.....12

AG EC 1041: Applied Microeconomics.....	3
AG EC 1042: Applied Macroeconomics.....	3
Courses from accountancy, agricultural economics, consumer and family economics, economics, finance, management or marketing.....	6

Pest sequence

7-9
Complete two of the following courses.
PL PTH 3510: Biology of Fungi (3) OR
PL PTH 4500: Theory & Concepts of Plant Pathology (3)
PL SCI 3210: Principles of Weed Science (4)
ENTOM 3710: Introductory Entomology (2) AND
ENTOM 3715: Insect Diversity (3)

Capstone experience

3-4
PLNT S 4950: Undergraduate Research in Plant Science (3)
PLNT S 4975: Advanced Landscape Design (4)
PLNT S 4940: Internship in Plant Science (3)

Emphasis in Crop Management

Course not taken in pest sequence above	0
PL PTH 4500: Theory & Concepts of Plant Pathology	3
PLNT S 3225: Plant Breeding & Genetics	3
PLNT S 3270: Forage Crops.....	3
PLNT S 3275: Grain Crops	3

PLNT S 4315: Crop Physiology	3
One of the following courses	3
PLNT S 4313: Soil Fertility & Plant Nutrition	
SOIL 3290: Soils and the Environment	
SOIL 4308: Soil Conservation	
One of the following courses	3-4
AG S M 1040: Physical Principles for Agricultural Applications (3)	
AN SCI 1011: Animal Science (3)	
ATM SC 1050: Introductory Meteorology (3)	
FOREST 4385: Agro-forestry I (4)	

Emphasis in Landscape Horticulture

Course not taken in pest sequence above.....	3-4
PLNT S 2210: Ornamental Woody Plants I.....	3
PLNT S 2215: Ornamental Herbaceous Plants	3
PLNT S 2254: Landscape Design	3
PLNT S 3255: Landscape Maintenance	3
PLNT S 4975: Advanced Landscape Design	4
PLNT S 3355: Turf	3

Emphasis in Ornamental Plant Production and Operations Management

Course not taken in pest sequence above.....	3-4
AG ED 3310: Teaching Farm & Personal Financial Management	2
PLNT S 2210: Ornamental Woody Plants I.....	3
PLNT S 2215: Ornamental Herbaceous Plants.....	3
PLNT S 3260: Greenhouse Management	4
PLNT S 4313: Soil Fertility & Plant Nutrition	3
PLNT S 4350: Nursery Crop Production & Management	
OR	
PLNT S 4365: Greenhouse Crop Production & Management	4

Emphasis in Plant Biology

BIOCHM 2112: Biotechnology in Society	3
BIOCHM 3630: General Biochemistry	3
BIO SCI 2300: Introduction to Cell Biology	3
BIO SCI 4400: Plant Anatomy	4
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
PLNT S 4313: Soil Fertility & Plant Nutrition	3
PLNT S 4315: Crop Physiology	3
STAT 1400: Statistical Analysis.....	3
Note: Chemistry and biochemistry courses can count toward major core requirements in math and science.	

Emphasis in Plant Breeding, Genetics and Biotechnology

BIOCHM 3630: General Biochemistry	3
BIO SCI 2300: Introduction to Cell Biology	3
CHEM 2100: Organic Chemistry I.....	3
PLNT S 4315: Crop Physiology	3
Two of the following courses.....	5-6
BIO SCI 4976: Molecular Biology (3)	
BIO SCI 4974: Molecular Biology Lab (2)	
PLNT S 4325: Field Crop Breeding (3)	
PLNT S 4330: Plant Breeding Theory (3)	
STAT 4530: Analysis of Variance (3)	
One of the following courses	3-4
PLNT S 3270: Forage Crops (3)	

PLNT S 3275: Grain Crops (3)	
PLNT S 4313: Soil Fertility & Plant Nutrition (3)	
PLNT S 3355: Turf (3)	
PLNT S 4350: Nursery Crop Production & Management (4)	
PLNT S 4365: Greenhouse Crop Production & Management (4)	
PLNT S 4370: Small Fruit & Vegetable Production (3)	
Note: Chemistry and biochemistry courses can count toward major core requirements of math and science.	

Emphasis in Plant Protection

Course not taken in pest sequence above.....	0
PL PTH 4500: Theory & Concepts of Plant Pathology	3
PL PTH 4510: Introductory Plant Pathology Lab.....	2
AG S M 2340: Pesticide Application Equipment	3
ENTOM 4730: Insect Pest Management for Plant Protection	3
PLNT S 4313: Soil Fertility & Plant Nutrition	3
PLNT S 4314: Soil Fertility & Plant Nutrition Lab	2
Complete three of the following courses	9-12
FOREST 2151: Dendrology (4)	
FOREST 3212: Forest Health and Protection (4)	
PLNT S 2210: Ornamental Woody Plants I (3)	
PLNT S 2215: Ornamental Herbaceous Plants (3)	
PLNT S 3260: Greenhouse Management (4)	
PLNT S 3270: Forage Crops (3)	
PLNT S 3275: Grain Crops (3)	
PLNT S 4315: Crop Physiology (3)	
PLNT S 3355: Turf (3)	
PLNT S 4370: Small Fruit & Vegetable Production (3)	

Emphasis in Precision Agriculture

AG S M 2340: Pesticide Application Equipment	3
GEOG 2840: Introduction to Mapping Science.....	3
PLNT S 3270: Forage Crops.....	3
PLNT S 3275: Grain Crops.....	3
PLNT S 4313: Soil Fertility & Plant Nutrition	3
PLNT S 4314: Soil Fertility & Plant Nutrition Lab.....	2
SOILS 4320: Genesis of Soil Landscape.....	4
STAT 1400: Statistical Analysis.....	3
Complete one of the following courses	3
GEOG 4710: Spatial Analysis in Geography	
GEOG 4830: Remote Sensing	
GEOG 4840: Geographic Information Systems	

Emphasis in Turfgrass Management

Course not taken in pest sequence above.....	3-4
AG S M 2340: Pesticide Application Equipment	3
AG S M 4460: Irrigation and Drainage	3
PLNT S 2210: Ornamental Woody Plants I OR	
PLNT S 2215: Ornamental Herbaceous Plants	3
PLNT S 3255: Landscape Maintenance	3
PLNT S 3355: Turf	3

Complete appropriate electives to total 128 credits.

PLANT SCIENCE COURSES

PLNT S 1001—Topics In Plant Science (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.

PLNTS 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 astronomy, horticulture, entomology, and plant pathology.

PLNT S 1020—World Food and You (3). (same as Food Science 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 2001—Topics in Plant Science (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—Home Horticulture (3). Introductory course which provides fundamental understanding of home horticultural practices. Graded on A/F basis only.

PLNT S 2100—Introduction to Soils (3). (same as Soil Science 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 2120—Plant Science Laboratory (2). Laboratory course emphasizing “hands on” skills in plant and seed identification, quality assessment, and experimentation covering such topics as seed germination, crop plant identification, weed identification, and plant mineral nutrition among others. Prerequisite: concurrent enrollment or previous completion of PLNT S 2110.

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 (1). (Same as Food Science 2195). Reviews historical development of the wine industry and associated development of the grape industry, the wine making process, the various types of wine product, wine-producing regions of the world, various classification schemes and quality components.

PLNT S 2210—Ornamental Woody Plants I (3). Identifies and evaluates trees and shrubs for landscape use. Prerequisite: 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: BIO SC 1010, 1500, or 1200.

PLNTS 2254—Landscape Design (3). Historical overview of the human and environmental relationships with respect to design on the land. Prerequisite: sophomore standing.

PLNT S 3130—Undergraduate Seminar in Plant Science (1). Discussion of assigned or selected topics in Plant Science. Prerequisite: junior or senior standing.

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: PLNT S 2110 or BIO SC 1200.

PLNT S 3213—Genetics of Agricultural Plants and Animals (3). (same as Animal Science 3213). Concepts of molecular, transmission, and population and quantitative genetics. Special emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: BIO SC 1010, 1020, 1500, MATH 1100.

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: PLNT S 2110 or equivalent.

PLNT S 3230—Plant Propagation (3). Principles and practices of propagation of horticultural plants. Prerequisites: BIO SC 1010 and 1200.

PLNT S 3235—Plant Environments (3). Effects of water, light, temperature, and gases upon growth and physiology of plants; their control in plant production. Prerequisites: BIO SC 1010 or 1200 and CHEM 1100 or 1310.

PLNTS 3255—Landscape Maintenance (3). Effective management of commercial, public, and home landscape plantings, including topics on landscape renovation, planting, pruning, fertilization, irrigation, and pest management.

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. Prerequisites: PLNT S 3235.

PLNT S 3270—Forage Crops (3). Principle forage crops, pasture production, forage preservation and utilization. Prerequisite: PLNT S 2110.

PLNTS 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: PLNT S 2110.

PLNT S 3355—Turf (3). Characteristics of turf materials, principles of establishment and maintenance. Prerequisites: PLNT S 2100 and 3235 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 4001—Topics in Plant Science (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 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 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: PLNT S 2110 or equivalent.

PLNTS 4320—Plant Physiology (3-5). (Same as Biological Sciences 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.

PLNTS 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: 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: PLNT S 3225 or equivalent.

PLNT S 4350—Nursery Crop Production and Management (4). Operations, methods used by wholesale, retail, landscape nurseries. Field problems, observational trips. Prerequisites: PLNT S 3230 and 3235.

PLNT S 4360—Precision Agriculture Science and Technology (3). (same as Agricultural Systems Management 4360 and Soil Science 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 w100, PLNT S w110 or instructor’s consent.

PLNT S 4365—Greenhouse Crops Production (4). Production management decision and commercial culture of the major floriculture crops. Prerequisite: PLNT S 3260 or instructor’s consent.

PLNT S 4370—Small Fruit and Vegetable Production (3). Emphasizes production, management and marketing practices for small fruit and vegetable crops. Prerequisites: PLNT S 2100, 3230, and 3235.

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 4975—Advanced Landscape Design (4). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design. Prerequisites: PLNT S 2254, instructor's consent.

Department of Rural Sociology

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FACULTY

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J. S. Rikoon
ASSOCIATE PROFESSOR J. L. Gilles, K. E. Pigg
ASSISTANT PROFESSOR M. E. Barham
EXTENSION ASSISTANT PROFESSOR J. Adams,
J. L. Garcia-Pabon, M. Hendrickson, S. Hodge,
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RESIDENT INSTRUCTION ASSISTANT PROFESSOR
M. Grigsby
ASSOCIATE PROFESSOR EMERITUS J. A. Hartman,
J. L. Wade

The Department of Rural Sociology participates in the general agriculture major 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 adviser.

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 1000 and Sociology 1000).

RU SOC 1101—Topics in Rural Sociology (1-3). Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated. Prerequisites: RU SOC 1000 or SOCIOL 1000.

RU SOC 1120—Population and Ecology (3). (same as Sociology 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 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: RU SOC 1000, SOCIO 1000, or 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: RU SOC 1000 or SOCIOL 1000.

RU SOC 2201—Topics in Rural Sociology (1-3). Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated. Prerequisites: RU SOC 1000, SOCIOL 1000 or 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: RU SOC 1000 or SOCIOL 1000.

RU SOC 2950—Social Research I (3). (same as Sociology 2950).

RU SOC 3085—Problems in Rural Sociology (cr.arr.). Prerequisite: instructor's consent.

RU SOC 3100—Recent Theories in Sociology (3). (same as Sociology 3100).

RU SOC 3235—Global Perspectives and Realities (3). Presents the sociological theories and concepts needed to understand globalization and to live overseas. Helps prepare students for life abroad. Open only to students with definite plans to study, work or live abroad.

RU SOC 3301—Topics in Rural Sociology (2-3). Organized study of selected topics. Sub-

jects and earnable credit vary from semester to semester. May be repeated. Prerequisites: 6 hours Rural Sociology or Sociology, or junior standing.

RU SOC 3940—Practicum in Rural Sociology (3). (same as Sociology 4940). 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 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: SOCIOI 2950.

RU SOC 4130—Advanced Social Statistics (3). (same as Sociology 4130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized. Prerequisite: 4120 or equivalent.

RU SOC 4310—Sociology of Agriculture and Natural Resources (3). Overview of current issues in the study of rural society. Emphasizes the relationships among social organization, agriculture, natural resources and the global economy. Prerequisite: senior standing.

RU SOC 4315—Social Demography (3). (same as Sociology 4315). Prerequisite: RU SOC 1000 or SOCIOL 1000 and 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 Trends (3). (same as Sociology 4335). Nature of social change. Emphasis on sociological theories and models of social change and their application in analysis and implementation of change in social structures. Prerequisites: RU SOC 1000 or SOCIOL 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—Environment and Society (3). (same as Sociology 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.

RU SOC 4500—Sociology of Social Policy (3). (same as Sociology 4500). Sociological theories and methodologies focused on social policy; policy as process, contextual and critical policy analyses; assessing policy effects and consequences. Prerequisite: senior standing.

The School of Natural Resources

(WITHIN THE COLLEGE OF AGRICULTURE, FOOD AND NATURAL RESOURCES)

H. Eugene Garrett, Director
The School of Natural Resources
Undergraduate Studies Office
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Main Office: (573) 882-6446
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DEGREES OFFERED

Bachelor of Science in Forestry (BSF) with emphasis areas in

Forest Resource Management
Individualized Studies
Industrial Forest Management
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
Tourism Development

Soil, Environmental and Atmospheric Sciences with emphasis areas in

Atmospheric Science
Environmental Science
Environmental Soil Science
Soil Resource Management

Minors

Forestry
Natural Resources
Soil, Environmental and Atmospheric Sciences

The School of Natural Resources is Missouri's and the Midwest's only school with a comprehensive natural resources program. It is part of the College of Food, Agriculture 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-Columbia 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-Columbia 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, soils and natural resources recreation management in NATR 4970: Resource Practicum, 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 (PR&TR 4940: Parks, Recreation and Tourism Internship). Students in atmospheric science are assessed in ATM SCI 4990: Daily Analysis and Forecast Interpretation.

General Education Assessment

Each student takes the structured examination of University of Missouri general education proficiencies during the capstone course within the last 45 credits. An exception is in parks, recreation and tourism, where the general education assessment is administered in P R&TR 3189: Pre-internship Seminar. Examinations are administered in the following classes during the semester in which they are taught:

- Atmospheric Science: ATM SCI 4990: Daily Analysis and Forecast Interpretation (3) (winter semester)
- Fisheries and Wildlife, Forestry, and Soils: NAT R 4970: Resource Practicum (3) (winter semester)
- Parks, Recreation and Tourism: PR&TR 3189: Pre-Internship Seminars (1)

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 (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 adviser in the department.

Minor Program Requirements

Three 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 and Atmospheric Sciences

A minor in soil and atmospheric sciences is offered at the undergraduate level, with separate tracks in atmospheric science and soil science. The atmospheric science track is useful for jobs in journalism broadcast meteorology as well as certification required by government agencies.

Atmospheric science track	15
ATM SC 1050: Introductory Meteorology	3
ATM SC 2720: Weather Briefing	1
ATM SC 3600: Climates of the World	3
ATM SC 4520: Meteorology of the Biosphere.....	3
ATM SC or closely related area (advisor recommendation)	5

Soil science track **15**

Selection of courses should be made in consultation with an adviser 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, 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 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.

STUDENT SERVICES

Advising

Personalized advisement and counseling is available from the school’s faculty members. An open-door policy by advisers 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 two areas, atmospheric sciences (“Storm Chasers”) and natural resources. 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.

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.

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 1080—Computer Applications in Natural Resources (2). Beginning experience with Windows, word processing, spreadsheet, database, presentations and Geographic Information Systems (GIS).

NAT R 1090—Beginning GIS for Natural Resources (1). This course will provide a basic introduction to GIS software and how to use that software on natural resource data. The course is a combination of short lectures and computer lab time. Lectures include the software interface, data type, projections and datums, data base queries, presentation layout, and application to a specific problem. Prerequisite: NAT R 1080 or equivalent.

NAT R 2001—Topics in Natural Resources (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 4000—Problems in Natural Resources (cr.arr.).

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). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on Missouri watersheds to provide experience with the use of simulation models for natural resource decision making. Prerequisites: NAT R 1080 and 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: NAT R 1070 or 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). Introduce logical thinking and techniques in applying GIS to practical problems. Cover general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing. Prerequisite: GEOG 4840, NAT R 1080 and 1090, or instructor's consent.

NAT R 4385—Landscape Ecology and GIS Analysis I (3). (same as Geography 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 4395—Landscape Ecology and GIS Analysis II (3). (same as Geography 4815). Provide students with principles and applications of landscape ecology and firm understandings of spatial analysis techniques using GIS. Discuss metrics for spatial pattern and models for landscape-scale dynamics. Prerequisite: NAT R 4365; FOREST 4320 or equivalent; basic statistics; GEOG 4810/7810 recommended; instructor's consent.

NAT R 4940—Natural Resources Internship (cr.arr.). Supervised professional experience with an approval 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.

Department of Fisheries and Wildlife Sciences

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FACULTY

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ASSOCIATE PROFESSOR R. S. Hayward, C. H. Nilon, D. B. Noltie
ASSISTANT PROFESSOR M. E. Gompper, J. J. Millspaugh
RESEARCH ASSISTANT PROFESSOR M. Knowlton
EXTENSION ASSISTANT PROFESSOR R. A. Pierce II

The fisheries and wildlife degree is based on a common foundation of biological sciences, 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

Students must complete core requirements plus elective options. The degree requires 125 credits.

Major core requirements

Professional core	71-74
Biological and physical sciences	
NAT R 1070: Ecology and Renewable Resource Management	3
BIO SCI 1500: Intro to Biological Systems.....	5
BIO SCI 1200: General Botany	5
F&W 2100: Colloquium in Fisheries and Wildlife	1
BIO SCI 3650: General Ecology (WI).....	5
F&W 3900: Animal Population Dynamics and Management.....	3
Plant Taxonomy Course - choose one	4
BIO SCI 3210: Plant Taxonomy	
FOREST 2151: Dendrology	
Genetics – choose one	3-4
F&W 2500: Intro to Genetics and Evolution for Conservation (3)	

BIO SCI 2200: General Genetics (4)	
AN SCI 3213: Genetics of Agricultural Plants & Animals (3)	
Physiology - choose one	5
MPP 3202: Elements of Physiology	
AN SCI 3254: Physiology of Domestic Animals	
Senior capstone course	3
NAT R 4970: Resource Practicum	
Communications - choose one	3
AG ED 2220: Verbal Communication in Agric., Food, & Natr. Res.	
PRT 3231: Principles of Outdoor Interpretation	
Economics – choose one	3
AG ECON 2070: Environmental Management Strategies	
AG ECON 1041: Applied Microeconomics	
Law/policy - choose one	3
AG ECON 4356: Environmental Law and Policy	
AG ECON 3257: Rural & Agricultural Law	
NAT R 4353: Natural Resources Policy/Administration	
NAT R 1080: Computer Applications for Natural Resources (2) AND	
NAT R 1090: Beginning GIS for Natural Resources (1)	
CHEM 1310: General Chemistry I.....	2
CHEM 1320: General Chemistry II	3
MATH 1400: Calculus for Social and Natural Sciences I....	3
STAT 2530: Statistical Methods in Natural Resources	3
NAT R 3110: Biometrics	3
Earth science - choose one	4-5
GEOL 1100: Principles of Geology (4) OR	
SOILS 2100: Introduction to Soils (3) AND	
SOILS 2106: Soil Science Lab (2)	
Physics - choose one	3-4
PHYSICS 1210: College Physics (4)	
ATM SC 1050: Introductory Meteorology (3)	

Professional course work..... minimum 24
 A minimum of seven courses must be taken from terrestrial and aquatic track offerings, with at least two courses from each track. (Note: Tracks do not appear on transcripts or diplomas.)

Terrestrial track

Science and natural history (choose at least two for terrestrial track, one must be an F&W course)

F&W 2600: Ornithology (4)
F&W 3660: Mammalogy (4)
ENTOM 3710: Introductory Entomology (2) AND
ENTOM 3715: Insect Diversity (1)
BIO SCI 3360: Herpetology (4)
BIO SCI 3260: Invertebrate Zoology (4)

Management and techniques (at least two for terrestrial track)

F&W 3600: Introduction to Conservation Biology (WI) (3)
F&W 4600: Wildlife Conservation (WI) (4)
F&W 4700: Wildlife Research and Management Techniques (WI) (4)

Specialty courses

F&W 2400: Human Dimensions of Wildlife Conservation (3)
F&W 3500: Wildlife Conservation of British Cities (6)
F&W 3800: Waterfowl Biology and Management (3)
F&W 4200: Urban Wildlife Management (WI) (3)
BIO SCI 4670: Avian Ecology (3)
F&W 4800: Environmental Toxicology (3)

Aquatic track**Science and natural history (at least two for aquatic track, one must be an F&W course)**

- F&W 2700: Ichthyology (4)
- F&W 4100: Limnology (4)
- ENTOM 3710: Introductory Entomology (2) AND ENTOM 3715: Insect Diversity (1)
- BIO SCI 3260: Invertebrate Zoology (4)
- BIO SCI 3360: Herpetology (4)

Management and techniques (at least two for aquatic track)

- F&W 3400: Natural Resources Management & Water Quality (3)
- F&W 4300: Fisheries Management (3)
- F&W 4400: Techniques for Fisheries Management and Conservation (WI) (3)

Specialty courses

- F&W 3200: Aquaculture (3)
- F&W 3600: Introduction to Conservation Biology (3)
- F&W 4800: Environmental Toxicology (3)

Electives 5-13

Use these credits to broaden general educational background and to add specialized courses important to career goals.

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.

Major core science

- NAT R 1080: Computer Applications for Natural Resources2
- NAT R 1090: Beginning Geographical Information Systems (GIS)1
- BIO SCI 1200: Botany5
- BIO SCI 1500: Intro to Biological Systems.....5
- CHEM 1310: General Chemistry I.....2
- CHEM 1320: General Chemistry II3
- GEOL 1100: Principles of Geology OR GEOL 1200: Environmental Geology.....4
- SOILS 2100: Introduction to Soils.....3
- SOILS 2106: Soil Science Lab.....2
- PHYSICS 1210: College Physics (4) OR ATM SC 1050: Introductory Meteorology (3) 3-4

Genetics

- F&W 2001: Topics – Intro to Genetics and Evolution for Conservation3
- 2200: General Genetics (4) OR AN SCI 3213:Genetics of Agricultural Plants and Animals (3)..... 3-4

Physiology

- MPP 3202: Elements of Physiology OR AN SCI 3254: Physiology of Domestic Animals5
- F&W 3900: Animal Population Dynamics and Management.....3

Major core professional

- NAT R 1070: Ecology and Renewable Resource Management3
- F&W: (Course to be determined).....1
- MATH 1400: Calculus for Social & Natural Sciences I3

Public speaking

- PR & TR 3231: Principles of Interpretive Outdoor Recreation OR AG ED 2220: Verbal Communication in Ag, Food, & Natr. Res.....3
- AG ECON 1041: Applied Microeconomics OR AG ECON 2070: Environmental Management Systems ..3
- STAT 2530: Statistical Methods in Natural Resources3
- FOREST 2151: Dendrology.....4

Ecology

- BIO SCI 3650: General Ecology (5) OR FOREST 4320: Forest Ecology (4)..... 4-5
- FOREST 4330: Practice of Silviculture3
- F&W 3400: Natural Resources Mgmt & Water Quality OR FOREST 4390: Watershed Management and Water Quality3
- NAT R 3110: Natural Resource Biometrics3

Policy

- NAT R 4353: Policy and Administration OR AG ECON 4356: Environmental Law and Policy3
- NAT R 4970: Resource Practicum3

Major core summer field studies6

- FOREST 2540: Forest Surveying1
- FOREST 2541: Forest Utilization.....1
- FOREST 2542: Forest Measurement and Inventory1
- FOREST 2543: Forest Ecology Field Studies.....1
- FOREST 2544: Intro to Silviculture and Management.....1
- FOREST 2545: Forest Management Planning.....1

Major core professional tracks (10 courses

required)..... **minimum 32***

Fisheries and wildlife track (minimum five courses)**Science and natural history (minimum two courses, only one non-F&W)**

- F&W 2600: Ornithology (4)
- F&W 2700: Ichthyology (4)
- F&W 3660: Mammalogy (4)
- F&W 4100: Limnology (3-4)
- BIO SCI 3360: Herpetology (4)
- ENTOM 3710: Introductory Entomology (2) AND ENTOM 3715: Insect Diversity (1)

Management (minimum two courses)

- F&W 3600: Introduction to Conservation Biology (3)
- F&W 4300: Fisheries Management (3)
- F&W 4400: Techniques for Fisheries Management and Conservation (WI) (3)
- F&W 4600: Wildlife Conservation (WI) (4)
- F&W 4700: Wildlife Research and Management Techniques (WI) (4)

Specialty courses

- F&W 2400: Human Dimensions of Wildlife Conservation (2)
- F&W 3200: Aquaculture (3)
- F&W 3800: Waterfowl Biology and Management (3)
- F&W 4200: Urban Wildlife Management (WI) (3)

Forestry track (minimum five courses)**Management (minimum two courses)**

- FOREST 3207: Forest Fire Control and Use (2)
- FOREST 3212: Forest Health and Protection (4)
- FOREST 3290: Urban Forestry (2)
- FOREST 4370: Wildland Fire Management (3)
- FOREST 4380: Forest Resource Management (WI) (3)

Specialty courses (minimum three courses)

- NAT R 3207: Fire and Society (2)

NAT R 4325: Intro to Geographic Information Systems (3)
 FOREST 3240: Wood Technology (3)
 FOREST 4340: Tree Physiology (3)
 FOREST 4350: Forest Economics (3)
 FOREST 4360: Forest Information Systems (3)
 FOREST 4365: Logging Systems: Operations and Analyses (3)

Sample Eight-Semester Program

Degree Program

Bachelor of Science in Fisheries and Wildlife with a major in Fisheries and Wildlife Sciences

***Note:** If the minimum number of classes does not equal 32 credits, students must take more than the minimum number of classes required.

Certificate Requirements

Professional certification requirements for both Wildlife Society and Fisheries Society are available through this department. They are not issued by MU.

Fall I	Winter I
MATH 1100 3	CHEM 1310 2
ATM SC 1050 3	ENGLISH 1000 3
NAT R 1080 2	BIO SC 1500 5
NAT R1090 1	HIST 1100 3
BIO SCI 1200 5	NAT R 1070 3
Total..... 14	Total 16

Fall II	Winter II
MATH 1400 3	F & W 2600 4
F & W 2100 1	F & W 2500 3
GEOL 1100 4	STAT 2530 3
CHEM 1320 3	AG EC 1041 3
Humanities elective 3	Humanities elective 3
PSYCH 1000 3	
Total..... 17	Total 16

Fall III	Winter III
F & W 3660 4	BIO SCI 3210 4
AG EC 4356 3	F & W 3900 3
NAT R 3110 3	F & W 2700 4
BIO SCI 3650 5	AG ED 2220 3
	Elective 3
Total..... 15	Total 17

Fall IV	Winter IV
MPP 3202 5	NAT R 4970 3
F & W 4100 3	F & W 3200 3
F & W 4700 4	F & W 4200 3
Humanities elective 3	General elective 3
Total 15	Total 12

FISHERIES AND WILDLIFE SCIENCE COURSES

F & W 2001—Topics in Fisheries and Wildlife (cr.arr.). Organized study of selected topics. Intended primarily for undergraduate Forestry, Fisheries and Wildlife students. Subjects and credit 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.

F & W 2400—Human Dimensions of Fish and Wildlife Conservation (2). Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation. Prerequisite: NAT R 1060 or 1070.

F & W 2600—Ornithology (4). (same as Biological Sciences 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 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 3001—Topics in Fisheries and Wildlife (cr.arr.). Organized study of selected topics. Intended for upper division and graduate student. Subjects and credit may vary from semester to semester.

F & W 3085—Problems in Fisheries and Wildlife (cr.arr.). Topics in fisheries and wildlife.

F & W 3400—Natural Resources Management and Water Quality (3). Problems arising from non-point sources associated with forest management and mining. Management techniques for controlling erosion, nutrient loss. Examines methodologies for predicting management impacts. Prerequisites: PLNT S 2100; Introductory Inorganic Chemistry or instructor's consent.

F & W 3500—Wildlife Conservation in British Cities (3-6). (same as Agriculture 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: 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: BIO SC 3650.

F & W 3660—Mammalogy (4). (same as Biological Sciences 3660). Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States. Prerequisite: junior standing or

instructor's consent.

F & W 3800—Waterfowl Biology and Management (3). Taxonomy of waterfowl of the world. Emphasis on ecology, behavior, population dynamics, physiology and management of North American waterfowl. Prerequisites: F & W 2600 or instructor's consent.

F & W 3900—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: 10 hours Biology.

F & W 4100—Limnology (3-4). (same as Biological Sciences 4100) (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity. Prerequisites: senior standing or BIO SC 3650.

F & W 4200—Urban Wildlife Management (3). Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas. Corequisites: F & W 4600, or instructor's 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: BIO SC 3650 and 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 BIO SC 3650 and STAT 2530 or NAT R 3110 and F & W 2700 or 4300.

F & W 4600—Wildlife Conservation (4). Integrates the biological principles of wildlife conservation with the human dimensions (e.g., political issues) of such efforts in the context of a simulated natural resource agency. Prerequisites: 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 their habitats. Prerequisite: BIO SC 3650 and STAT 2530 or NAT R 3110. Weekend field trips 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.

F & W 4950—Undergraduate Research in Fisheries and Wildlife (1-3). 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 forestry, fisheries and wildlife, and methods of presenting research results.

Department of Forestry

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FACULTY

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ASSOCIATE PROFESSOR J. P. Dwyer, M. F. George, D. R. Larsen, R. Muzika, H. E. Stelzer
ASSISTANT PROFESSOR H. S. He
RESEARCH ASSOCIATE PROFESSOR M. Gold, R. Guyette
VISITING ASSISTANT PROFESSOR B. J. Lewis

The forestry undergraduate major is based on a foundation of communication, analytical, science, humanities and professional courses that provide students with prerequisites for additional professional courses as well as with a basic liberal education. Four emphasis areas are offered: forest resource management, urban forestry, industrial forestry 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 Natural Sciences I....3
 CHEM 1100: Atoms and Molecules3
 BIOCHM 2110: The Living World: Molecular Scale3
 AG ECON 1041: Applied Microeconomics OR
 AG ECON 1042: Applied Macroeconomics OR
 AG ECON 2070: Environmental Economics and Policy..3

Major core science 16-18

BIO SCI 1200: General Botany (5) OR
 PLNT SCI 2110: Plant Growth and Culture (3) AND
 PLNT SCI 2120: Plant Sci Lab (1) 4-5
 GEOL 1100: Principles of Geology OR
 GEOL 1200: Environmental Geology.....4
 SOIL 2100: Intro to Soils (3) AND
 SOIL 2106: Soil Science Lab (2)5
 PHYSICS 1210: College Physics (4) OR
 ATM SCI 1050: Intro. Meteorology (3) 3-4

Major core professional35

NAT R 1070: Ecology and Renewable Resource Mgmt.3
 NAT R 1080: Computer Applications (2) AND
 NAT R 1090: GIS in Natural Resources (1).....3
 STAT 2530: Statistical Methods in Natural Resources3

NAT R 3110: Natural Resource Biometrics3
 NAT R 4353: Resource Policy & Administration3
 NAT R 4970: Resource Practicum3
 FOREST 2151: Dendrology4
 FOREST 4320: Forest Ecology4
 FOREST 4330: Practice of Silviculture3
 FOREST 4390: Watershed Mgmt and Water Quality3
 PR & TR 3231: Principles of Interpretive Outdoor
 Recreation3
Major core summer field studies6
 FOREST 2540: Forest Surveying1
 FOREST 2541: Forest Utilization1
 FOREST 2542: Forest Measurement and Inventory1
 FOREST 2543: Forest Ecology Field Studies1
 FOREST 2544: Introduction to Silviculture and
 Management1
 FOREST 2545: Forest Management Planning1

Forestry Field Studies

Students enrolled in forestry are required to attend a specialized, six-week, summer field session in southeast Missouri. This session includes courses for 6 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 industrial forest management) 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 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.

Emphasis core requirements..... 25+

FOREST 3212: Forest Health and Protection4
 FOREST 3207: Forest Fire Control and Use2
 FOREST 3240: Wood Technology3
 FOREST 4340: Tree Physiology3
 FOREST 4360: Forest Information Systems3
 FOREST 4380: Forest Resource Management3
 FOREST 4350: Forest Economics3
 F&W 4600: Wildlife Conservation I4

Undesignated electives to total 125 hours

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.

Emphasis core requirements..... 25+
FOREST 3212: Forest Health and Protection4
FOREST 3290: Urban Forestry2
FOREST 4340: Tree Physiology3
PL SCI 2210: Ornamental Woody Plants I.....3
PL SCI 3230: Plant Propagation3
PL SCI 2254: Landscape Design3
PL SCI 3255: Landscape Maintenance3
PL SCI 4350: Nursery Crop Production and Management .4
Undesignated electives to total 125 hours

Emphasis in Industrial Forest Management

This emphasis area is intended for students interested in working in the private sector either in large corporations or for forest products entrepreneurs. The curriculum includes courses in business, economics, management and production-oriented forestry.

Graduates receive a background in forest management and logging operations, business principles and communications. They are prepared to accept decision-making positions in private-sector forest management. Courses listed are in addition to University, college, department and forestry major requirements.

Emphasis core requirements..... 21+
FOREST 3240: Wood Technology3
FOREST 4360: Forest Information Systems3
FOREST 4380: Forest Resource Management3
FOREST 4350: Forest Economics3
FOREST 4365: Logging Systems: Operations and Analyses3
AG ECON 2156: Introduction to Environmental Law OR
AG ECON 3256: Agribusiness and Biotechnology Law OR
AG ECON 3257: Rural and Agricultural Law3
FINANC 1000: Principles of Finance3
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.

Emphasis core requirements..... 27+
Individualized study program 27+
Undesignated electives to total 125 hours

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.

Major core science 47-49
NAT R 1080: Computer Applications for Natural Resources2
NAT R 1090: Beginning Geographical Information Systems (GIS)1
BIO SC 1200: Botany5
BIO SC 1500: Intro to Biological Systems5
MATH 1400: Calculus for Social & Natural Sciences I3
CHEM 1310: General Chemistry I.....2
GEOL 1320: General Chemistry II3
GEOL 1100: Principles of Geology OR
GEOL 1200: Environmental Geology.....4
SOIL 2100: Introduction to Soils3
SOIL 2106: Soil Science Lab2
PHYSICS 1210: College Physics OR (4)
ATM SC 1050: Introductory Meteorology (3) 3-4
STAT 2530: Statistical Methods in Natural Resources3
Genetics 3-4
F&W 2500: Intro to Genetics and Evolution for Conservation (3) OR
BIO SCI 2200: General Genetics (4) OR
ANSCI 3213: Genetics of Agricultural Plants and Animals (3)
Physiology8
MPP 3202: Elements of Physiology OR
AN SCI 3254: Physiology of Domestic Animals (5)
F&W 3900: Animal Population Dynamics and Management (3)
Major core professional..... 33-34
NAT R 1070: Ecology and Renewable Resource Management.....3
F&W 2100: Colloquium in Fisheries & Wildlife.....1
FOREST 2151: Dendrology4
NAT R 3110: Biometrics3
FOREST 4330: Practice of Silviculture3
NAT R 4970: Resource Practicum3
Public Speaking.....3
P R&TR 3231: Principles of Interpretive Outdoor Recreation OR
AG ED 2220: Verbal Communication in Ag, Food & Natural Resources
Economics3
AG ECON 1041: Applied Microeconomics OR
AG ECON 2070: Environmental Economics
Ecology..... 4-5
FOREST 4320: Forest Ecology (4) OR
BIO SCI 3650: General Ecology (5)3
Water Quality3
FOREST 4390: Watershed Management and Water Quality OR
F&W 3400: Natural Resource Mgmt & Water Quality Policy3
NAT R 4353: Policy and Administration OR

Sample Eight-Semester Program

Bachelor of Science in Forestry with a major in Forestry and Forest Resource Management Emphasis Area

Note: This plan requires eight semesters and one summer session to complete.

Major core summer field studies6

FOREST 2540: Forest Surveying 1

FOREST 2541: Forest Utilization.....1

FOREST 2542: Forest Measurement and Inventory.....1

FOREST 2543: Forest Ecology Field Studies.....1

FOREST 2544: Intro to Silviculture and Management.....1

FOREST 2545: Forest Management Planning.....1

Major core professional tracks (10 courses required)..... minimum 32*

Fisheries and wildlife track (minimum five courses)
Science and natural history (minimum two courses, only one from BIO SCI)

- F&W 2600: Ornithology (4)
- F&W 2700: Ichthyology (4)
- F&W 3660: Mammalogy (4)
- F&W 4100: Limnology (3-4)
- BIO SCI 3360: Herpetology (4)
- ENTOM 3710: Introductory Entomology (2) AND ENTOM 3715: Insect Diversity (1)

Management (minimum two courses)

- F&W 3600: Introduction to Conservation Biology (3)
- F&W 4300: Fisheries Management (3)
- F&W 4400: Techniques for Fisheries Management and Conservation (3)
- F&W 4600: Wildlife Conservation (4)
- F&W 4700: Wildlife Research and Management Techniques (4)

Specialty courses (minimum one course):

- F&W: (Course to be determined) (2)
- F&W: (Course to be determined) (3)
- F&W 3800: Waterfowl Biology and Management (3)
- F&W 4200: Urban Wildlife Management (3)

Forestry track (minimum five courses)

Management (minimum two courses)

- FOREST 3207: Forest Fire Control and Use (2)
- FOREST 3212: Forest Health and Protection (4)
- FOREST 3290: Urban Forestry (2)
- FOREST 4370: Wildland Fire Management (3)
- FOREST 4380: Forest Resource Management (3)

Specialty courses (minimum three courses)

- FOREST: (Course to be determined) (2)
- FOREST 3240: Wood Technology (3)
- NATR 4325: Introduction to Geographic Information Systems (3)
- FOREST 4340: Tree Physiology (3)
- FOREST 4350: Forest Economics (3)
- FOREST 4360: Forest Information Systems (3)
- FOREST 4365: Logging Systems: Operations and Analyses (3)

***Note:** If the minimum number of classes does not equal 32 credits, students must take more than the minimum number of classes required.

Minor in Forestry

A minor in forestry requires 15 credits in the forestry major (forestry requirements and emphasis areas).

Fall I

*MATH 1100 3

^BIO SC 1200..... 5

^NAT R 1080/1090 3

*ENGLSH 1000..... 3

Total 14

Fall II

^FOREST 2151 4

^FOREST 3207..... 2

*CHEM 1100 3

*MATH 1400 3

*Humanities elective 3

Total..... 15

Summer

^FOREST 2540 1

^FOREST 2541 1

^FOREST 2542 1

^FOREST 2543 1

^FOREST 2544 1

^FOREST 2545 1

Total..... 6

Fall III

^FOREST 4320..... 4

^FOREST 4360..... 3

^FOREST 4340..... 3

^NAT R 3110 3

^FOREST 3240..... 3

Total..... 16

Fall IV

^FOREST 4390..... 3

^FOREST 4380..... 3

^F & W 4600..... 4

*^Electives 3

Total..... 13

* Denotes General Education Requirement
 ^ Denotes Degree Program Requirement

Winter I:

* AG EC 1041

OR AG EC 2070..... 3

^NAT R 1070..... 3

^GEOL 1100

OR GEOL 1200..... 4

*Humanities elective 3

*State Law Course 3

Total 16

Winter II

^SOIL 2100 3

^SOIL 2106 2

*BIOCHM 2110 3

^STAT 2530..... 3

^ATM SC 1050..... 3

*Humanities elective 3

Total Hours 17

Winter III

^FOREST 4330 3

^FOREST 3212 4

^FOREST 4350 3

^NAT R 4353..... 3

*^PR&TR 3231 3

Total 16

Winter IV

^NAT R 4970..... 3

Electives 9

Total 12

FORESTRY COURSES

FOREST 1101—Topics in Forestry (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: BIO SC 1200 or PLNT S 2120 and 3130 or instructor's consent.

FOREST 2540—Forest Surveying (1). Elementary land surveying, topographic maps and their use. Introduction to GPS and GIS. Prerequisites: SOIL 2100, FOREST 2151 and FOREST 2541, 2542, 2543, 2544 and 2545 concurrently.

FOREST 2541—Forest Utilization (1). Field studies of logging and milling of timber. Prerequisites: SOIL 2100, FOREST 2151 and FOREST 2541, 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: SOIL 2100, FOREST 2151 and FOREST 2541, 2542, 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: SOIL 2100, FOREST 2151 and FOREST 2541, 2542, 2543, 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: SOIL 2100, FOREST 2151 and FOREST 2541, 2542, 2543, 2544 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: SOIL 2100, FOREST 2151 and FOREST 2541, 2542, 2543, 2544 and 2545 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: FOREST 2151.

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: FOREST 2151 or PLNT S 2210, or instructor's consent.

FOREST 3300—Problems in Forestry (cr.arr.).

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 (cr.arr.). Organized study of selected topics. Intended for upper-division and graduate students. Subjects and credit may vary from semester to semester.

FOREST 4320—Forest Ecology (4). Lectures and Labs on the interrelationships of forest vegetation and the environment. Prerequisites: FOREST 2151 or BIO SC 3210 or 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: FOREST 4320.

FOREST 4340—Tree Physiology (3). Lectures on physical and chemical phenomena involved in the functions and activities of trees. Prerequisites: BIOCHM 2110, BIO SC 1200, 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; AG EC 1041, or 2070.

FOREST 4360—Forest Information Systems (3). Applied course in the area of aerial photogrammetry, forest inventory, and simple GIS applications for developing, maintaining, and utilizing these tools in a forest management. Prerequisite: NATR 1090 or instructor's consent.

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: FOREST 2540, 2541.

FOREST 4370—Wildland Fire Management (3). Management, administration, and organization of wildland and prescribed fires and other natural and manmade disasters. Emphasis placed on organizational arrangements of incidents rather than on either strategy or tactics. Prerequisites: 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: 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: FOREST 4330 and 4350.

FOREST 4385—Agroforestry I: Theory, Practice and Adoption (4). 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: FOREST 2544 or instructor's consent.

FOREST 4994—Seniors 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.

Department of Parks, Recreation and Tourism

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ASSOCIATE PROFESSOR G. L. Hitzhusen, C. R. Vessell
ASSISTANT PROFESSOR S. T. Cole, J. M. Morgan
RESIDENT INSTRUCTION INSTRUCTOR D. R. Vaught

The Department of Parks, Recreation and Tourism is one of the most comprehensive accredited programs nationally, with approved options in three professional areas: leisure service management, natural resources recreation 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. The semester-long internship is with an 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.

Major Program Requirements - Parks, Recreation and Tourism

Satisfactory completion of 132 credits is required: a minimum of 120 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	
Mathematics	9
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	3
General electives	10-13
Professional core (required for all options)	18
P R&T 1010: Introduction to Leisure Studies.....	3
P R&T 1011: Academic Planning & Career Orient in Parks, Rec. & Tourism	1
P R&T 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: Intro to Leisure and Special Populations	2
P R&TR 4208: Administration of Leisure Services.....	3
Professional options requirements	9-12+
Leisure service management emphasis.....	9
P R&TR 4333: Park Management.....	3
P R&TR 4355: Private and Commercial Recreation Principles and Practices.....	3
P R&TR 4356: Tourism Management	3
Natural resources recreation management emphasis	12
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 4333: Park Management.....	3
Nat R 4970: Resource Practicum	3
Tourism development emphasis.....	9
P R&TR 4355: Private and Commercial Recreation.....	3
P R&TR 4356: Tourism Management.....	3
P R&TR 4357: Tourism Planning and Development.....	3
Internship	13
P R&TR 3189: Pre-internship Seminar	1
P R&TR 4940: Parks, Recreation and Tourism Internship.....	12
Professional option electives	18-21
Adviser-approved courses specific to the student's selected academic option	

Honors

Students who graduate with the following cumulative GPA values are awarded the baccalaureate degree accordingly:

3.50-3.69	<i>cum laude</i>
3.70-3.89	<i>magna cum laude</i>
3.90 +	<i>summa cum laude</i>

Sample Eight-Semester Program

Bachelor of Science degree with a major in Parks, Recreation and Tourism Natural Resources Recreation Management Option

Fall I

P R&TR 1010: Intro to Leisure Studies.....	3
P R&TR 1011: Academic Planning and Career Orientation	1
Exposition and argumentation	3
Science elective.....	5
Psychology	3
Total.....	15

Fall II

P R&TR 3220: Intro to Leisure and Special Populations.....	2
Speech communication ..	3
Science elective.....	5
Principles of Human Development	3
Humanities elective.....	3
Total	16

Winter I

P R&TR 2111: Planning and Evaluating Leisure Environments	3
College Algebra.....	3
History	3
Humanities elective	3
General elective.....	3
Total	15

Winter II

P R&TR 3210: Personnel Mgmt and Leadership in Leisure Services	3
Accounting	3
Social science elective.....	3
P R&TR 3215: Program Delivery	3
Economics elective.....	3
Total	15

Fall III

Marketing	3
Humanities elective.....	3
Professional option electives.....	6
P R&TR 3230: Intro to Parks and Recreation.....	3
Services Outdoor.....	3
Total	15

Fall IV

General Elective.....	3
Communication elective..	3
Professional option elective	3
P R&TR 4333: Park Management.....	3
P R&TR 3189: Pre-Internship Seminar	1
Total	13

Summer

P R&TR 4940: Internship	12
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Winter III

Behavioral Science elective	3
Statistics	3
P R&TR 4208: Administration of Leisure Services	3
PR&TR 3231: Principles of Interpretive Outdoor Recreation.....	3
Professional option elective	3
Total	15

Winter IV

SNR 4970: Resource Practicum.....	3
Professional option electives	6
General electives	7 - 8
Total	16-17

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, Rec. & 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: PR&TR major. Must be taken in first semester as a major. Graded on S/U basis only.

P R&TR 1091—Research & Descriptive Statistics for Parks, Recreation & Tourism (3). An introduction to research methods and techniques and descriptive statistics and their application in the field of recreation and park administration.

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 2107—Organization of Aquatic Programs (2). History; evaluation of leadership training methods, facilities, pool and beach control and management procedures. Prerequisite: sophomore standing.

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 plan, 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 2206—Introduction to Leisure Service Management (3). An introduction to public recreation in local government. Prerequisites: P R&TR 1010, 1011, 2111 or instructor's consent.

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 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: 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 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: 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.

PR&TR 4328—Leisure and Aging (3). Basic understanding of problems/needs of later ma-

turity 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.

PR&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.

PR&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.

PR&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.

PR&TR 4350—Problems in Parks, Recreation and Tourism (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.

PR&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: P R&TR 4356.

PR&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: 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.

Department of Soil, Environmental and Atmospheric Sciences

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 R. J. Miles
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 P. P. Motavalli
ADJUNCT PROFESSOR R. J. Kremer

The Department of Soil, Environmental and Atmospheric Sciences brings together students, staff and faculty working on environmental, atmospheric and soil science projects. Excellent opportunities exist for students wishing to explore these exciting fields of study.

The department offers BS, MS and PhD degrees with a major in Soil, Environmental and Atmospheric Sciences. A minor is also available.

Major Program Requirements - Soil, Environmental and Atmospheric Sciences

In addition to University graduation requirements including general education, students must meet college and school as well as department major requirements.

Major core requirements

Social and behavioral sciences3
 Economics/business elective

Math reasoning skills..... 3-5
 MATH 1400: Calculus for Social and Natural Sciences I (3)
 OR MATH 1500: Analytical Geometry and Calculus I (5)

Computer science (select from).....3
 AGRIC 1111: Computing and Information Systems I (3) OR
 NAT R 1080: Computer Applications in Natural Resources (2) AND
 NAT R 1090: Beginning GIS for Natural Resources (1)

Major capstone experience.....3
 ATM SC 4990: Weather Analysis and Forecasting OR

NAT R 4970: Natural Resources Practicum

Professional core requirements.....11

Soil and atmospheric sciences (select from).....8
 ATM SC 1050: Introduction to Meteorology (3) OR
 ATM SC 1110: Introduction to Atmospheric Science (3)
 SOIL 2100: Introduction to Soil Science (3) OR
 SOIL 3290: Soils and the Environment (3)
 ATM SCI electives (5) OR soil electives (5)

Major core quantitative skills3
 STAT 1400: Statistical Analysis (3) OR
 STAT 2530: Statistical Methods in Natural Resources (3)

Major core science requirements.....14
 CHEM 1310: General Chemistry I.....2
 CHEM 1320: General Chemistry II3
 Science electives9

Dual Degree - Geological Sciences and Soil, Environmental Science 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 Environmental Soil Science. The dual degree program requires 132 credits for graduation. For more information on the dual degree program, contact an adviser in the Department of Soil, Environmental and Atmospheric Sciences or the Department of Geological Sciences.

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 and atmospheric sciences with an emphasis in atmospheric science requires 128 credits for graduation.

Emphasis core requirements

Emphasis general requirements

Math reasoning skills5
 MATH 1500: Analytical Geometry and Calculus I

Communications6
 COMMUN 1200: Intro. to Speech and Communication3

Choose one from the following or contact adviser for other selections3
 AG JRN 3210: Fundamentals of Communications (3)
 ENGLISH 2030: Professional Writing (3)
 COMMUN 3575: Business and Professional Speech Comm. (3)
 COMMUN 3576: Persuasive Speaking (3)

Those desiring a career in broadcast meteorology should consider the following courses or contact an adviser 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)

Senior capstone experience3
 ATM SC 4990: Weather Analysis and Forecasting

Dept. of Soil, Environmental and Atmospheric Sciences

Emphasis core quantitative skills	
Statistics	3
STAT 1400: Statistical Analysis	
Quantitative electives	19
ATM SC 4800: Numerical Methods in Atmospheric Science	3
MATH 1160: Pre-calculus Mathematics	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III	3
MATH 4100: Differential Equations.....	3

Emphasis core science requirements	10
PHYSCS 2750: University Physics I.....	5
PHYSCS 2760: University Physics II.....	5

Other emphasis core requirements	25
ATM SC 4310: Atmospheric Thermodynamics	4
ATM SC 4320: Atmospheric Dynamics	4
ATM SC 4350: Mesoscale Meteorology & Dynamics.....	3
ATM SC 4510: Remote Sensing for Meteorology & Natural Resources	3
ATM SC 4550: Atmospheric Physics	3
ATM SC 4650: Long Range Forecasting	3
ATM SC 4710: Synoptic Meteorology I	1
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, or 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 natural resources. Students must complete 128 credits to graduate, including 21-23 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	
Social and behavioral sciences	6
AG EC 1011: Applied Microeconomics OR	
AG EC 1041: Applied Macroeconomics OR	
AG EC 2070: Environmental Management Strategy	3
RU SOC 1100: Rural Sociology OR	
RU SOC 1120: Population and Ecology	3

Math reasoning skills	3
MATH 1400: Calculus for Social and Natural Sciences	

Computer science	3
NAT R 1080: Computer Applications in Natural Resources	2
NAT R 1090: Beginning GIS for Natural Resources	1

Communications	9
AG ED 2220: Verbal Communication in Agriculture, Food & Natural Res.....	3
COMMUN 1200: Introduction to Speech Communication	3
P R&TR 3231: Principles of Interpretative Outdoor Recreation	3

Senior capstone experience	3
NAT R 4970: Natural Resources Practicum	

Emphasis core quantitative skills requirements	3
STAT 2530: Statistical Methods in Natural Resources	

Emphasis core science requirements

Chemistry	8-13
CHEM 1330: General Chemistry III (3)	
CHEM 2050: Organic Chemistry (5) OR	
CHEM 2100: Organic Chemistry I (3) AND	
CHEM 2120: Organic Chemistry II (3) AND	
CHEM 2140: Organic Chemistry Lab (2)	

Biological science	19
BIO SCI 1200: General Botany	5
BIO SCI 1500: Introduction to Biological Systems.....	5
BIO SCI 3650: General Ecology.....	5
FOREST 4320: Forest Ecology.....	4

Geology	4
GEOLOGY 1100: Principles of Geology (4) OR	
GEOLOGY 1200: Environmental Geology (4)	

Natural resources	6
NAT R 1070: Ecology and Renewable Resource Management.....	3
NAT R 4320: Hydrologic and Water Quality Modeling	3

Physics	4
PHYSICS 1210: College Physics	

Social sciences	6
AG EC 4356: Environmental Law OR	
NAT R 4353: Natural Resource Policy/Administration....	3
RU SOC 2010: Leadership in Today's World OR	
RU SOC 2225: Social Processes.....	3

Science	9
Suggested electives from chemistry, geology, and physics above	

Other emphasis core requirements	11
SOIL 2100: Introduction to Soils	3
SOIL 3290: Soils and the Environment	3
ATM SCI 1050: Introductory Meteorology.....	3
SOIL 2106: Introduction to Soil Science Lab.....	2

Water quality track

F&W 3400: Natural Resources and Water Quality	3
NAT R 4000: Problems in Natural Resources.....	3

Select five classes from the following list (from at least two departments)	15-17
AG S M 4420: Surface Water Management (3)	
ATM SC 4510: Remote Sensing (3)	
ATM SC 4400: Micrometeorology (3)	

- ATM SC 3600: Climates of the World (3)
- BIO EN 4150: Soil and Water Conservation Engineering (3)
- CIV ENGR 3702: Hydrology (3)
- CIV ENGR 8260: Water & Wastewater Residuals Handling, Treatment & Disp (3)
- ENTOM 4720: Aquatic Entomology (3)
- F&W 4100: Limnology (3-4)
- F&W 4800: Environmental Toxicology (3)
- F&W 8460: Wetland Ecology (3)
- FOREST 4360: Forest Information Systems (3)
- GEO 4100: Hydrogeology (3)
- GEO 4110: Karst Hydrology (3)
- SOIL 4305: Environmental Soil Physics (3)
- SOIL 4308: Soil Conservation (3)
- SOIL 4312: Environmental Soil Microbiology (3)
- SOIL 4313: Soil Fertility and Plant Nutrition (3)
- SOIL 4318: Environmental Soil Chemistry (3)
- SOIL 4320: Genesis of Soil Landscapes (4)

- CH ENG 4312: Air Pollution Control (3)
- CHEM 4280: Environmental Chemistry (3)
- CIV ENGR 3702: Hydrology (3)
- GEO 2450: Global Water Cycle (3)
- NAT R 4325: Intro to GIS (3)
- Electives 12-15

Emphasis in Environmental Soil Science

An emphasis in environmental soil science prepares students with a foundation in the biological and physical sciences for pursuing graduate studies in soil science. Courses offered in soil science emphasize the application of basic mathematics, physics, chemistry, geology and biology to understanding the function and use of soils. A major in soil and atmospheric science with an emphasis in environmental soil science requires 128 credits for graduation.

Students following this emphasis find employment as professional soil scientists in government, industry, consulting or academia. Soil science professionals have a wide range of career opportunities, including working in environmental management and monitoring, land-use planning and assessment, teaching, and conducting research for both private and government institutions. 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 and the Missouri Department of Natural Resources.

Emphasis core general requirements

Math reasoning skills5

MATH 1500: Analytical Geometry and Calculus I

Capstone Experience3

NAT R 4970: Natural Resources Practicum

Emphasis core quantitative skills requirements

Additional course in math, computer science, and

statistics or one of the following3

NAT R 4320: Hydrologic & Water Quality Modeling

NAT R 4325: Intro. to Geologic Information Systems (GIS)

NAT R 4365: GIS Applications

NAT R 4385: Landscape Ecology and GIS Analysis I

NAT R 4395: Landscape Ecology and GIS Analysis II

Emphasis core science requirements (including one course in organic or biochemistry)3

General chemistry3

CHEM 1330: General Chemistry III

Organic chemistry13

CHEM 2050: Organic Chemistry5

CHEM 2100: Organic Chemistry I3

CHEM 2120: Organic Chemistry II3

CHEM 2140: Organic Chemistry Lab2

Biochemistry3

BIOCHM 4270: Biochemistry

Biological Science8

BIO SCI 1010: General Principles and Concepts of Biology (3) AND

BIO SCI 1020: General Biology Laboratory (2) OR

BIO SCI 1200: Botany (5)

NAT R 1070: Ecology & Renewable Resource Management (3)

Geology (any course)4

Physics8

PHYSICS 1210: College Physics4

PHYSICS 1220: College Physics4

Suggested science electives9

Choose courses in biochemistry, biology, chemistry, entomology, geology, physics and plant pathology as well

Land management track

- F&W 3600: Introduction to Conservation Biology3
- NAT R 4000: Problems in Natural Resources3

Select five classes from the following list

(from at least two departments) 15-17

- 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)
- ATM SC 4520: Meteorology of the Biosphere (3)
- ATM SC 4510: Remote Sensing (3)
- BIO EN 4150: Soil and Water Conservation Engineering (3)
- BIO EN 4350: Watershed Modeling Using GIS (3)
- F&W 4800: Environmental Toxicology (3)
- F&W 8460: Wetland Ecology (3)
- FOREST 2151: Dendrology (4)
- FOREST 4330: Silviculture (3)
- FOREST 4360: Forest information Systems (3)
- FOREST 4390: Watershed Management (3)
- GEOG 3610: Physical Geography (3)
- GEOG 4710: Spatial Analysis in Geography (3)
- NAT R 4325: Introduction to GIS (3)
- P R& TR 2111: Introduction to Planning and Evaluating Leisure Environments (3)
- PLNTS 2254: Landscape Design (3)
- PLNTS 3270: Forage Crops (3)
- PLNTS 3275: Grain Crops (3)
- RU SOC 4341: Building Communities From the Grassroots (3)
- SOIL 4305: Environmental Soil Physics (3)
- SOIL 4308: Soil Conservation (3)
- SOIL 4312: Environmental Soil Microbiology (3)
- SOIL 4313: Soil Fertility and Plant Nutrition (3)
- SOIL 4318: Environmental Soil Chemistry (3)
- SOIL 4320: Genesis of Soil Landscapes (4)

Air quality track

- ATM SC 4400: Micrometeorology3
- ATM SC 4949: Internship3

Select five classes from the following list (from at least two departments)15

- ATM SC 3600: Climates of the World (3)
- ATM SC 4050: Fundamentals of Meteorology (3)
- ATM SC 4510: Remote Sensing (3)
- ATM SC 4520: Meteo of the Biosphere (3)
- CH ENG 4311: Chemodynamics (3)

as the following courses:
 CIV ENG 3702: Hydrology (3)
 FOREST 4320: Forest Ecology (3)
 PLNT S 3210: Principles of Weed Science (4)
 PLNT S 3225: Basic Plant Genetics (3)
 PLNT S 4315: Crop Physiology (3)

Other emphasis core requirements

SOIL 2100: Introduction to Soils AND.....	3
SOIL 3290: Soils and the Environment AND	3
ATM SC 1050: Introductory Meteorology	3
SOIL 2106: Introduction to Soil Science Lab	2

Recommended electives (choose courses in soils or the following).....5

BIO EN 4150: Soil Conservation Engineering (3)	
BIO EN 4250: Irrigation and Drainage Engineering (3)	
CIV ENG 3400: Fundamentals of Geotechnical Engineering (4)	
F&W 3400: Natural Resources Management & Water Quality (3)	
FOREST 4390: Watershed Management (3)	
NAT R 4320: Hydrologic and Water Quality Modeling (3)	

Credits in general, quantitative, science and soil science to complete 128 total

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 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

Math reasoning skills	3
MATH 1400: Calculus for Social and Natural Sciences	
Senior capstone experience	3
NAT R 4970: Natural Resources Practicum	

Emphasis core quantitative skills3

Additional course in math, computer science, and statistics or one of the following

NAT R 4320: Hydrologic & Water Quality Modeling	
NAT R 4325: Introduction to GIS	
NAT R 4365: GIS Applications	
NAT R 4385: Landscape Ecology and GIS Analysis I	
NAT R 4395: Landscape Ecology and GIS Analysis II	

Emphasis core science requirements (including one course in organic or biochemistry)

General chemistry	3
CHEM 1330: General Chemistry III	

Organic chemistry

CHEM 2050: Organic Chemistry (5) OR	
CHEM 2100: Organic Chemistry I (3)	
CHEM 2120: Organic Chemistry II.....	3
CHEM 2140: Organic Chemistry Lab	2

Biochemistry3

BIOCHM 2110: The Living World: Molecular Scale OR	
BIOCHM 2112: Biotechnology in Society	

Biological science.....8

PLNT S 2110: Plant Growth and Culture	3
PLNT S 2120: Plant Science Laboratory	2
NAT R 1070: Ecology & Renewable Resource Management.....	3

Geology (any course).....4

Recommended science electives9

Courses in biochemistry, biology, chemistry, entomology, geology, physics, and plant pathology as well as the following:

CIV ENG 3702: Hydrology (3)	
FOREST 4320: Forest Ecology (3)	
PLNT S 3210: Principles of Weed Sciences (4)	
PLNT S 3225: Basic Plant Genetics (3)	
PLNT S 4315: Crop Physiology (3)	

Other emphasis core requirements

SOIL 2100: Introduction to Soils	3
SOIL 3290: Soils and the Environment	3
ATM SC 1050: Introductory Meteorology	3
SOIL 2106: Introduction to Soil Science Lab	2

Recommended electives

BIO EN 4150: Soil Conservation Engineering (3)	
BIO EN 4250: Irrigation and Drainage Engineering (3)	
CIV ENG 3400: Fundamentals of Geotechnical Engineering (4)	
F&W 3400: Natural Resources Mgmt & Water Quality (3)	
FOREST 4390: Watershed Management (3)	
NAT R 4320: Hydrologic and Water Quality Modeling (3)	

Credits from general, quantitative, science and soil science to complete 128 total.

Minor in Soil and Atmospheric Sciences

A minor in soil and atmospheric sciences is offered at the undergraduate level with two option areas: atmospheric science and soil science.

The minor in soil 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
ATM SC 4520: Meteorology of the Biosphere.....	3
Additional credits in atmospheric science or in a closely related area as recommended by the minor advisor	5

A minor in soil and atmospheric sciences with an emphasis in soil science requires a minimum of 15 credits in soil science. Selection of courses should be made in consultation with an adviser in soil science. Students with the following majors often choose a minor with an emphasis in soil science: forestry, fisheries and wildlife, plant science and geological sciences. This minor also provides assistance in meeting certification as a wastewater specialist.

Sample Eight-Semester Programs

Bachelor of Science with a major in Soil, Environmental and Atmospheric Sciences with an Atmospheric Science Emphasis

Check the *Undergraduate Catalog* for prerequisites.

Fall I	Winter I
ATM SC 1050 3	ATM SC 2720 1
MATH 1500 5	MATH 1700 5
ENGLSH 1000 3	COMMUN 1200 3
History elective 3	NAT R 1080 2
History elective 3	NAT R 1090 1
	Humanities elective 3
Total..... 17	Total 15

Fall II	Winter II
MATH 2300 3	ATM SC 4550 3
Economics elective 3	COMMUN elect 3
Elective 3	MATH 4100 3
Humanities elective..... 3	PHYSCS 2760 5
PHYSCS 2750 5	STAT 1400 3
Total..... 17	Total 17

Fall III	Winter III
ATM SC 4710 4	ATM SC 4720 4
ATM SC elective..... 3	ATM SC elect 3
CHEM 1310 2	ATM SC elect 3
Humanities elective..... 3	CHEM 1320 3
SOIL 2100 3	Social science elective..... 3
Total..... 15	Total 16

Fall IV	Winter IV
ATM SC 4310 4	ATM SC 4320 4
ATM SC 4800 3	ATM SC 4990 3
ATM SC elective..... 3	ATM SC elective 3
ATM SC elective..... 3	ATM SC elective 3
Any elective 3	Any elective..... 3
Total..... 16	Total 16

Bachelor of Science with a major in Soil, Environmental and Atmospheric Sciences with an Environmental Science Emphasis

Check the *Undergraduate Catalog* for prerequisites.

Fall I	Winter I
NAT R 1080 2	CHEM 1320 3
NAT R 1090 1	ENGLSH 1000 3
CHEM 1310 2	NAT R 1070 3
GEOL 1100 4	Humanities/fine arts..... 3
History/pol sci state requirement 3	
MATH 1100 3	SOIL 2100 3
Total..... 15	SOIL 2106 2
	Total 17

Fall II	Winter II
ATM SC 1050 3	CHEM 1330 3
BIO SC 1500 5	COMMUN 1200 3
RU SOC 1100 3	AG EC 2070 3
MATH 1400 3	PHYSCS 1210 4
SOIL 3290 3	RU SOC 2225 3
Total..... 17	Total 16

Fall III
Humanities/fine arts elective 3
NAT R internship 3
FOREST 4320 4
BIO SCI 1200 5
Total..... 15

Fall IV
ATM SC 4510 3
F&W 4100 4
FOREST 4360 3
Humanities/Fine Arts
Elective 3
Soil elective 4
Total..... 17

Bachelor of Science with a major in Soil, Environmental and Atmospheric Sciences with an Environmental Soil Science Emphasis

Check the *Undergraduate Catalog* for prerequisites.

Fall I
GEOL 1100 4
History/pol sci state requirement 3
MATH 1100 3
NAT R 1080 2
NAT R 1090 1
Social science elective ... 3
Total..... 16

Fall II
ATM SC 1050 3
BIO SCI 1200 5
CHEM 1320 3
SOIL 2100 3
SOIL 2106 2
Total..... 16

Fall III
AG EC 1041 3
BIO EN 4150 3
Humanities elective..... 3
NAT R 3110 3
PHYSCS 1220 4
Total..... 16

Fall IV
Elective 3
FOREST 4320 3
SOIL 3290 3
SOIL 4305 3
Soil 4
Total..... 16

Bachelor of Science with a major in Soil, Environmental and Atmospheric Sciences with a Soil Resource Management Emphasis

Check the *Undergraduate Catalog* for prerequisites.

Fall I
AG 1111 or NAT R 1080... 3
and NAT R 1090 3

Winter III
F&W 3400 3
STAT 2530 3
SOIL 4308 3
GEOL 4100 3
NAT R 4353 3
Total 15

Winter IV
NAT R 4970 3
NAT R 4320 3
Soil elective..... 3
Soil elective..... 3
Soil elective..... 4
Total 16

Winter I
Elective..... 3
CHEM1310 2
ENGLSH 1000 3
MATH 1500 5
NAT R 1070 3
Total 16

Winter II
CHEM 1330 3
PHYSCS 1210..... 4
SOIL 4313 3
SOIL 4314 2
STAT 1400..... 3
Total 15

Winter III
CHEM 2100 5
Humanities elective 3
SOIL 4308 3
SOIL 4312 3
Science elective 3
Total 17

Winter IV
Elective..... 3
Humanities elective 3
NAT R 4970 3
NAT R 4320 3
Science elective 3
SOIL 4085 1
Total 16

Sample Eight-Semester Programs (Cont.)

CHEM 1310 2	ENGLSH 1000 3	Fall III	Winter III
GEOL 1100 4	NAT R 1070 3	SEAS elect 3	SEAS elect 3
History/pol sci state requirement 3	Social science elect 3	Humanities elective..... 3	Science elective 3
MATH 1100 3	SOIL 2100 3	NAT R 3100 3	Science elective 3
Total..... 15	Total 17	Soil elective..... 3	Soil elective 3
		Soil elective..... 3	Humanities elective 3
		Total..... 15	Total 15
Fall II	Winter II	Fall IV	Winter IV
ATM SC 1050 3	BIOCHM elect 3	SEAS elective 3	SEAS elect 3
CHEM 2050 5	COMMUN 1200 3	Science elective..... 3	Soil elective 3
ECONOM elect 3	Humanities elective 3	Soil elective..... 4	NAT R 4970 3
MATH 1400 3	PLNT S 2110 3	Soil elective..... 3	Soil elective 4
SOIL 3290..... 3	PLNT S 2120 2	Soil elective..... 3	Soil elective 3
Total..... 17	Statistics elect 3	Soil elective..... 3	Total 16
	Total 17	Total..... 16	

ATMOSPHERIC SCIENCE COURSES

ATM SC 1050—Introductory Meteorology (3). (same as Geography 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

ATMSC 1110—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 1160 or enrolled in MATH 1500 or instructor's consent.

ATMSC 1111—Introduction to Atmospheric Science Laboratory (1). An introduction to concepts: map reading and analysis, and interpretation skills that are used repeatedly in advanced atmospheric science course work. Students will learn to prepare, read, and use basic meteorological maps, charts, and instruments. Graded on A/F basis only. Prerequisite: ATM SC 1110 or instructor's consent.

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: ATM SCI 1050.

ATM SC 2792—Weather Communication (3). Student participation in daily discussions of current weather patterns and forecasts and their application to weather sensitive activities. As a writing intensive course, the student will prepare at least two papers. Prerequisite: ATM SC 1050 and ENGLSH 1000; junior or senior standing.

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, ATM SC 1050 or equivalent, and instructor's consent.

ATM SC 3600—Climates of the World (3). (same as Geography 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: 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.

ATMSC 4050—Fundamentals of Meteorology (3). Comprehensive review of fundamental concepts and major developments of modern meteorology; introduces basic physical and dynamic processes of the atmosphere. Prerequisites: MATH 1700 & PHYSCS 2750.

ATM SC 4070—Atmospheric Phenomena in Physical and Earth Science Instruction (3). Description of atmospheric processes using lecture and simple laboratory activities for science teachers. Prerequisite: Upper division or graduate student standing.

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: ATM SC 1050, 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: ATM SC 4310/7310. odd years.

ATMSC 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: ATM SC 4720/7720 and MATH 2300.

ATMSC 4400—Micrometeorology (3). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed. Prerequisite: ATM SC 4050/7050.

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: ATM SC 1050. May be repeated for credit. f.

ATMSC 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: junior standing or above, college algebra and trigonometry, CECS 1020.

ATM SC 4520—Meteorology of the Biosphere (3). (same as Geography 4520). Energy balance and mass transfer in the microenvironment of plants and animals. Effects of weather events on plant and animal production discussed. Prerequisites: MATH 1400 or equivalent; one year of college physics; or instructor's consent.

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 1700.

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: 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: ATM SC 1050, MATH 1700 (C or better), one physics course (pre or corequisite).

ATMSC 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: ATM SC 4710/7710.

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.

SOIL SCIENCES COURSES

SOIL 2100—Introduction to Soils (3). (same as Plant Science 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 2100.

SOIL 2110—Introduction to Soil Science with Lab (5). (same as Geology 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: 3 hours of Chemistry.

SOIL 4305—Environmental Soil Physics (3). 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: SOILS 100, PHYSICS 21 or equivalent. f.

SOIL 4306—Environmental Soil Physics Laboratory (2). Introduction to the methodology and equipment for measurement of soil physical properties and properties and processes. Prerequisites: concurrent or previous enrollment in SOILS 305. f.

SOIL 3085—Problems in Soil Science (cr.arr.). Special individualized research projects or readings in soil science.

SOIL 3201—Topics in Soil Science (cr.arr.). Organized study of selected topics in soil science. Intended for undergraduates.

SOIL 3280—Soil Classification (2). One four-hour lab section per week. Soil and land classification systems with heavy emphasis on the U.S. Soil Taxonomy. Study of the soil orders through the Great Group level. Students will learn to classify soils from descriptions and data. Prerequisites: Introductory soil science or instructor's consent.

SOIL 3290—Soils and the Environment (3). 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 2100, 3 hrs of chemistry, ENGLISH 1000 or instructor's

consent.

SOIL 4085—Problems in Soil Science (cr.arr.). Special individualized non-thesis research projects or readings in soil science.

SOIL 4301—Topics in Soil Science (cr.arr.). Organized study of selected topics in soil science. Intended for upper division undergraduate and graduate students.

SOIL 4305—Environmental Soil Physics (3). 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 2100, PHYSICS 1210 or equivalent.

SOIL 4306—Environmental Soil Physics Laboratory (2). Introduction to the methodology and equipment for measurement of soil physical properties and processes. Prerequisites: concurrent or previous enrollment in SOIL 4305.

SOIL 4307—Soil Physics (5). Study of the physical properties of soils and theory and methodology of selected instrumentation for the evaluation of those properties. Topics include soil solids, water, solutes, aeration, and temperature. Prerequisites: SOIL 2100, PHYSICS 2100 or equivalent.

SOIL 4308—Soil Conservation (3). Conservation of soil with respect to topsoil, soil productivity, and fertility. Prerequisite: SOIL 2100. Recommended: AG S M 4420.

SOIL 4312—Environmental Soil Microbiology (3). 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 2100, or instructor's consent.

SOIL 4313—Soil Fertility and Plant Nutrition (3). (same as Plant Science 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.

SOIL 4314—Soil Fertility and Plant Nutrition Laboratory (2). (same as Plant Science 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 4313.

SOIL 4316—Soil Microbial Ecology Methods (1). The application of modern and traditional techniques in soil microbiology to environmental and ecological concerns. Prerequisites: concurrent with SOIL 4312.

SOIL 4318—Environmental Soil Chemistry (3). Application of chemical kinetic, solubility, and mobility principles in air-soil-water systems to environmental problems. Prerequisites: SOIL 2106 and organic chemistry.

SOIL 4320—Genesis of Soil Landscape (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 4360 and Plant Science 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, PLNT S 2110 or instructor's consent.

SOIL 4388—Soil-Plant Relationships (3). Discussions of the interactions occurring in the soil-plant environment continuum as plants grow. Prerequisites: 18 hours of college level natural science or natural resource courses including introductory soil and plant science.

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.

**College of
Arts and Science**

College of Arts and Science

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
French
Geography with emphasis areas in
General Geography, Geographic Information Systems, Regional/Cultural, Physical/Environmental, Urban/Population
German
History
Interdisciplinary Studies 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
Microbiology
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
Mathematical Finance and Insurance
Physics
Statistics
Minors
Afro-Romance Literatures in Translation
Anthropology
Art
Art History and Archeology
Biological Sciences
Black Studies
Chemistry
Classics with emphasis areas in
Classical Humanities, Greek, Latin
Computer Science
East Asian Studies
Economics
English
English Writing
Film Studies
French
Geographic Information Systems
Geography
Geological Sciences
German
History
Italian Area Studies
Latin American Studies
Leadership and Public Service
Linguistics
Mathematics
Military Science
Music
Peace Studies
Philosophy
Physics
Political Sciences
Psychology
Religious Studies
Romance Literatures in Translation
Russian
Russian Area Studies
Sociology
South Asian Studies
Spanish
Statistics
Theatre
Woman Studies
Certificates
General Honors
Environmental Studies
Geographical Information Systems

ADMINISTRATION

Richard Schwartz, Dean
Michael J. O'Brien, Associate 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. The School of Fine Arts, 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 advisers 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 and science 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), ENGLISH 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. Some departments may further restrict this type of credit for both majors and non-majors in arts and science.
- A maximum of 10 credits for introductory biology, which includes BIO SCI 1010, 1020, 1030, 1100, 1200 and 1500, may apply toward graduation.
- A maximum of 5 credits for BIO SCI 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 either of the following courses may apply toward graduation: SSC 1150, AGC 1115 and AG EC 3285.
- 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: C & I 1210; 4550; AGRIC1111; CS 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, which includes all art courses except ART 1020, 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 courses may apply toward graduation. MU courses that are counted as PE classes are C & I 1300, 1310 and 1320.
- A maximum of 3 credits for orientation courses may apply toward graduation. These include ED LPA 3100, HDFS1100, HTH PR 1000, OC THR 1000, PH THR 1000, RS THR 1000, MANGMT 1010, IS & LT 1110, NURSE 1000, PR & TR 1011, GN HON 1000, AGRIC 1115 (1 credit maximum), SSC 1150 (1 credit maximum), CH ENG 1000, ECE 1000, SOC WK 1150, TDP 1100, RA SCI 1000, INT DSC 1100 (Freshman Interest Group proseminar) E & C PSY 2100, E & C PSY 3085 (Transitions- Career Planning Section) and transfer courses evaluated as MISC.

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.

- **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. This option does not apply to students whose native language is French.
- **German:** Apply to the Department of German and Russian Studies, 448 General Classroom Building, 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, 420 General Classroom Building.

- **Mathematics:** Apply to the Department of Mathematics, 202 Math Sciences Building, for an examination to earn 3 credits in College Algebra.
- **Music:** Apply to the School of Music, 140 Fine Arts Building, for credit by examination for theory courses and various applied and ensemble music courses by audition.
- **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 General Classroom Building, 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 are not ordinarily permitted to enroll at MU and another institution simultaneously, with the exception of students who qualify for the official MMACU and the Columbia College agreements. (See information in the front section of this catalog.)

Graduation with Latin Honors

Regulations of the college regarding the awarding of Latin honors require that the final 60 credits are completed in course work on the MU campus for a letter grade (A-F). 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 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 adviser 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 degrees earned. For students who have already completed an associate degree or a bachelor's degree, course work will be evaluated on a course-by-course basis.

Basic Skills

MATH 1100 or 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 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

- For the BA and BS degree: 12-13 credits or comparable proficiency required.
- 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.
- For the BM degree: see the Music Department information in the catalog for details on the foreign language requirement.

Breadth of Study

Breadth of Study requirements include course work distributed among the following categories: biological, physical and mathematical sciences; behavioral sciences; 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 BA and BS 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.

- Must include course work from at least two different areas.

12 credits required for the BA degree.

- 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.
- Students earning a minor may use courses from their minor department to meet breadth requirements, but not the specific courses used in the minor.
- 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 list of MU courses approved to meet Arts and Science Foundation Requirements, available

in 107 Lowry Hall and on the web site of the College of Arts and Science (<http://coas.missouri.edu>).

- Courses used to meet breadth requirements may also be used to meet depth requirements (see below).
- Problems, research and readings courses may not be used for breadth requirements.

Depth of Study

Depth of Study requirements include course work numbered 2000 or above, distributed as follows:

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.

BFA in Art and 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 one of the following two breadth categories: biological, physical and mathematical sciences; humanities and fine arts.

BM with a major in Music

- 3 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.

Parameters for meeting Depth of Study requirements:

- All courses must be numbered 2000 or above.
- At least 3 credits must be completed on the MU campus.
- 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.
- 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 majors in Art, the BA or BS with majors in Biology, or the BA with majors in Chemistry, Geological Science, Mathematics, Physics, or Statistics.
- Students earning a minor may use courses from their minor department to meet depth requirements, but not the specific courses used in the minor.
- Non-Arts and Science courses may not be used.
- Courses must be chosen from the list of MU courses approved to meet Arts and Science Foundation Requirements, available in 107 Lowry Hall and on the web site of the College of Arts and Science (<http://coas.missouri.edu>).
- Courses used to meet depth requirements may also be used to meet breadth requirements.
- Problems, research and readings 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 55 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.

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

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.

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 for both degrees. Each candidate for a dual degree is assigned advisers as appropriate.

The faculty of the college has approved the following guidelines for students wishing to obtain a second undergraduate degree, in addition to any University requirements that may apply:

- Unless both degrees are earned in successive semesters at MU, 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 term

and cumulative GPAs no less than 2.0.

- The student must submit a graduation plan in consultation with an adviser 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, Interdisciplinary Studies or International 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 adviser in that department. Students who have not yet decided on a major are assigned to professional advisers 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. Information is also available on the web site of the Office of the University Registrar under Academic Guides. 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 (ROTC)
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umcasafrotc@missouri.edu

Air Force Reserve Officer Training Corps (AFROTC) offers a number of opportunities for students who wish to become commissioned officers in the U.S. Air Force. Students who wish to enter AFROTC must be a U.S. citizen, be in good physical condition, possess good moral character and meet other various academic requirements. Job availability on completion of a degree includes pilot, navigator, intelligence officer, non-rated operations, and various technical and non-technical positions of responsibility. Opportunities in the Air Force are also excellent for students in health services and legal professions. Jobs are available in more than 30 non-technical career fields emphasizing backgrounds in personnel management, business, accounting, political science, criminal justice, and numerous other academic majors.

The AFROTC unit at MU is organized as a cadet wing with group and squadron staffs and several flights. Freshman and sophomore cadets are assigned to one of the flights. They receive instruction from Professional Officer Course (POC) cadets in basic military customs and courtesies, drill movements and many other facets of Air Force operations. Additionally, they are offered the opportunity to visit Air Force bases and discuss career opportunities with active duty Air Force members. Junior

and senior cadets are assigned to and rotated through various leadership positions, gaining valuable experience in leadership and management procedures.

Program Requirements

The curriculum consists of both classroom instruction and a leadership laboratory, in which students receive leadership experience. No major is available in Aerospace Studies.

To enroll in the General Military Course (GMC), students in a four-year program must register for AERO 1100: The Foundations of the United States Air Force (2).

Students in the three-year program may enroll concurrently in the freshman and sophomore classes, AERO 1100: The Foundations of the United States Air Force, and AERO 2100: The Evolution of USAF Air and Space Power (2).

Two-year students complete only the last two years of AFROTC but must attend a six-week field training session instead of the four-week session attended by the GMC students. Non-scholarship students are not obligated to military service until entry into the POC, their junior year.

Students usually attend summer field training prior to their junior year, before elevation into the POC. Entrance into the POC, which is the last two years of AFROTC studies, is based on an extensive evaluation and selection process during the student's sophomore year.

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,

AEROSPACE 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 the USAF Air and Space Power (2). Continues the transition from cadet to officer candidate. Expands leadership topics through the use of group leadership problems. 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 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.

Department of Anthropology

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Advising Contact

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FACULTY

PROFESSOR R. L. Lyman, M. J. Obrien, D. M. Pearsall,
L. Sattenspiel
ASSOCIATE PROFESSOR C. V. Ward
ASSISTANT PROFESSOR C. T. Palmer, R. L. Wadley,
D. J. Wescott

Note: All permanent faculty members in the department serve as undergraduate advisers 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
- Archaeological anthropology; 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 all four 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 anthropologi-

cal 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://www.missouri.edu/~anthwww/facilities.html>.

These special facilities include:

- The Museum of Anthropology and Museum Support Center
- The American Archaeology Division (AAD)
- The Anthropology Library
- The Human Skeletal Remains Identification Laboratory
- The Palaeoethnobotany 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 each of the four subfields of anthropology
- To acquire advanced knowledge in one or more of the four subfields
- To acquire an awareness of the interrelationship of the four 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 (18 credits):

ANTHRO 2020: (or ANTHRO 2021 and 2022) Fundamentals of Archaeology with lab	4
ANTHRO 2030: Cultural Anthropology	3
ANTHRO 2040: Anthropological Linguistics	3
ANTHRO 2050: (or ANTHRO 2051 and 2052) Introduction to Biological Anthropology with lab	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 four additional Anthropology courses (at least 12 credits) are required for the major. These courses must be distributed as follows:

Topical/theoretical	2 courses
Area	1 course
Methods	1 course

Explanation about the distribution of departmental courses among these three categories is available at <http://www.missouri.edu/~anthwww/programs/undergrad/coursedistrib.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 adviser. With the consent of the student's adviser 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, 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 or for ANTHRO 4950H: Honors Research. 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 adviser 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, 2050, 2021/2022, 2020, 2030, 2040 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 adviser, 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 adviser, 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 library. 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.

Sample Eight-Semester Program

Bachelor of Arts with a major in Anthropology

Fall I

^ANTHRO 2030	3
*ENGLSH 1000.....	3
*POL SC 1100	3
*Foreign language 1.....	5
Total	14

Fall II

^ANTHRO 2040	3
*Foreign language 3.....	3
*Science course.....	3
*Social science course ...	3
*Humanities course.....	3
Total.....	15

Fall III

^Anthropology topics course	3
^Anthropology elective course	3
*Science course (if needed)	3
*Social science (upper level)	3
*Humanities course.....	3
Total.....	15

Fall IV

^Anthropology topical course	3
^Related field course (recommended)	3
Electives	9
Total.....	15

Winter I

^ANTHRO 2020	4
*MATH 1100 OR 1120 ...	3
*Behavioral science course .	3
*Foreign language 2	5
Total	15

Winter II

^ANTHRO 2050	5
*Laboratory science	2
*Behavioral science (upper level).....	3
*Humanities course	3
Elective.....	3
Total	16

Winter III

^Anthropology methods course	1-6
*WI course	3
*Humanities (upper level) ...	3
^Related field course (recommended).....	3
Elective.....	3
Total	13-18

Winter IV

^*Capstone Seminar in Anthropology (WI).....	3
^Related field course (recommended).....	3
Electives	9-11
Total	15-17

*Course meets University general education and/or campus graduation requirements

^Course meets degree program requirements

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 (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 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 advanced. May be repeated to a maximum of 9 hours.

ANTHRO 1002—Topics in Anthropology - Biological/Physical/Mathematics (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 advanced. 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 advanced. 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 advanced. 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 advanced. May be repeated to a maximum of 9 hours.

ANTHRO 1060—Human Language (3). (same as LINGST 1060,C S&D 1060 and ENGLSH 1060). General introduction to various aspects of linguistic study. Elemen-

tary analysis of language, data with some attention to application of linguistic study to other disciplines.

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 advanced. 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 advanced. 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 advanced. 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 advanced. 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 advanced. 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 or instructor's consent. No credit for both 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 or instructor's consent. No credit for both 2020 and 2021.

ANTHRO 2022—Fundamentals of Archaeology Lab (1). Involves hands-on experience with archaeological materials. Prerequisite: must have completed ANTHRO 2021. No credit given to students who have taken Anthropology 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 or instructor's consent.

ANTHRO 2040—Anthropological Linguistics (3). (same as 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 or instructor's consent.

ANTHRO 2050—Introduction to Biological Anthropology with Laboratory (5). This course is 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 1100/1200 with a grade in the C range or higher and sophomore standing or instructor's consent. No credit for both ANTHRO 2050 and 2051. Satisfies A&S General Education requirement in Biological Sciences.

ANTHRO 2051—Introduction to Biological Anthropology (3). This course is 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 or instructor's consent. No credit for both ANTHRO 2050 and 2051. Satisfies A&S General Education 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: ANTHRO 2050 or equivalent and MATH 1100/1120 with a grade in the C range or higher. Credit not given for students who have taken ANTHRO 2051. Satisfies A&S General Education requirement in Biological Sciences.

ANTHRO 2100—Indigenous Religions (3). (same as Religious Studies 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. Prerequisite: sophomore standing or instructor's consent.

ANTHRO 2150—Introduction to Folklore (3). (same as English 2700). Introduces the study of folklore, including the methodology, approaches and genres of folklore. Prerequisite: ENGLISH 1000.

ANTHRO 2200—World Archaeology (3). Major events in cultural evolution such as control of fire, invention of ceramic and metallurgical technologies, colonization of Australia and Americas, development of agriculture, and emergence of complex sociopolitical organization are described in all regions of the world. Prerequisite: sophomore standing.

ANTHRO 2300—Anthropology of War (3). (same as PEA ST 2300). 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 or instructor's consent.

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 or instructor's consent.

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 or instructor's consent. Satisfies A&S General Education 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.

ANTHRO 2580—Evolution of Human Sexuality (3). Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory. Prerequisites: sophomore standing or instructor's consent.

ANTHRO 2800—Introduction to Field Methods in Archaeology (1-6). Techniques of field research and laboratory analysis through field experience. Prerequisite: sophomore standing.

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 3002—Topics in Anthropology-Biological/Physical/Mathematics (1-3). 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. Prerequisite: instructor's consent.

ANTHRO 3003—Topics in Anthropology - Behavioral Science (1-3). 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. Prerequisite: instructor's consent.

ANTHRO 3004—Topics in Anthropology - Social Science (1-3). 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. Prerequisite: instructor's consent.

ANTHRO 3005—Topics in Anthropology - Humanities (1-3). 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. Prerequisite: instructor's consent.

ANTHRO 3150—American Folklore (3). (same as ENGLSH 3150). 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 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: ANTHRO 2100/REL ST 2100 or sophomore standing.

ANTHRO 3470—Culture as Communication (3). (same as COMMUN 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics as the impact of values, languages, and non-verbal behavior on intercultural interaction. Prerequisites: junior or senior standing.

ANTHRO 3540—Exploration in Human Biology (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 ANTHRO or BIO SCI. Satisfies A&S General Education 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. Prerequisites: ANTHRO 2030 or instructor's consent.

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 archeology, 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. Prerequisites: 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. Prerequisites: 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. Prerequisite: junior standing or instructor's consent.

ANTHRO 4001—Topics in Anthropology-General (3). Problems, topics, issues, or review of research; experimental development of new contact areas. Specific content varies depending on needs of faculty or students and will be announced in advance. Prerequisite: instructor's consent.

ANTHRO 4150—Special Themes in Folklore (3). (same as ENGLSH 4150). 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. Prerequisite: instructor's consent for repetition.

ANTHRO 4160—Themes in Africana Folklore (3). (same as ENGLSH 4710 and BL STU 4710). Intensive study in a selected area of Africana Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. 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: ANTHRO 2020 or 20210 (for nonmajors, GEOL 2400 or equivalent).

ANTHRO 4240—History of Archaeology (3). Growth of archaeology worldwide since AD 1700. Emphasis include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline. Prerequisites: ANTHRO 2020 or 2021 or instructor's consent.

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: 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). The processes of culture: innovation, diffusion, integration, patterning, acculturation and others, examined in literate and non-literate contexts. Prerequisites: 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. Prerequisites: PSYCH 1000 or instructor's consent.

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 4400—Language and Culture (3). (same as LINGST 4400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis. Prerequisite: ANTHRO 2040/LINGST 2040 or equivalent.

ANTHRO 4412—Gender, Language, and Communication (3). (same as COMMUN 4412 and LINGST 4410). Relationship among gender, language, nonverbal communication, and culture. Prerequisite: junior standing or departmental consent.

ANTHRO 4420—Historical Linguistics (3). (same as 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: ANTHRO 2050/2052 or instructor's consent. Satisfies A&S General Education 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: ANTHRO 2050 or BIO SCI 1002. Satisfies A&S General Education requirement in Biological Sciences.

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: ANTHRO 2020/2021 or instructors consent.

ANTHRO 4650—Prehistory of Mesoamerica (3). Covers the 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: ANTHRO 2020/2021, or junior/senior standing.

ANTHRO 4700—Old World Prehistory (3). Beginnings of culture in the old world through the early Iron Age. Prerequisites: 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). Survey of the 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 4800—Field Methods in Archaeology (1-8). Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials. Prerequisites: ANTHRO 2800 or equivalent, and instructor's consent.

ANTHRO 4810—Paleoethnobotany (3). Application of ethnobotanical approaches in archaeology; techniques to recover and inter-

pret 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 zoo archaeological sampling, taphonomy study of paleoecology, and recognition of domestication. Prerequisites: junior/senior standing 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: 3 hours Archaeology or Anthropology. Protective handgear and eyewear required.

ANTHRO 4830—Ethnographic Methods (3). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials. Prerequisites: 9 hours ANTHRO or instructor's consent.

ANTHRO 4850—Practical Phonetics for Fieldwork (3). (same as 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 LINGST 4860). Problems in analyzing data from various languages. Prerequisites: introductory course in LINGST or instructor's consent.

ANTHRO 4870—Field Methods in Linguistics (4). (same as LINGST 4870). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language. Prerequisites: 6 hours LINGST, graduate standing and 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 1100/1120 and junior/senior standing or instructor's consent.

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 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: ANTHRO 4890 or equivalent background in osteology and/or anatomy. Satisfies A&S General Education requirement in Biological Sciences.

ANTHRO 4940—Internship in Anthropology (3-6). Students will work for a semester in a community-based organization (NGO, non-profit, 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: ANTHRO major and senior standing, or instructor's consent.

Department of Art

J. Brueggenjohann, Chair
 School of Fine Arts in the College of Arts and Science
 A126 Fine Arts Center
 (573) 882-3555

FACULTY

PROFESSOR J. D. Berneche, J. M. Brueggenjohann,
 B. B. Cameron, R. B. Clarke, A. W. Hoard
ASSOCIATE PROFESSOR J. H. Calvin, W. A. Hawk,
 D. L. Huelsbergen, J. Stealey
ASSISTANT PROFESSOR D. S. East, E. E. Landes,
 L. Leong, V. E. Wascovich

The Department of Art, in the School of Fine Arts, offers studio courses in drawing, painting, ceramics, sculpture, printmaking, fibers, photography and graphic design.

The BA degree is intended for the student desiring a liberal education with a concentration in art, while the BFA provides for more professional training in the studio area. The BFA is the required undergraduate degree for admission to most Master of Fine Arts programs. The Department of Art reserves the right to retain selective examples of student work for its collection.

Students who wish to teach on the elementary and secondary 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.

The department offers BA, BFA and MFA degrees with a major in Art. A minor is also available.

Major Program Requirements - 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.

BA students are required to take 9 credits in art history, and at least two art history courses must be numbered 2000 or above. The last two full semesters and at least 35 credits in courses numbered 3000 or above must be completed on the MU Campus.

In addition students must complete all College of Arts and Sciences and University graduation requirements, including University general education.

Major core requirements

Art foundations

ART 1030: Basic 2D Design	3
ART 1040: Basic 3D Design	3
ART 1050: Beginning Drawing	3

Art core requirements

ART 2500: Beginning Painting or ART 2510: Beginning Watercolor	3
ART 2800: Beginning Sculpture	3

ART 2100: Beginning Ceramics or ART 2300: Beginning Fibers	3
ART 4970: Senior Seminar (WI Capstone).....	3
ART studio electives	up to 18 (may include 15 credits in one media area)
AR H A	9

Major Program Requirements – 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 adviser. Students are encouraged to meet with the adviser to plan a program of studio with focus in a particular media area.

BFA students will take 60 to 70 hours in studio art with 15 of those hours, minimum, in a specific media area and 12 hours in Art History. At least two Art History courses must be numbered 2000 or above. A maximum number of 70 hours of course work may be taken in studio art. Thirty-five (35) credit hours must be completed at MU. Thirty (30) hours of the 120 needed to graduate must be numbered 3000 or above.

In addition students must complete all College of Arts and Sciences and University graduation requirements, including University general education.

Major core requirements:

Art foundations

ART 1030: Basic 2D Design	3
ART 1040: Basic 3D Design	3
ART 1050: Beginning Drawing.....	3

Art core requirements

Drawing.....	6
ART 2500: Beginning Painting or ART 2510: Beginning Watercolor	3
ART 2800: Beginning Sculpture	3
Craft	
Ceramics and/or Fibers.....	6
Print Media	
Photography and/or Printmaking	6
ART 4970: Senior Seminar (WI Capstone).....	3
ART media area electives	15 minimum
ART studio electives	up to 19
AR H A	12

Minor in Art

The minor in art consists of a total of 18 credits, including 15 credits in studio art and 3 credits from the Department of Art History and Archaeology. Six credits must be above 2000-level studio art classes.

Sample Eight-Semester Programs

Bachelor of Arts degree with a major in Art

This outline is only suggested, please see your adviser for a more personalized plan. Check the *Undergraduate Catalog* for prerequisites.

Fall I

Art Foundations	3
MATH 1100 or ENGLSH 1000.....	3
Humanities	3
American history or govt	3
Total.....	12

Fall II

Art foundations course... 3	
Foreign language..... 5	
AR H A 1110..... 3	
Social science course 3	
Humanities course..... 3	
Total.....	17

Fall III

Art core requirement..... 3	
Art studio elective..... 3	
AR H A course (upper level)	3
Biological/physical/math science course (MRP) 3	
Humanities course..... 3	
Total.....	15

Fall IV

Art studio elective..... 3	
Art studio elective..... 3	
AR HA course (upper level, WI)	3
General elective	3
General elective	3
Humanities (upper level)	3
Total.....	18

Winter I

Art foundations	3
Foreign language	5
MATH 1100 or ENGLSH 1000.....	3
Behavioral science	3
Total	14

Winter II

Foreign language	3
Art core requirement..... 3	
Biological/physical/math science course (lab) ...3	
Behavioral science (upper level)..... 3	
Humanities course	3
Total	15

Winter III

Art core requirement..... 3	
Art studio elective..... 3	
Biological/physical/math science course..... 3	
Social science course (upper level)	3
General elective..... 3	
Total	15

Winter IV

Art studio elective..... 3	
ART 4970: Senior Seminar (capstone, WI).....3	
General elective..... 3	
General (or art) elective... 3	
General elective..... 3	
Total	15
Degree Total	121

Bachelor of Fine Arts

This outline is only suggested, please see your adviser for a more personalized plan. Check the *Undergraduate Catalog* for prerequisites.

Fall I

Art foundations course... 3	
Art foundations course... 3	
MATH 1110 or ENGLSH 1000.....	3
American history or govt... 3	
Total.....	12

Fall II

Art Media Area Course... 3	
Art core requirement..... 3	
AR H A 1110..... 3	
Biological/physical/math science course (lab)..... 3	
Humanities course..... 3	
Total.....	15

Fall III

Art media area course 3	
Art core requirement..... 3	
Art core requirement..... 3	
Biological/physical/math science course	3
AR H A course (upper level)	3
Total	15

Fall IV

Art media area course 3	
Art Core Requirement.... 3	
Art studio elective..... 3	
General elective	3
General elective	3
Humanities (upper level) 3	
Total.....	18

Winter I

Art foundations course 3	
Art core requirement..... 3	
MATH 1110 or ENGLSH 1000.....	3
Behavioral science course . 3	
Humanities course	3
Total	15

Winter II

Art media area course..... 3	
Art core requirement..... 3	
Biological/physical/math science course (MRP)..... 3	
Behavioral or social science course (upper level)	3
AR H A 1120	3
Total	15

Winter III

Art media area course..... 3	
Art core requirement..... 3	
Art core requirement..... 3	
General elective..... 3	
AR H A course (upper level (WA)	3
Total	15

Winter IV

Art studio elective..... 3	
Art studio elective..... 3	
ART 4970 Senior Seminar (capstone, WI)	3
General elective..... 3	
General elective..... 3	
Total	15
Degree Total	120

DEPARTMENT OF ART COURSES

ART-CERAMICS

ART 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 3100—Intermediate Ceramics (3). Continuation of Art-Ceramics 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 4100—Advanced Ceramics (3). Continuation of Art-Ceramics 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 4110—Ceramics Sculpture (3). Sculptural forms constructed of slabs, coils and wheel-thrown elements. Payment of expendable materials expense is required. Prerequisite: ART 4100. May be repeated to 15 hours maximum.

ART 4185—Problems in Ceramics (cr.arr.). Graduate level work in ceramics. Prerequisites: departmental consent.

ART-DRAWING

ART 1050—Drawing I (3). Basic practice in fundamentals of drawing. Various approaches to drawing problems in black and white. Studies from the human figure and still life. Expendable materials fee required.

ART 2200—Drawing II (3). Continuation of Art-Drawing 1050. Emphasizes drawing the human figure in a variety of black and white media. Prerequisite: ART 1050. Expendable materials fee required.

ART 2210—Beginning Color Drawing (3). Theory and practice in the use of pastel working from still life, landscape, and portrait. Expendable materials fee required. Prerequisites: ART 1010 and 1050.

ART 3200—Drawing III (3). Continuation of Art-Drawing 2200. Emphasis in basic anatomical knowledge in drawing the human figure. Expendable materials fee required. Prerequisite: ART 2200.

ART 3210—Intermediate Color Drawing (3). Continuation of Art-Drawing 2210 with emphasis on design and organization. Prerequisite: ART 2210. Expendable materials fee required.

ART 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: sophomore standing and two semesters of drawing.

ART 4200—Drawing IV (3). Continuation of Art-Drawing 3200, with increased emphasis on

expressive drawing and composition. Repeatable to 15 hours. Expendable materials fee required. Prerequisite: ART 3200.

ART 4210—Advanced Color Drawing (3). Continuation of Art-Drawing 3210 with emphasis on the expressive properties of color in figural compositions. Prerequisites: ART 3210 or instructor's consent. Repeatable to 15 hours. Expendable materials fee required

ART 4220—Advanced Anatomical Drawing (3). Continuation of Art-Drawing 3220, Anatomical Drawing, with and emphasis on formal analysis of the figure in drawing based on superficial and deep anatomical structure. Prerequisites: ART 3200 or 3220 and graduate standing.

ART 4285—Problems in Drawing (cr.arr.). Prerequisites: departmental consent.

ART-FIBERS

ART 2300—Beginning Fibers (3). Exploration of various fiber and media including papermaking, weaving, surface design and sculptural techniques. Expendable materials fee required. Prerequisite: ART 1030.

ART 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 2300.

ART 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 3300 or approved equivalents. May repeat to 15 hours maximum.

ART 4385—Problems in Fibers (cr.arr.). Prerequisites: departmental consent.

ART-GENERAL

ART 1010—Introduction to Art (3). Basic practice in drawing, painting, design. Exploratory course for beginners. Non-majors only. Prerequisite to all other studio courses except Art-Drawing 1050.

ART 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 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 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 2000—Color Theory (3). An investi-

gation of various color systems and their application to art. Prerequisites: ART 1030 or its equivalent, and sophomore standing.

ART 2010—Topics in Art (1-3). Special studies in studio art; covers subjects not included in regularly offered courses. Prerequisite: instructor's consent.

ART 2020—International Summer Study Abroad (3). 4 week summer session. Students will produce original art work, keep a written journal, and participate in a variety of activities. Prerequisites: ART 1050 and instructor's consent, Studio Art Class Abroad.

ART 3020—International Summer Study Abroad (3). Four-week summer session. Advanced study in chosen medium. Emphasis on individual creative expression. Prerequisites: graduate standing or instructor's consent of the Studio Art Class Abroad.

ART 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-GRAPHIC DESIGN

ART 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 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 1400, and a basic understanding of the Macintosh computer.

ART 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 1030, 1040 and 1050.

ART 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 2410.

ART 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 1030 and 1050 or instructor's consent.

ART 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 2420 and successful completion of the graphic design portfolio review.

ART 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 3410.

ART 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 2430.

ART 3450—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. Expendable materials fee. Graded on A/F basis only. Prerequisites: ART 1030, 1040, 1050, 2200.

ART 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 3420.

ART 4450—Advanced Illustration (3). Directional research, study and critical analysis in graphic design. Emphasis is 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 course a minimum of two times. May be repeated to 15 hours maximum. Payment of expendable materials fee required. Prerequisite: ART 3450.

ART 4485—Problems in Graphic Design (cr.arr.). Prerequisite: ART 4410, and departmental consent.

ART 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-PAINTING

ART 2500—Beginning Painting (3). Basic ex-

ploration of oil and acrylic painting techniques and methods. Still life, landscape and figure. Prerequisites: ART 1030 and one semester of drawing. Expendable materials fee required.

ART 2510—Beginning Water Color (3). Theory, practice of painting in water color from still life, landscape, figure. Prerequisites: ART 1050. Expendable materials fee required.

ART 3500—Intermediate Painting (3). Continuation of Art-Painting 2500 with the addition of portrait painting. Prerequisite: ART 2500. Expendable materials fee required.

ART 3510—Intermediate Water Color (3). Continuation of Art-Watercolor 2510, Beginning Watercolor, theory and practice of painting in watercolor. Expendable materials fee required. Prerequisite: ART 2510.

ART 4500—Advanced Painting (3). Advanced problems in oil and acrylic painting. Prerequisite: ART 3500. May be repeated to 15 hours maximum. Expendable materials fee required. f,w,s.

ART 4510—Advanced Water Color (3). Advanced problems in water color. Prerequisite: ART 3510. May repeat to 15 hours maximum. Expendable materials fee required.

ART 4585—Problems in Painting (cr.arr.). Prerequisites: ART 4500 and departmental consent.

ART-PHOTOGRAPHY

ART 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 1030, 1040, 1050 and instructor's consent required.

ART 2610—Photography: Field Sessions (1-3). On location, hands on experience in photography of landscape specific subjects. Unless otherwise indicated, all camera formats and black-white, color slide, or color print film are appropriate. Consult course/workshop announcements for specifics regarding locations, lodging arrangements, materials, whether or not a darkroom will be available and follow-up critiques. Required prerequisites will be indicated for each workshop.

ART 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 2600 or approved equivalent and consent required.

ART 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 2600 and 3600

or approved equivalents, and consent required. May repeat to 15 hours maximum.

ART 4685—Problems in Photography (cr.arr.). Supervised research in creative photography. Prerequisite: ART 4410 and departmental consent.

ART-PRINTMAKING

ART 2700—Relief Printmaking (3). Relief printing techniques in color and black and white; includes woodcut, mixed media. Prerequisites: ART 1030 and 2 semesters of drawing. May be repeated to six hours maximum. Expendable materials fee required.

ART 2710—Intaglio Printmaking (3). Intaglio printing techniques, including etching, engraving and aquatint. Prerequisites: ART 1030 and 2 semesters of drawing. May repeat to six hours maximum. Expendable materials fee required.

ART 2720—Lithography (3). Lithographic printing techniques from stone and metal plates. Prerequisite: ART 1030 and two semesters of drawing. May repeat to 6 hours maximum. Expendable materials fee required.

ART 2730—Serigraphy (3). Introduces methods, materials, and techniques of printmaking with the silk screen. Payment of expendable materials expense is required. Prerequisites: ART 1030 and one semester of Drawing. May repeat to 6 hours maximum.

ART 3700—Intermediate Printmaking (3). Continuing work in litho, intaglio or relief printmaking or serigraphy. Students must complete beginning level course first. Prerequisites: ART 2700, 2710, 2720, or 2730 and instructor's consent.

ART 4700—Advanced Printmaking (3). Advanced study in relief, intaglio or lithographic printmaking with emphasis on individual creative expression. Prerequisites: ART 2700, 2710 and 2720 and consent required. May repeat to 15 hours maximum. Expendable materials fee required.

ART 4785—Problems in Printmaking (cr.arr.). Prerequisites: departmental consent.

ART-PROBLEMS

ART 3010—Topics in Art (4). Special studies in studio art; covers subjects not included in regularly offered courses. Prerequisites: junior standing and instructor's consent.

ART 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 4997—Honors Studio Research (3). Honors Studio Research is a designated honors project designed to prepare B.F.A. students for application into M.F.A. graduate programs, professional studio careers and other options within the arts community. To this end students will work on professional portfolio development, the completion of a one or two personal exhibition of their artwork and a written thesis in support of this exhibition. Students will be

asked to develop outside research projects to develop professional practices and post-undergraduate opportunities. Prerequisite: B.F.A. senior, instructor's consent; GPA 3.5 or greater in major, successful portfolio review, appointed faculty mentor and committee. Graded on A/F basis only.

ART-SCULPTURE

ART 2800—Beginning Sculpture (3). Principles of sculptural organization, figure studies, modeling techniques, simple plaster casting. Payment of expendable materials expense is required. Prerequisites: ART 1030 or 2200.

ART 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 2200 or instructor's consent.

ART 3800—Intermediate Sculpture (3). Continuation of Art-Sculpture 2800. Introduction to carving techniques. Payment of expendable materials expense is required. Prerequisite: ART 2800.

ART 3810—Experimental Media II (3). Continuation of Art 2810. Prerequisite: ART 2810.

ART 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 3800, may repeat to 15 hours maximum.

ART 4810—Experimental Media III (3). Continuation of Art 3810. Prerequisite: ART 3810. May repeat to 15 hours maximum.

ART 4885—Problems in Sculpture (cr.arr.). Prerequisites: departmental consent.

Department of Art History and Archaeology

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FACULTY

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ASSOCIATE PROFESSOR K. L. Eggener, J. R. Klein, S. H. Langdon, A. R. Stanton
ASSISTANT PROFESSOR K. A. Schwain
PROFESSOR EMERITUS W. R. Biers, H. W. Marshall, O. Overby

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 (3) and 1120 (3): History of Western Art I and II OR
 the General Honors Humanities sequence (12)..... 6-12
 AR H A 4970: Capstone in Art History and Archaeology ... 1
 At least two 4000-level courses (after appropriate prerequisites), each in a different field.....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 (3) and 1120 (3): History of Western Art I and II OR
 the General Honors Humanities sequence (12)..... 6-12
 AR H A 4970: Capstone in Art History and Archaeology ... 1
 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), each in a different field6

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 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

AR H A 1110 (3) and AR H A 1120 (3): History of Western Art I and II, OR the General Honors Humanities sequence 2111-2114..... 12
 At least five courses at the 3000 level, including:
 AR H A 3210: Near Eastern and Egyptian Art and Archaeology3
 AR H A 3310: Greek Art and Archaeology3
 AR H A 3410: Roman Art and Archaeology3
 AR H A 3510: Early Christian and Byzantine Art and Archaeology3
 Any 3000-level post-ancient lecture course: AR H A 3520-38503
 AR H A 4970: Capstone in Art History and Archaeology 1
 At least two courses at the 4000-level, after meeting appropriate prerequisites6
 One course numbered 4005 through 4840 must be taken in conjunction with ARHA 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 and classical studies (a double major), or with

a major in another college such as education (a dual major). In such cases the other major serves as the related field or minor for the degree in art history and archaeology. 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

Requirements for departmental honors in art history and archaeology include:

- Cumulative GPA of at least 3.3
- Minimum cumulative GPA of 3.25 in 30 credits of AR HA and related field/minor course work at the 3000-level or above
- Completion of the Honors Seminar (AR H A 4996)
- Completion and defense of a senior honors thesis (AR H A 4999)

These courses normally should begin no later than the last fall semester (for seniors graduating in May or August) or the previous fall semester (for December graduates).

In certain cases the faculty may recommend that a student receive departmental honors for excellence in the performance and completion of a substantial, extended and guided research project. Such a project must be proposed in advance and approved by the faculty member with whom the student will work.

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.

Sample Eight-Semester Programs

Bachelor of Arts degree with Art History and Archaeology major

This outline is only suggested please see the adviser for a more personalized plan. See the *Undergraduate Catalog* for prerequisites.

Fall I

American History	3
History of Western Art I ..	3
English: Exposition and Argumentation	3
Introduction to Sociology ..	3
Introduction to Art	3
Total.....	15

Fall II

Late Medieval Art	3
Elementary Italian I	5
Classical Mythology	3
Fundamentals of Microeconomics.....	3
American Art	3
Total.....	17

Fall III

Italian Renaissance Art ..	3
Italian Reading	3
History of Modern Europe	3
Greek Classics in Translation	3
Introduction to Astronomy.....	3
Total.....	15

Fall IV

The Renaissance Artist ..	3
Italian Cinema	3
Philosophical Ideas in Literature.....	3
Contemporary Europe ..	3
Religion and Film	3
Total.....	15

Winter I

College Algebra	3
History of Western Art II ..	3
Environmental Geology ..	4
General Anthropology	3
General Biology	3
Total	16

Winter II

Roman Art and Archaeology	3
Elementary Italian II	5
Regions and Nations of the World	3
Age of the Dinosaurs	3
Total	14

Winter III

Contemporary Art	3
American Art and Culture 1820-1913.....	3
Italian Civilization	3
20th-Century Literature ..	3
Cultures and Civilizations of the World	3
Total	15

Winter IV

American Material Culture.....	3
Capstone in Art History and Archaeology.....	1
Native American Religions	3
Contemporary Philosophy	3
Myth and Religious Symbolism	3
Total	13

Art History and Archaeology major with Classical Humanities Option

This outline is only suggested, please see the adviser for a more personalized plan. See the *Undergraduate Catalog* for prerequisites.

Fall I	Winter I
American History 3	College Algebra 3
History of Western Art I .. 3	History of Western Art II .. 3
English: Exposition &	
Argumentation 3	Environmental Geology . 4
Elementary Latin I 5	Elementary Latin II I 5
Total..... 14	Total 15
Fall II	Winter II
Greek Art and	Roman Art and
Archaeology 3	Archaeology 3
Latin Reading 3	Roman Culture 3
Classical Mythology 3	Introduction to
The Ancient World 3	Biological Anthropology . 3
General Anthropology ... 3	Introduction to Sociology . 3
	Age of the Dinosaurs 3
Total..... 15	Total 15

Fall III
Early Christian and
Byzantine Art 3
Elementary French I 5
Greek Culture 3
Introduction to the
Humanized Earth 3
Early Christianity 3
Total..... 17

Fall IV
Ancient Minor Arts 3
Myth and Religious
Symbolism 3
French Reading 3
Paganism and Christianity .. 3
Philosophical Ideas in
Literature 3
Total..... 15

Winter III
Greek Sculpture..... 3
Elementary French II 5
Medieval Christianity 3
World of the
Middle Ages 3
Arguments about
Antiquity 3
Total 17

Winter IV
Roman Architecture 3
Capstone in Art History
and Archaeology..... 1
Age of Augustus 3
The Ancient Novel 3
Foreigners and Dangerous
Women in Greco-Roman
Literature 3
Total 13

ART HISTORY AND ARCHAEOLOGY COURSES

AR H A 1005—Undergraduate Topics in Art History and Archaeology-Humanities (1-3). Special studies in Art History and Archaeology.

AR H A 1105—Undergraduate Topics in Art History and Archaeology- Humanities (1-3). Special studies in Art History and Archeology.

AR H A 1110—History of Western Art I (3). Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

AR H A 1110H—History of Western Art I (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—History of Western Art II (3). Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

AR H A 1120H—History of Western Art II (3). Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times. Honors eligibility required.

AR H A 1230—Introduction to Asian Arts (3). (same as HIST 1820, REL STU 1230, 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 H A 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 2830—American Art and Architecture (3). Architecture, sculpture, painting of America from 17th century to present day.

AR H A 2940—Archaeological Methods (2-6). Methods of excavating various types of sites; recording, preserving their materials. Prerequisite: instructor's consent.

AR H A 3005—Topics in Art History and Archaeology- Humanities (1-3). Selected studies in various facets of art history and archaeology. Prerequisite: AR H A 1110, 1120, 2830 as appropriate.

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: 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: AR H A 1110 or equivalent.

AR H A 3410—Roman Art and Archaeology (3). General survey of material culture in the Roman world from earliest times through the 3rd century. Prerequisite: AR H A 1110 or equivalent.

AR H A 3510—Early Christian and Byzantine Art (3). General survey of the visual arts of Byzantium and her neighbors from the founding of Constantinople in A.D. 330 to the Ottoman conquest of 1453. Prerequisite: AR H A 1110 or equivalent.

AR H A 3520—Early Medieval Art (3). General survey of the architecture, painting and sculpture of Europe from the 4th century to the beginning of the Romanesque period. Prerequisite: 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: AR H A 1110 or equivalent.

AR H A 3620—Italian Renaissance Art (3). General survey of the architecture, painting and sculpture of Italy from the 14th through the 16th century. Prerequisites: AR H A 1110 or 1120 or equivalent.

AR H A 3630—Northern Renaissance Art (3). General survey of the art and architecture of Northern Europe from the 14th through the 16th century. Prerequisite: AR H A 1120 or equivalent.

AR H A 3640—Baroque Art (3). General survey of 17th century European architecture, painting and sculpture. Prerequisite: AR H A 1120 or equivalent.

AR H A 3730—Eighteenth Century European Art (3). General survey of 18th-century European painting, sculpture and architecture. Prerequisite: AR H A 1120 or equivalent.

AR H A 3740—Nineteenth Century European Art (3). General survey of 19th-century European painting, sculpture and architecture. Prerequisite: AR H A 1120 or equivalent.

AR H A 3750—Modern Art in Europe and America (3). General survey of international directions in painting, sculpture, and architecture from 1885 to ca. 1940. Prerequisite: AR H A 1120 or equivalent.

AR H A 3760—Contemporary Art (3). General survey of painting, sculpture, and architecture from the Second World War to the present. Prerequisite: AR H A 1120 or equivalent.

AR H A 3830—American Art and Culture, 1500-1820 (3). General survey of American visual culture - painting, sculpture, architecture-between 1500 and 1820. Prerequisite: AR H A 1120 or 2830 or equivalent.

AR H A 3840—American Art and Culture, 1820-1913 (3). General survey of American

visual culture - painting, sculpture, architecture, photography - between 1820-1913. Prerequisite: AR H A 1120 or 2830 or equivalent.

AR H A 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: AR H A 1120 or 2830 or equivalent.

AR H A 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 H A 4120—Women, Art and Society 1700-1920 (3). This course surveys and analyzes the careers and works of selected European and American women artists, and images of women (by female and male artists) in the 18th, 19th and the first half of the 20th centuries. Prerequisite: Instructor's consent.

AR H A 4320—Archaeology of the Aegean Bronze Age (3). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.. Prerequisites: instructor's consent.

AR H A 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 H A 4350—Greek Pottery (3). Examination of pottery and vase painting with an emphasis on production, iconography, and social context. Prerequisite: instructor's consent.

AR H A 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 H A 4420—Minor Arts of Antiquity (3). Discussion of selected minor arts and crafts of the Greco-Roman world. Prerequisite: instructor's consent.

AR H A 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 H A 4460—Roman Sculpture (3). The origins and development of sculpture in the Roman Republic and the Roman Empire. Prerequisite: instructor's consent.

AR H A 4490—Late Christian and Byzantine Art and Archaeology (3). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm. Prerequisite: instructor's consent.

AR H A 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 H A 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 H A 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 H A 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 H A 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 H A 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: departmental 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 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 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: departmental 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 (cr.arr.). Independent readings and research selected in consultation with supervisory faculty. Prerequisite: instructor's consent.

AR H A 4970—Capstone: Art History and Archeology (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: departmental consent.

AR H A 4999—Honors Reading and Research I (3). Individual research projects in preparation of senior thesis. Prerequisite: AR H A 4996 and departmental consent.

Division of Biological Sciences

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FACULTY

DISTINGUISHED PROFESSOR J. E. Carrel

PROFESSOR S. Alexander, J. A. Birchler, J. R. Faaborg,
C. Galen, H. C. Gerhardt Jr, P. H. S. Jen, A. D. McClellan,
K. J. Newton, T. E. Phillips, R. Semlitsch, D. R. Setzer,
G. P. Smith, F. S. Vomsaal, J. C. Walker

ASSOCIATE PROFESSOR L. F. Chapman, K. C. Cone,
J. D. David, M. W. Golomb, T. P. Holtsford, M. D. Kirk,
E. Liscum III, J. Maruniak, S. F. Nothwehr,
G. F. Summers, D. L. Worcester

ASSISTANT PROFESSOR A. Chandrasekhar,
R. B. Cocroft, J. C. Pires, J. Schul, D. Schulz, P. Shiu,
P. E. Stromhaug, T. D. Zars

RESEARCH ASSOCIATE PROFESSOR H. Alexander

RESEARCH ASSISTANT PROFESSOR J. Murfett,
S. C. Nagel

RESIDENT INSTRUCTION ASSISTANT PROFESSOR

S. L. Bush, D. Gayou, R. D. Hurst, B. Stone,
A. Wiedemeier

RESIDENT INSTRUCTOR A. Potterfield

PROFESSOR EMERITUS B. G. Cumbie

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. Students with a highly focused interest in microbiology may elect the interdisciplinary BA with a major in Microbiology. The department also offers MA and PhD degrees in Biological Sciences.

The department encourages participation in the honors program in biological sciences, which provides individualized instruction and research opportunities for eligible students.

Major Program Requirements - Biological Sciences

Major 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 math and physics. The BA degree program is more flexible and has fewer required courses to accommodate students with 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.

Major core requirements

Biology

BIO SCI 1500: Introduction to Biological Systems	5
BIO SCI 2200: General Genetics	4
BIO SCI 2300: Introduction to Cell Biology	4
Population biology (select from*).....	3-5
BIO SCI 3100: Community Biology (3)	
BIO SCI 3650: General Ecology (5)	
BIO SCI 4600: Evolution (3)	
BIO SCI 4640: Behavioral Biology (3)	
BIO SCI 4660: Plant Population Biology (4)	
Biological diversity (select from*).....	3-4
BIO SCI 2600: Ornithology (4)	
BIO SCI 2700: Ichthyology (4)	
MICROB 3200: Introduction to Medical Microbiology and Immunology (4)	
BIO SCI 3210: Plant Taxonomy (4)	
BIO SCI 3260: Invertebrate Zoology (4)	
BIO SCI 3360: Herpetology (4)	
BIO SCI 3510: Biology of Fungi (3)	
BIO SCI 3660: Mammalogy (4)	
BIO SCI 3710: Introductory Entomology (2) and BIO SCI 3715: Insect Diversity (1)	

*The following courses will satisfy both the population biology and the biological diversity course requirements: BIO SCI 2600, 2700, 3260, 3360, 3660 and 4660.

Capstone course select one; (Complete in last 45 hours)

BIO SCI 4950/4952: Undergraduate Research in Biology (3)	
BIO SCI 4972: Developmental Biology (3)	
BIO SCI 4974: Molecular Biology Laboratory (3)	
BIO SCI 4976: Molecular Biology (3)	
BIO SCI 4980: Cellular Physiology (3)	
BIO SCI 4982: Human Inherited Diseases (3)	
BIO SCI 4984: Mammalian Reproductive Biology (3)	
BIO SCI 4986: Neural Control and Regeneration in Motor Systems (3)	
BIO SCI 4988: Nerve Cells and Behavior (3)	
BIO SCI 4990: Vertebrate Histology and Microscopic Anatomy (5)	
BIO SCI 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 SCI 2100 may not be used to satisfy this requirement.
- Independent reading, service learning, problems and seminar courses do not apply.
- Students completing research courses BIO SCI 4950-4952 may apply 3 credits toward fulfillment of elective hours for the BA or BS degree.
- BIOCHM 4270 and 4272 may apply toward fulfillment of elective hours for the BA or BS degree.

Other required courses

Note: Options do not appear on diplomas.

BA program	23-26
General chemistry and laboratory (CHEM 1310, 1320, 1330)	8
Organic Chemistry with lab (CHEM 2100, 2120)	8
One course in physics, geology or astronomy	4-5
One course selected from	3-5
Calculus (MATH 1400 or 1500)	
STAT 1400	
CS 1040	

BS program	29-30
General chemistry and laboratory (CHEM 1310, 1320, 1330)	8
Organic chemistry with laboratory (CHEM 2100, 2120)	8
One year of general physics with laboratory	8
One or two courses in calculus (either MATH 1500 or MATH 1400 and 2100) OR STAT 1400 and CS 1040	5-6

Departmental Honors

Students may earn degrees with honors by completing BIO SCI 4950 and 4952 (6 credits) and preparing a written report of their studies. An oral or poster presentation at an on-campus symposium or at a regional or national meeting of a professional society is also required. Students should meet with the honors program director to arrange for 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. The honors program director is Professor James Carrel, 209 Tucker Hall, (573) 882-3037, carrelj@missouri.edu.

Major Program Requirements - Microbiology

Students with a particular interest in microbiology may wish to file a graduation plan for the BA with a major in Microbiology. Graduates with this degree often find employment in academic or industrial research laboratories.

Major core requirements (microbiology)	57
BIO SCI 1500: Introduction to Biological Systems.....	5
BIO SCI 2200: General Genetics	4
BIO SCI 2300: Introduction to Cell Biology	4
BIO SCI 3750: Basic Microbiology.....	4
CHEM 1310 (2) and 1320 (3): General Chemistry I, II	5
CHEM 1330: General Chemistry III	3
CHEM 2100: Organic Chemistry.....	3
CHEM 2120: Organic Chemistry II.....	5
PHYSICS 1210 and 1220: College Physics	8
OR PHYSICS 2750 and 2760: Univ. Physics	10
MATH 1400 and 2100: Calculus for Social and Natural Sciences I and II	6
(MATH 1500 may be substituted for a total of 5 credits)	

Electives	18-24
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The following courses are suggested as appropriate electives:

- BIO SCI 3780: Genetics Laboratory (2)
- BIOCHM 4270: Biochemistry (3)
- BIOCHM 4272: Biochemistry (3)
- BIOCHM 4974: Biochemistry Laboratory (3)
- MICROB 4300: Microbial Pathogenesis (3)
- MICROB 4305: Honors Microbial Pathogenesis (3)
- MICROB 4304: Immunology (3)

Other courses in biochemistry, microbiology, veterinary microbiology, nutritional sciences, and engineering are recommended based on discussions between the student and the undergraduate microbiology adviser.

Minor in Biological Sciences

Minor core requirements.....15

Introductory biology	5
BIO SCI 1200: General Botany OR	
BIO SCI 1500: Introduction to Biological Systems	

Additional biological sciences (from at least two areas)..10

- Genetics
 - BIO SCI 2200: General Genetics (4)
- Cell biology
 - BIO SCI 2300: Introduction to Cell Biology (4)
- Population biology
 - BIO SCI 3100: Community Biology (3)
 - BIO SCI 3650: General Ecology (5)
 - BIO SCI 4600: Evolution (3)
 - BIO SCI 4640: Behavioral Biology (3)
 - BIO SCI 4660: Plant Population Biology (4)
- Biological diversity
 - BIO SCI 2600: Ornithology (4)
 - BIO SCI 2700: Ichthyology (4)
 - BIO SCI 3210: Plant Taxonomy (4)
 - BIO SCI 3260: Invertebrate Zoology (4)
 - BIO SCI 3360: Herpetology (4)
 - BIO SCI 3510: Biology of Fungi (3)
 - BIO SCI 3660: Mammalogy (4)
 - BIO SCI 3710: Introductory Entomology (2) AND BIO SCI 3715: Insect Diversity (1)
 - MICROB 3200: Introduction to Medical Microbiology and Immunology (4)

At least one of these additional courses must include a laboratory. Problems, service learning, readings and research (i.e., 2100, 2960, 2965H, 4085, 4950, 4952 and 4960) may not be used to fulfill requirements for the minor.

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.

Sample Plans for Years 1-2

BA or BS in Biological Sciences

NOTE: These plans are intended only as *general guides*. Courses outside Biology, Chemistry, Math 1100, and English 1000 are provided only for *illustrative purposes*. Advanced credit or exemption from the Foreign Language requirement and/or advanced credit in non-science courses, along with the interests of each individual student will determine a final combination of courses in each semester that is unique for each student. Note also that the sample schedules in Semester 5 and beyond are left incomplete on purpose because each schedule should be *highly* individualized at that point.

Sample Plan 1 -- A student that is exempt from Math 1100 and has a strong background in high school Chemistry:

Semester 1

Chemistry 1320	
(General Chem II)	3
English 1000	3
Behavioral Science.....	3
Social Science	
(MO State Law)	3
Chemistry 1310	
(Advanced Standing)	2
Total.....	14

Semester 2

Chemistry 1330	
(Gen Chem II)	3
Biology 1500.....	5
Humanities	3
Social Science	3
Library Research	
(IS< 1110).....	1
Total.....	15

Semester 3

Chemistry 2100	
(Organic I).....	3
Biology 2200	
(Genetics).....	4
Foreign Language I.....	5
Math 1400	
(SNS Calculus I)	3
Total.....	15

Semester 4

Chemistry 2120	
(Organic II)	5
Foreign Language 2	5
Math 2100	
(SNS Calculus II).....	3
Behavioral Science	
(2000+&/or WI)	3
Total.....	16

Semester 5

Biology 2300 (Cell)	4
Foreign Language 3	3

Sample Plan 2 -- A student that is exempt from Math 1100 but does not have a strong background in high school Chemistry:

Semester 1

Chemistry 1310	
(General Chem I)	2
Biology 1500.....	5
Humanities	3
Social Science	
(MO State Law)	3
Library Research	
(IS<1110).....	1
Total.....	14

Semester 2

Chemistry 1320	
(Gen Chem II).....	3
English 1000	3
Behavioral Science.....	3
Humanities	3
Social Science	3
Total.....	15

Semester 3

Chemistry 1330	
(General Chem III).....	3
Biology 2200	
(Genetics).....	4
Foreign Language I.....	5
Behavioral Science.....	3
Total.....	15

Semester 4

Chemistry 2100	
(Organic I).....	3
Social Science	3
Foreign Language 2	5
Math 1400	
(SNS Calculus I)	3
Total.....	14

Semester 5

Chemistry 2120	
(Organic II)	5
Foreign Language 3	3
Biology 2300 (Cell)	4

Sample Plan 3 -- A student that needs Math 1100 and has a weak background in high school Chemistry:

Semester 1

Math 1100	3
Chemistry 1310	
(General Chem I)	2
Behavioral Science.....	3
Social Science	3
Learning Strategies	
(SSC 1150).....	2
Total.....	13

Semester 2

Chemistry 1320(Gen Chem II)	3
Biology 1500.....	5
English 1000	3
Humanities	3
IS & LT 1110	
*(Library Research)	1
Total.....	15

Semester 3

Chemistry 1330	
(General Chem III).....	3
Social Science	
(MO State Law)	3
Humanities	3
Foreign Language 1	5
Total.....	14

Semester 4

Chemistry 2110	
(Organic Chem I	3
Biology 2200	
(Genetics).....	4
Foreign Language 2	5
Behavioral Science	
(2000+).....	3
Total.....	15

Semester 5

Foreign Language	3
Chemistry 2120	
(Organic Chem II).....	5
Biology 2300 (Cell)	4

Semester 6

Math 1400	
(SNS Calculus I)	3

BIOLOGICAL SCIENCES COURSES

BIO SC 1002—Topics in Biological Sciences-Biological/Physical/Mathematics (cr.arr.). Selected topics not in regularly offered courses. Prerequisite: instructor's consent.

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.

BIO SC 1020—General Biology Laboratory (2). Laboratory exercises dealing with representative organisms and methods of modern biological sciences. Prerequisite: BIO SC 1010 or 1010 concurrently. This course is intended for non-science majors.

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: MATH 1100/1120 or concurrent enrollment. This course is intended for non-science majors.

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; does not count as a laboratory science.

BIO SC 1100—Introductory Zoology with Laboratory (5). 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 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: MATH 1100/1120 and high school chemistry.

BIO SC 2002—Topics in Biological Sciences- Biological/Physical/Mathematics (cr.arr.). Selected topics not covered in regularly offered courses. Prerequisite: a course in general biology.

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: BIO SC 1010. Not open to Biology Majors.

BIO SC 2200—General Genetics (4). Principles of inheritance in plants and ani-

mals; structure and use of genetic material, transmission of genetic information, linkage, modification of genetic information, regulation of genetic activity, population genetics. Prerequisites: BIO SC 1500 and 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: BIO SC 2200 and CHEM 2100 (or concurrent enrollment in CHEM 2100).

BIO SC 2600—Ornithology (4). (same as Fisheries and Wildlife 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab. Prerequisites: 5 hours BIO SCI or instructor's consent.

BIO SC 2700—Ichthyology (4). (same as Fisheries and Wildlife 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 BIO SC or equivalent.

BIO SC 2960—Readings in Biological Science (1-3). Supervised reading in biological literature. May be repeated up to six hours total credit. Prerequisites: instructor's consent. May not be used in partial fulfillment of Arts and Science foundation requirement.

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 Biological Sciences honors program major; 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 (cr.arr.). Selected topics not in regularly offered courses. Prerequisite: instructor's consent.

BIO SC 3050—Genetics and Human Affairs (3). Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetics engineering in medicine and agriculture. An intensive writing course. Prerequisite: a college science course or equivalent (advanced high school biology).

BIO SC 3100—Community Biology (3). Integrated set of lectures on evolution/population genetics, population dynamics/social systems and ecosystem structure/process, biomass in worldwide context, man in the environment. Prerequisites: BIO SCI 1100, 1200 or 1500 or equivalent. No credit if taken after BIO SC 3650.

BIO SC 3210—Plant Taxonomy (4). Principles of classification of plants; survey of diversity in flowering plant families; identification of local flora; use of keys. Includes lab. Prerequisite: 1 semester biology or botany.

BIO SC 3250—Parasitology (4). (same as V PPBIO 3250). Parasitism is considered as a fundamental type of inter species 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 BIO SC.

BIO SC 3260—Invertebrate Zoology (4). Structure, ecology and phylogeny of the invertebrate phyla. Includes lab. Prerequisites: 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 BIO SC or equivalent.

BIO SC 3510—Biology of Fungi (3). (same as PL PTH 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: 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 BIO SC 3100: 2 hours credit. Prerequisites: 10 hours in BIO SC and junior standing.

BIO SC 3660—Mammalogy (4). (same as Fisheries and Wildlife 3660). Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States. Includes lab. Prerequisites: junior standing 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: BIO SC 2300.

BIO SC 3710—Introductory Entomology (2). (same as Entomology 3710). Holistic biology of insects, including anatomy, physiology, behavior, ecology, and management. Prerequisites: BIO SC 1100, 1200, or 1500 or equivalent.

BIO SC 3715—Insect Diversity (1). (same as Entomology 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 ENTOM 3710/BIO SC 3710.

BIO SC 3750—Basic Microbiology (4). Principles of microbiology. Includes lab. Prerequisite: 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 BIO SC 2200 or instructor's consent.

BIO SC 4085—Problems in Biological Sciences (cr.arr.). Individual supervised work to supplement regularly organized courses in biology; introduction to research. Prerequisites: junior standing and instructor's consent.

BIO SC 4100—Limnology (3-4). (same as Fisheries and Wildlife 4100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity. Prerequisites: senior standing or BIO SC 3650.

BIO SC 4300—Analysis of Biological Macromolecules (3). Theory/application of tech-

niques used for characterization of proteins, nucleic acids; topics: sedimentation velocity; equilibrium; sucrose density gradients; electrophoresis; spectrophotometry. Prerequisites: BIO SC 2300 or BIOCHM 4270; MATH 1500 and one year PHYSCS.

BIO SC 4310—Physics in Cell and Developmental Biology (3). (same as Physics 4310 and Medical Pharmacology and Physiology 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 PHYSCS 1220 or 2760 and BIO SC 2300.

BIO SC 4320—Plant Physiology (3-5). (same as PL SCI 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory. Prerequisites: BIO SC 1200 or 1500 and 5 hours CHEM.

BIO SC 4328—Introductory Radiation Biology (3). (same as Nuclear Engineering 4328, Radiology 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 BIO SC and PHYSCS/CHEM; or instructor's consent.

BIO SC 4350—Summer Institute in Biotechnology (3). Development of experiments in molecular genetics for use in high school biology laboratories. May be repeated for credit. Prerequisite: instructor's consent.

BIO SC 4400—Plant Anatomy (4). 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: 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: BIO SC 2300 or 3700 or instructor's consent.

BIO SC 4600—Evolution (3). Surveys various processes in organic evolution and underlying genetic mechanisms. Prerequisite: BIO SC 2200.

BIO SC 4640—Behavioral Biology (3). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla. Prerequisites: BIO SC 1500 and one additional upper-level course in BIO SC or PSYCH.

BIO SC 4642—Animal Communication (3-5). Physical properties of sensory stimuli, receptor mechanisms, functional significance of communication behavior, and multidisciplinary and experimental approaches to current research in animal communication. Prerequisites: BIO SC 2300 and PHYSCS 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 BIO SC.

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: 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 BIO SC and/or CHEM; instructor's consent.

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: BIO SC 4950; overall GPA 2.75.

BIO SC 4960—Special Readings in Biological Sciences (cr.arr.). Independent readings and discussions of topics in biology selected in consultation with supervising faculty member. Paper required. Prerequisites: senior or graduate standing in BIO SC 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: BIO SC 3700 or 4500 or instructor's consent.

BIO SC 4972—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: BIO SCI 2200, 2300, CHEM 2100.

BIO SC 4974—Molecular Biology Laboratory (3). (same as BIOCHM 4374). Emphasizes recently developed genetic and biochemical techniques; illustrates how they apply to contemporary problems in biological research. Prerequisites: BIO SC 2200, BIOCHM 4272 or concurrent registration in 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: BIO SC 2200 and 2300.

BIO SC 4980—Cellular Physiology (3). The cell as a functional unit. Prerequisites: 10 hours BIO SC and 5 hours PHYSCS and 5 hours Organic Chemistry; some background in BIOCHM 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: BIO SC 2200 and 2300.

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 BIO SC.

BIO SC 4986—Neural Control and Regeneration in 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: 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: 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; 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: BIO SC major, senior standing, instructor's consent.

Department of Chemistry

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FACULTY

CURATORS PROFESSOR J. L. Atwood
RABJOHN PROFESSOR M. Harmata
PROFESSOR J. E. Adams, K. S. Gates, R. E. Glaser,
S. S. Jurisson, J. D. Robertson, P. R. Sharp,
D. L. Thompson, T. C. Wong
ASSOCIATE PROFESSOR C. A. Deakne,
C. M. Greenlief, J. F. Kauffman, S. W. Keller,
S. Z. Lever, J. J. Tanner, S. A. Tucker
ASSISTANT PROFESSOR P. B. Duval, T. E. Glass
RESIDENT INSTRUCTION ASSISTANT PROFESSOR
B. C. Ganley
INSTRUCTOR L. P. Silverman

The Department of Chemistry offers three undergraduate degree tracks, two 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 adviser 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	3
CHEM 1330: General Chemistry III	3
(May substitute CHEM 1500H for CHEM 1320, 1330)	
CHEM 2400: Fundamentals of Inorganic Chemistry	3
CHEM 2100: Organic Chemistry I	3
CHEM 2110: Organic Chemistry II	3
CHEM 2130: Organic Laboratory I	2
CHEM 2140: Organic Chemistry Laboratory	2
(May substitute CHEM 2160H, 2170H and 2190H for 2100, 2110, 2130 and 2140)	
CHEM 3200: Quantitative Methods of Analysis	4
CHEM 3300: Fundamentals of Physical Chemistry	3
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 two 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. In addition, a medicinal chemistry track is available to BS students who plan careers in the health professions or in pharmaceutical, clinical or medicinal chemistry.

Note: Tracks do not appear on diplomas.

Chemistry major with BA degree

PHYSCS 1210: College Physics (4) OR	
PHYSCS 2750: University Physics (5)	4-5
PHYSCS 1220: College Physics (4) OR	
PHYSCS 2760: University Physics(5)	4-5
Collateral courses	12
Course work at the 2000-level or higher outside of chemistry. For example: (biological sciences, mathematics, biochemistry or business)	

Chemistry major with BS degree

American Chemical Society certification track

CHEM 3330: Physical Chemistry II	3
CHEM 3340: Physical Chemistry Laboratory	3
CHEM 4200: Instrumental Methods of Analysis	3
CHEM 4400: Inorganic Chemistry	3
CHEM 4950: Senior Research	3
BIOCHM 4270: Biochemistry	3
PHYSCS 2750: University Physics	5
PHYSCS 2760: University Physics	5

Medicinal chemistry track

CHEM 4170: Medicinal Chemistry	3
CHEM 4600: Introduction to Radiochemistry with Lab OR	
BIO SCI 4328: Introduction to Radiation Biology OR	
approved substitution	3
BIO SCI 1500: Introduction to Biological Systems	5
BIO SCI 2200: General Genetics	4
BIO SCI 2300: Intro to Cell Biology	4
BIOCHM 4270: Biochemistry	3
BIOCHM 4272: Biochemistry	3
PHYSCS 1210: College Physics (4) OR	
PHYSCS 2750: University Physics (5)	4-5
PHYSCS 1220: College Physics (4) OR	
PHYSCS 2760: University Physics (5)	4-5

Double Majors

No specific programs 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 (or 1500H), 2100, 2110, 2130 and 3200. If a student's major already requires all of these courses, then an additional elective course must be included in the minor.

Sample Eight-Semester Programs

Bachelor of Arts with a major in Chemistry

Fall I

CHEM 1320§* 3
MATH 1500* 5
American history/
government* 3
General education/
elective* 3-5
Total..... 14-16

Fall II

CHEM 2100 3
CHEM 2400 3
PHYSICS 1210 4
General education/
elective* 3
General education/
elective* 3
Total Hours 16

Fall III

CHEM 3200 4
Collateral area course..... 3
Foreign language..... 5
General education/
elective* 3
Total..... 15

Fall IV

CHEM 3300 3
Collateral area course..... 3

Foreign language..... 3

General education/
elective* 3
General education/
elective* 3
Total..... 15

Winter I

CHEM 1330* 3
MATH 1700..... 5
ENGLISH 1000* 3

General education/
elective* 3-5
Total 14-16

Winter II

CHEM 2110 3
CHEM 2130 2
CHEM 3700 3
PHYSICS 1220..... 4
General Education/
elective* 3
Total Hours 15

Winter III

CHEM 2140 2
Collateral area course 3
Foreign language 5
General education/
elective* 3
General education/
elective* 3
Total 16

Winter IV

Collateral area course 3
General education/
elective* 3
General education/
elective* 3
General education/
elective* 3
Total 15

Check the *Undergraduate Catalog* for Prerequisites.

§ Students with no previous college chemistry credit may apply for 2 credits of CHEM 1310 upon successful completion (C– or better) of CHEM 1320.

* Courses satisfy certain University general education requirements.

Bachelor of Science: Chemistry

(American Chemical Society Certification Track)

Fall I

CHEM 1320§* 3
MATH 1500* 5
American history/
government* 3
General education/
elective* 3-5
Total..... 14-16

Fall II

CHEM 2100 3
CHEM 2400 3
MATH 2300 3
PHYSICS 2750 5
Total..... 14

Fall III

CHEM 3200 4
CHEM 3300 3
Foreign language
(or subst.) 5
General education/
elective* 3
Total 15

Fall IV

CHEM 4200 3
BIOCHM 4270..... 3
Foreign language
(or subst.) 3
General education/
elective* 3
General education/
elective* 3
Total 15

Winter I

CHEM 1330* 3
MATH 1700..... 3
ENGLISH 1000* 3
General education/
elective* 3-5
Total 14-16

Winter II

CHEM 2110 3
CHEM 2130 2
CHEM 3700 3
PHYSICS 2760..... 5
General education/
elective* 3
Total 16

Winter III

CHEM 2140 2
CHEM 3330 3
CHEM 3340 3
Foreign language (or
subst.) 5
General education/
elective* 3
Total 16

Winter IV

CHEM 4400 3
CHEM 4950 3
General education/
elective* 3
General education/
elective* 3
General education/
elective* 3
Total 15

Check the *Undergraduate Catalog* for Prerequisites.

§ Students with no previous college chemistry credit may apply for 2 hrs. of credit for CHEM 1310 upon successful completion (C– or better) of CHEM 1320.

* Courses satisfy certain University general education requirements.

Bachelor of Science: Chemistry

(Medicinal Chemistry Track)

Fall I

CHEM 1320§*	3
MATH 1500*	5
American history/government*	3
General education/elective*	3-5
Total	14-16

Fall II

CHEM 2100	3
CHEM 2400	3
BIO SCI 2200	4
General education/elective*	3
General education/elective*	3
Total	16

Winter I

CHEM 1330*	3
MATH 1700	5
ENGLISH 1000*	3
BIO SCI 1500	5
Total	16

Winter II

CHEM 2110	3
CHEM 2130	2
CHEM 3700	3
BIO SCI 2300	4
General education/elective*	3
Total	15

Fall III

CHEM 3200	4
PHYSICS 1210	4
Foreign language (or subst.)	5
General education/elective*	3
Total	16

Fall IV

CHEM 3300	3
BIOCHM 4270	3
Foreign language (or subst.)	3
General education/elective*	3
General education/elective*	3
Total	15

Winter III

CHEM 2140	2
PHYSICS 1220	4
Foreign language (or subst.)	5
General education/elective*	3
Total	14

Winter IV

CHEM 4170	3
BIOCHM 272	3
Chemistry elective (e.g. 4600)	3
General education/elective*	3
General education/elective*	3
Total	15

Check the *Undergraduate Catalog* for prerequisites.

§ Students with no previous college chemistry credit may apply for 2 credits for CHEM 1310 upon successful completion (C- or better) of CHEM 1320.

* Courses satisfy certain University general education requirements.

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 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 CHEM 1100. Prerequisites: 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 CHEM 1310; MATH 1100/1120 or equivalent.

CHEM 1320H—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 CHEM 1310; MATH 1100/1200 or equivalent. Honors eligibility required.

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 CHEM 2100. Prerequisite: grade of C- or better in CHEM 1320.

CHEM 1330H—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 CHEM 2100. Prerequisite: grade of C- or better in CHEM 1320. Honors eligibility required.

CHEM 1500H—Honors Intensive General Chemistry with Lab (5). A one-semester, intensive introduction to chemistry for honors-eligible students that takes the place of 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.

CHEM 2050—Introduction to Organic Chemistry with Lab (5). A survey of organic chemistry, including an introduction to structure and bonding, functional group chemistry, principles of reactivity, reaction mechanisms, the molecules of life. Laboratory illustrates and augments the lecture material. 4 lectures, 1 lab per week. Prerequisite: grade of C or better in CHEM 1320 or 1500H or equivalent.

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 2050 or equivalent. Prerequisite: grade of C or better in CHEM 1320 or equivalent.

CHEM 2110—Organic Chemistry II (3). Continuation of 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 CHEM 2100

or equivalent, or departmental consent.

CHEM 2120—Organic Chemistry II with Lab (5). Continuation of CHEM 2100; includes laboratory. An emphasis on carbonyl compounds, amines, multifunctional compounds including the molecules of life, reaction mechanisms, synthesis and spectroscopic characterization; introduction to organic chemistry laboratory techniques, practicalities of compound synthesis, separation, and characterization. Prerequisite: grade of C or better in CHEM 2100 or equivalent.

CHEM 2130—Organic Laboratory I (3). Basic lab techniques, function group manipulations, and short syntheses. Pre-lab and post-lab writing assignments. 1 hour recitation, 3 hours lab per week. Concurrent enrollment in CHEM 2110 highly recommended. No credit for students who have taken CHEM 2120 or equivalent.

CHEM 2140—Organic Laboratory II (2). Continuation of 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 CHEM 2110 and 2130 or equivalent.

CHEM 2160H—Honors Organic Chemistry I (4). First course of a two-semester sequence. Similar to Chemistry 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 CHEM 1320 or equivalent.

CHEM 2170H—Honors Organic Chemistry II with Lab (5). Continuation of CHEM 2160H; includes laboratory. Content and structure simi-

lar to CHEM 2120, but with increased depth and breadth. Prerequisites: honors eligibility, grade of B or better in CHEM 2160H or instructor's permission.

CHEM 2190H—Honors Organic Chemistry Laboratory (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 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 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: CHEM 1330 or 1500H.

CHEM 3300—Fundamentals of Physical Chemistry (3). Survey of physical chemistry. Satisfies physical chemistry prerequisite for Biochemistry 372. Prerequisite: MATH 1700, a course in organic chemistry; PHYS 1210 and 1220 or PHYS 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 2175, 2176 and MATH 2300, or MATH 2300 concurrently.

CHEM 3330—Physical Chemistry II (3). Continuation of 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 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: CHEM 1330 or 1500H; 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 A&S 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: CHEM 2400, 2140, or Chem 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: 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: CHEM 3200, a semester of physical chemistry.

CHEM 4270—Chemical Instrumentation for Secondary Science Teachers (3). Fundamental concepts, development and design of experiments in chemical instrumentation including spectroscopy development and chromatography for secondary science teachers. Prerequisite: one year of general chemistry, one year of organic chemistry, and one year of college physics; instructor's consent required. May be repeated for credit up to a maximum of 6 hours. s.

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 & 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: 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 Science & Engineering Institute 4319 and Physics 4190). 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: PHYSICS 2760 and CHEM 1320 or equivalent and instructor's consent.

CHEM 4600—Introduction to Radiochemistry with Lab (3). Introduces application of radio-tracer techniques to chemical research. Prerequisite: CHEM 1330 or 1500H; and one semester of physical chemistry, or instructor's consent.

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

For courses in Chinese language, see the Department of German and Russian Studies.

Department of Classical Studies

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420 General Classroom Building
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FACULTY

PROFESSOR J. M. Foley, C. F. Saylor, T. A. Tarkow
ASSOCIATE PROFESSOR D. M. Hooley, J. F. McGlevy,
D. J. Schenker, D. E. Trout, B. P. Wallach
ASSISTANT PROFESSOR R. D. Marks, A. Mori
PROFESSOR EMERITUS E. N. Lane

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 Latin, Greek, and Classical Languages and PhD degrees in Classical Languages. 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. All Classics majors must complete a minor or a related field totaling 9-15 credits. 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 (CLHUM 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

GREEK or LATIN 1100 and 1200 or 1100H and 1200H or 4110H and 4120H (may be used to help satisfy the foreign language requirement in the College of Arts and Science) 10
CL HUM Courses at the 1000- through 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.)

Additional required course work

Minor 15
OR
Course work outside the major, 6 credits of which must be completed at the 2000-level or higher, and chosen in consultation with the major adviser.....9

Emphasis in Latin

LATIN 1100, 1200 and 2000 OR 1100H, 1200H, and 2000H OR 4110H, 4120H, and 4200H (may be used to help satisfy the foreign language requirement in the College of Arts and Science)..... 8-13
LATIN 4300 3
LATIN 4350 level or above 9
CL HUM
2000 level or above 9

Additional required course work

Minor 15
OR
Course work outside the major, 6 credits of which must be completed at the 2000-level or higher, and chosen in consultation with the major adviser.....9

Emphasis in Greek

GREEK 1100, 1200, and 2000 OR 4110H, 4120H and 4200H (may be used to help satisfy the foreign language requirement in the College of Arts and Science)..... 8-13
GREEK 4300..... 3
GREEK 4350-level or above..... 9
CL HUM 2000 or above..... 9

Additional required course work

Minor 15
OR
Course work outside the major, 6 credits of which must be completed at the 2000-level or higher, and chosen in consultation with the major adviser.....9

Emphasis in Classical Languages

GREEK or LATIN 1100 1200, and 2000 OR 1100H, 1200H and 2000 (may be used to help satisfy the foreign language requirement in the College of Arts and Science)..... 13
Courses at the 4000-level in Latin or Greek 6
Courses through 4300 in the other language
CL HUM courses at the 2000-level or higher 9

Additional required course work

Minor 15
OR
Course work outside the major, 6 credits of which must be completed at the 2000-level or higher, and chosen in consultation with the major adviser.....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 advisers 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 and above 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	3
One course at the 4500 level or above	3
CL HUM courses.....	9

Minor in Classics with an emphasis in Greek15

GREEK 4300.....	3
One 4500-level or above Greek course	3
CL HUM courses.....	9

Sample Eight-Semester Programs

Concentration in Classical Humanities (CH)

Please note that this is only one of many possible routes to a major and that one may concentrate in Latin, or Greek, Classical Languages, or Classical Humanities. For guidance on how to approach other major concentrations, please see the Director of Undergraduate Studies in the Classics Department.

Fall I

College Algebra	3
Social Science /	
MO state law	3
CLASSICAL	
HUMANITIES	
1000-2999	3
LATIN OR GREEK	
1100.....	5
Total.....	14

Winter I

English 20	3
CLASSICAL	
HUMANITIES	
1000-2999	3
Biological/Physical/	
Math w/lab	5
LATIN OR GREEK	
1200.....	5
Total.....	16

Fall II

LATIN OR GREEK	
2000.....	3
Behavioral Science.....	3
Humanities	3
Social Science/	
2000-level	3
Minor.....	3
Total.....	15

Winter II

LATIN/GREEK 4300	
OR CH 4000+	3
Minor.....	3
Humanities/2000-level.....	3
Elective Math reasoning	
proficiency.....	3
Behavioral Science.....	5
Total.....	15

Fall III

Humanities/writing	
intensive	3
Biological/Physical/	
Math	4
LATIN/GREEK 4300 +	
ORCH 3000+	3
CH3000+.....	3
Elective	3
Total.....	16

Winter III

Humanities/2000-level.....	3
Minor.....	3
CH 3000 + WI.....	3
Elective	3
Elective	3
Total.....	15

Fall IV

Minor.....	3
Minor.....	3
CH 3000+.....	3
Elective	3
Elective	3
Total.....	15

Winter IV

Social Science	3
CH 3000+.....	3
CH Capstone course.....	3
Elective	3
Elective	3
Total.....	15

CLASSICAL HUMANITIES COURSES

CLHUM 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 as an aid in interpretation of literature and art.

CL HUM 1060H—Classical Mythology (3). Myths of Greece and Rome as an aid in interpretation of literature and art. Honors eligibility required.

CLHUM 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.

CLHUM 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 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 A&S general education requirements. Prerequisites: instructor's consent required.

CLHUM 3000—Foreigners and Dangerous Women in Greek and Latin Literature (3). (same as Peace Studies 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 (3). (same as Peace Studies 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: CL HUM 1060 , any CL HUM 2000 course, or instructor's consent.

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: CLHUM 1060 or any CLHUM 2000 level course, or instructor's consent.

CL HUM 3100H—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: CL HUM 1060 or any CLHUM 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: CLHUM 1060 or any CLHUM 2000 level course, or instructor's consent.

CL HUM 3150H—The Age of Augustus (3). Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius. Prerequisites: CLHUM 1060 or any CLHUM 2000 level course, or instructor's consent. Honors eligibility required.

CL HUM 3200—Power and Oratory in Ancient Greece (3). (same as History 3206). 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: sophomore standing or instructor's consent.

CL HUM 3200H—Power and Oratory in Ancient Greece (3). (same as History 3206). 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: sophomore standing or instructor's consent. Honors eligibility required.

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: CL HUM 1060 or any CL HUM 2000 level course, or instructor's consent.

CL HUM 3250H—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: CL HUM 1060 or any CL HUM 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: CLHUM 1060 or any CL HUM 2000 level course, or instructor's consent.

CL HUM 3300H—Greek Drama (3). Reading and interpretation of Greek tragedies and comedies in translation. Prerequisite: CL HUM 1060 or any CL HUM 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: CLHUM 1060 or any CLHUM 2000 level course, or instructor's consent.

CL HUM 3350H—Advanced Mythology (3). Interpretation of selected classical myths and their influence on later literature and art. Prerequisite: CL HUM 1060 or any CL HUM 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: CL HUM 1060 or any CL HUM 2000 level course, or instructor's consent.

CL HUM 3400H—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: CL HUM 1060 or any CL HUM 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: CL HUM 1060 or any CL HUM 2000 level course, or instructor's consent.

CLHUM 3450H—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: CL HUM 1060 or any CLHUM 2000 level course, or instructor's consent. Honors eligibility required.

CLHUM 3500—Greek and Roman Religion (3). (same as Religious Studies 4500). Survey of religious development among the Greeks and Romans. Prerequisite: CLHUM 1060 or AR H A 1110 or HIST 1520; sophomore standing.

CL HUM 3500H—Greek and Roman Religion (3). (same as Religious Studies 4500). Survey of religious development among the Greeks and Romans. Prerequisite: CL HUM 1060 or AR HA 1110 or HIST 1520; sophomore standing. Honors eligibility required.

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: CL HUM 1060 or any CL HUM 2000 level course, or instructor's consent.

CL HUM 3600H—The Ancient Novel (3). Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background. Prerequisite: CL HUM 1060 or any CL HUM 2000 level course, or instructor's consent. Honors eligibility required.

CLHUM 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 (in English translations, many new). Prerequisites: CL HUM 1060 or any CL HUM 2000 level course, or instructor's consent.

CLHUM 3650H—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 (in English translations, many new). Prerequisites: CL HUM 1060 or any CL HUM 2000 level course, or instructor's consent. Honors eligibility required.

CL HUM 3700—Women in the Ancient World (3). Using classical literary texts as

our central focus we will examine the role of women: the conflict inherent in their obligations and their identity in the context of these obligations. Prerequisites: CL HUM 1060 or any CLHUM 2000 level course, or instructor's consent.

CL HUM 3700H—Women in the Ancient World (3). Using classical literary texts as our central focus we will examine the role of women: the conflict inherent in their obligations and their identity in the context of these obligations. Prerequisites: CL HUM 1060 or any CLHUM 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: CL HUM 1060 or any CLHUM 2000 level course, or instructor's consent.

CL HUM 3750H—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: CL HUM 1060 or any CL HUM 2000 level course, or instructor's consent. Honors eligibility required.

CL HUM 4005—Topics in Classical Humanities (cr.arr.). Subjects and earnable credit may vary from semester to semester. Prerequisites: any CH 3000 level course or instructor's consent.

CL HUM 4550—Literature and Culture of the Hellenistic Age (3). A survey of the literature and culture of the Hellenistic Age. Prerequisites: any CLHUM 3000 level course, or instructor's consent.

CL HUM 4550H—Literature and Culture of the Hellenistic Age (3). A survey of the literature and culture of the Hellenistic Age. Prerequisites: any CLHUM 3000 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 CL HUM 3000 level course or instructor's consent.

CL HUM 4600H—The Classical Tradition (3). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times. Prerequisite: any CLHUM 3000 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 CL HUM 3000 level or consent.

CLHUM 4650H—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 CLHUM 3000 level

or consent. Honors eligibility required.

CL HUM 4770—Oral Tradition (3). (same as English 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.

CLHUM 4770H—Oral Tradition (3). (same as English 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—Classical Literature and Culture in Translation (1-3). Classical Authors and secondary works illustrating aspects of Graeco-Roman civilization. Recommended for classical humanities majors. Prerequisite: any CLHUM 3000 level course or instructor's consent.

CL HUM 4970H—Classical Literature and Culture in Translation (1-3). Classical Authors and secondary works illustrating aspects of Graeco-Roman civilization. Recommended for classical humanities majors. Prerequisite: any CLHUM 3000 level course or instructor's consent. Honors eligibility required.

CLASSICS COURSES

CLASS 4100—History of the Greek and Latin Languages (3). (same as Linguistics 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—Classical Literature and Culture (1-3). Survey of primary and secondary works illustrating aspects of Graeco-Roman civilization. Recommended for: Greek, Latin, or Classics majors. Prerequisites: 2 years classical Greek, or Latin, or equivalent; junior standing; departmental consent.

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.

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 (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 1100. Readings in Attic prose. Prerequisite: grade of C or higher in GREEK 1100 or equivalent.

GREEK 1200H—Elementary Ancient Greek II (5). Continuation of GREEK 1100. Readings in Attic prose. Prerequisite: grade of C or higher in GREEK 1100 or equivalent. Honors eligibility required.

GREEK 2000H—Greek Reading (3). Selected works of Greek literature. Prerequisite: grade of C or higher in GREEK 1200. Honors eligibility required.

GREEK 4110H—Intensive Beginning Greek I (3). Intensive study of forms, grammar, syntax; early attention to readings in simple prose. Course meets five hours weekly for 3 hours credit. Prerequisite: graduate standing or Honors eligibility required.

GREEK 4120H—Intensive Beginning Greek II (3). Continuation of 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 4200H—Intensive Greek Reading (2). Prerequisite: graduate standing or Honors eligibility required.

GREEK 4300—Intermediate Readings (3). Selected advanced readings in prose and poetry. Introduction to Homer. Prerequisite: GREEK 2000 or equivalent.

GREEK 4350—The Greek New Testament (3). (same as Religious Studies 4650). Readings in the Greek New Testament and similar literature, e.g., the Septuagint. Prerequisite: 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 (1-3). Study and practice of general Greek prose tendencies, 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 1100, 1200, 1300, 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 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 (1-3). Readings in authors and texts not covered in other courses. Prerequisites: departmental consent, two years Classical Greek or equivalent.

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 1100.

LATIN 1200H—Elementary Latin II (5). Continuation of Latin 1100H. Prerequisite: a grade of C or higher in LATIN 1100. Honors eligibility required.

LATIN 2000—Latin Reading (3). Readings in Latin prose and poetry. Prerequisite: grade of C or higher in LATIN 1200.

LATIN 2000H—Latin Reading (3). Readings in Latin prose and poetry. Prerequisite: grade of C or higher in LATIN 1200. Honors eligibility required.

LATIN 4110H—Intensive Beginning Latin I (3). Intensive study of morphology, grammar, syntax; early attention to readings in simple prose. Course meets five hours weekly for 3 hours credit. Prerequisite: graduate standing or Honors eligibility required.

LATIN 4120H—Intensive Beginning Latin II (3). Continuation of Latin 4110H. Readings in Latin prose. Prerequisite: LATIN 4110H, graduate standing or Honors eligibility required.

LATIN 4200H—Intensive Latin Reading (2). Prerequisite: graduate standing or Honors eligibility required.

LATIN 4300—Latin Poetry (3). Readings in selections from the Latin poets. Prerequisite:

LATIN 2000 or equivalent.

LATIN 4350—Latin Prose (3). Selections from various Latin prose writers; some composition at instructor's discretion. Prerequisite: 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 1100, 1200, 1300, 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 (3-6). 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 (3-6). 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 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: instructor's consent.

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.

Department of Communication

M. Kramer, Chair
 College of Arts and Science
 115 Switzler Hall
 (573) 882-4431
 www.missouri.edu/~commwww

FACULTY

PROFESSOR P. Benoit, W. Benoit
ASSOCIATE PROFESSOR J. A. Hess, M. Kramer,
 M. J. Porter, M. J. Smythe
ASSISTANT PROFESSOR J. S. Aubrey, D. S. Dougherty,
 F. Esser, L. N. Olson, M. S. McKinney

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 and management.

The department offers BA, MA and PhD degrees with majors in Communication.

Admission

Because of increased 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.

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 an average of 30-40 credits in the department; each course is 3 credits unless otherwise noted. Students must also complete College of Arts and Sciences and University requirements, including University general education.

Major core requirements.....12

- COMMUN 1200: Introduction to Speech Communication
- COMMUN 2100: Media, Communication and Society
- COMMUN 3100: Controversies in Communication
- COMMUN 4974: Senior Project OR
- COMMUN 4975: Visual Literacy

Three courses minimum from each communication literacy block18

Block 1: Theory and Practice of Message Generation

- COMMUN 2315: Basic Audio Production
- COMMUN 3318: Performance in the Visual Media
- COMMUN 3315: Advanced Audio Production
- COMMUN 3310: Message Design and Writing for the Media
- COMMUN 3561: Relational Communication
- COMMUN 3570: Performance of Literature
- COMMUN 3571: Group Decision Making Processes
- COMMUN 3572: Argument and Advocacy
- COMMUN 3575: Business and Professional Communication
- COMMUN 3576: Persuasive Speaking
- COMMUN 3390: Television Studio Production
- COMMUN 3395: Television Field Production
- COMMUN 4520: Family Communication
- COMMUN 4395: Professional Seminar in TV Production

Block 2: Critical Analysis of Communication

- COMMUN 3441: Nonverbal Communication
- COMMUN 3470: Culture and Communication
- COMMUN 3422: Communication Research Methods
- COMMUN 3614: Radio-TV Programming and Management
- COMMUN 3617: Broadcast Regulation and Responsibility
- COMMUN 4618: Television Program Analysis and Criticism
- COMMUN 4412: Gender, Language, and Communication
- COMMUN 4415: Language and Discourse
- COMMUN 3636: Contemporary Issues in Telecommunications
- COMMUN 4638: New Technologies and Communication
- COMMUN 4440: Ethical Issues in Communication
- COMMUN 4473: Political Communication
- COMMUN 4474: Theory and Research in Persuasion
- COMMUN 4476: Organizational Communication
- COMMUN 4481: Principles of Rhetoric

Electives

- COMMUN 4940: Internship 1-4

Options

- COMMUN 3701/3703: Topics in Communication 1-3
- COMMUN 4996/4997: Honors in Communication2
- COMMUN 4960: Directed Readings 1-3

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.

Sample Eight-Semester Program

Communication

Fall I

English 1000 or Math 1110/1200.....	3
Am. Gov requirement (Social Science)	3
Behavioral Science*.....	3
Humanities*	3
Total.....	12
OR	
Elective	3
Total.....	15

Fall II

Humanities/writing intensive*	3
Communication 2100 OR 1200	3
Behavioral Science over 1000 Level*	3
Biological/Physical/Mathematical Science (Math reasoning Proficiency)*	3
Foreign Language (5 hours) or elective.....	3-5
Total.....	15-17

Winter I

English 1000 or Math 1100/1200	3
Humanities*	3
Communication 1200 OR 2000.....	3
Library Skills (1 hour)	1
Biological/Physical/Mathematical Science w/Lab* (5 hours).....	5
OR	
Foreign Language (5 hours)	5
Total.....	15

Winter II

Humanities over 1000*	3
Foreign Language or elective or Communication course	3-5
Biological/Physical/Mathematical science (1 hour)*	3-5
Minor or Related field course (list available from the department)	3
Social Science*	3
ADDITIONAL ELECTIVE TO REACH 60 CREDIT HOURS (if needed)	?
Total.....	15-18

Fall III

Social Science over 100 level*	3
Communication course**	3
Communication course**	3
Minor or related field course	3
Elective or addition Biological/Physical/Mathematical Science* if needed	3-5
Total.....	15

Fall IV

Communication course** ..	3
(Communication course** ..	3
Minor or related field course or elective	3
Elective or additional Communication course***	3
Elective or internship (Communication 280)*** ..	3
Total.....	15

Winter III

Communication course**	3
Communication course**	3
Minor or related field course	3
Elective or additional Communication course***	3
Elective	3
Total.....	15

Winter IV

Communication Capstone (Communication 4974 or 4975)	3
Communication course	3
Minor or related field course or elective	3
Elective	3
Elective	3
Total.....	15

Total overall hours required for degree = 120

*from A&S list available from A&S Advising or academic Exploration Web Page
 **one Communication course must be Communication 104, writing intensive
 ***may not exceed 40 hours in the major

COMMUNICATION COURSES

COMMUN 1200—Introduction to Speech Communication (3). Principles, process of speech communication in small group and public speaking situations. Three lab/lecture meetings per week.

COMMUN 1200H—Introduction to Speech Communication (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.

COMMUN 2100H—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. Honors eligibility required.

COMMUN 2315—Basic Audio Production and Performance (3). Radio speaking in varied types of programs; console operations, tape editing, microphone techniques. Prerequisite: instructor's consent.

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 1000.

COMMUN 3310—Message Design and Writing for the Media (3). Styles and functions of various script formats for radio, television productions. Prerequisites: COMMUN 2315 or instructor's consent.

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: COMMUN 2315.

COMMUN 3318—Performance in the Visual Media (3). Basic styles and presentational skills necessary in performing for film and television. Prerequisite: instructor's consent.

COMMUN 3390—Television Studio Production (3). Operation of television studio production equipment; processes and procedures of producing and directing. Prerequisites: COMMUN 2315, junior standing and instructor's consent.

COMMUN 3395—Television Field Production (3). Theory and practice of TV field production, including preproduction, production with portable equipment and electronic editing. Prerequisite: COMMUN 3390, junior standing and instructor's consent.

COMMUN 3422—Communication Research Methods (3). Focuses on writing and administering surveys, conducting field

research, and designing experimental studies. Prerequisites: junior standing.

COMMUN 3441—Nonverbal Communication (3). Analysis of form and content of nonverbal communication. Emphasis on role of nonverbal cues in interpersonal communication. Prerequisite: junior standing or instructor's consent.

COMMUN 3470—Culture and Communication (3). (same as ANTHRO 3470).

COMMUN 3561—Relational Communication (3). Analysis of communication influences on relational identities and development. Prerequisite: junior standing or instructor's consent.

COMMUN 3570—Performance of Literature (3). (same as ENGLISH 3570 and 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 PEA ST 3571). Procedures and techniques for interpersonal communication and decision making in small groups. Prerequisite: junior standing or instructor's consent.

COMMUN 3572—Argument and Advocacy (3). Critical analysis and production of argument emphasizing evidence, reasoning, and refutation. Prerequisite: COMMUN 1200.

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: COMMUN 1200 or instructor's consent.

COMMUN 3576—Persuasive Speaking (3). Principles, techniques of persuasive speaking. Prerequisites: COMMUN 1200 or instructor's consent.

COMMUN 3614—Radio-TV Programming and Management (3). Analysis and evaluation of program scheduling, audience research methodologies, and issues related to management of media facility. Prerequisites: junior standing & instructor's consent.

COMMUN 3617—Broadcast Regulation and Responsibility (3). Federal, state regulations affecting programming, operating policies of American broadcast stations; administrative authority of Federal Communications Commission; responsibility of broadcast license. Prerequisite: instructor's consent.

COMMUN 3636—Contemporary Issues in Telecommunications (3). Introduction to current issues and trends and relationship among the new technologies, policies, and potential impact on society. Prerequisites: junior standing and instructor's consent.

COMMUN 3701—Topics in Communication-General (3). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: COMMUN 1200, 2100, departmental consent for repetition.

COMMUN 3703—Topics in Communications-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.

COMMUN 4395—Professional Seminar in Television Production (3). Application of principles to advanced television production, direction. Prerequisites: COMMUN 3390 and instructor's consent.

COMMUN 4412—Gender, Language, and Communication (3). (same as LINGST 4412 and ANTHRO 4412). Relationship among gender, language, nonverbal communication, and culture. Prerequisite: junior standing or departmental consent.

COMMUN 4415—Language and Discourse (3). (same as LINGST 4415). Analysis of the rules of social interaction and the functions of language in discourse. Prerequisites: junior standing and departmental consent.

COMMUN 4440—Ethical Issues in Communication (3). (same as PEA ST 4400). Exploration and analysis of ethical dimensions intrinsic to human communication. Prerequisite: junior standing or departmental consent.

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 practicum. Prerequisite: junior standing or departmental consent.

COMMUN 4474—Theory and Research in Persuasion (3). Studies the persuasive process, attitude formation, modification. Prerequisites: COMMUN 3576 and departmental consent.

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: COMMUN 3571 or departmental consent.

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: COMMUN 1200, junior standing and departmental consent.

COMMUN 4520—Family Communication (3). (same as H D FS 4520). Analysis of the functions and processes of communication within families. Prerequisite: junior standing or departmental consent.

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 and instructor's consent.

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.

COMMUN 4701—Topics in Communications-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.

COMMUN 4940—Internship (1-4). Directed professional experience within and outside the University in communication-related fields or

organizations. S/U graded only. Prerequisites: Admission to department, junior standing, instructor's consent, 2.5 GPA.

COMMUN 4960—Directed Reading (1-3). 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: COMMUN 3390, senior standing. May not be taken by graduate students. It is a capstone course for undergraduate students only.

COMMUN 4996—Honors in Communication (2). Special work for Honors candidates in communication.

COMMUN 4997—Honors in Communication (2). Special work for Honors candidates in communication.

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 systems analysis, 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 CS 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	30
CS 1050: Algorithm Analysis and Programming I	3
CS 2050: Algorithm Analysis and Programming II	3
CS 2110: Production Languages-C	3
CS 3270: Introduction to Digital Logic	3
CS 3310: Systems Analysis I	3
CS 3380: Database Applications and Information Systems	3
CS 4320: Software Engineering I.....	3
CS 3530: UNIX Operating System	3

Two CS courses numbered 2000 or above for which the student has the prerequisite (most students choose from the following).....6

- CS 2110: Production Languages (3)
- CS 2830: Introduction to the Internet, WWW and Multimedia Systems (3)
- CS 3280: Assembly Language and Computer Organization (3)
- CS 3330: Object Oriented Programming (3)
- CS 3940: Internship in Computer Science (3)
- CS 4001: Topics (1-3)
- CS 4330: Object Oriented Design I (3)
- CS 4380: Database Management Systems I (3)
- CS 4450: Principles of Programming Languages (3)
- CS 4610: Computer Graphics I (3)
- CS 4830: Science and Engineering of the World Wide Web (3)

Additional requirements.....9

- MATH 1300: Finite Math (3)
- MATH 1320: Elements of Calculus (3)
- STAT 2500: Intro to Probability and Statistics (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 SCI 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.

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.

Sample Eight-Semester Program

Bachelor of Arts Degree with a major in Computer Engineering

Check the *Undergraduate Catalog* for course prerequisites.

Fall I

CECS 1050	3
MATH 1300	3
Constitutional elective ...	3
Behavioral science	3
General elective	3
Total.....	15

Fall II

CS 2110-C.....	3
CS 3310.....	3
STAT 2500	3
Social science.....	3
Behavioral science	3
Total.....	15

Fall III

CS 3530.....	3
Minor.....	3
Foreign language.....	5
Humanities/Fine Arts	3
Elective	1
Total.....	15

Fall IV

CS Elective.....	3
Minor.....	3
Social science	3
Humanities/Fine Arts	3
General elective	3
Total.....	15

Winter I

CS 2050	3
MATH 1320.....	3
ENGLSH 1000	3
Humanities/Fine Arts	3
General elective.....	3
Total	15

Winter II

CS 2210.....	3
CS 3380.....	3
Foreign language	5
Minor.....	3
General elective.....	1
Total	15

Winter III

CS elective.....	3
Minor.....	3
Foreign language	3
Science with lab	3-6
Elective.....	1
Total	12-15

Winter IV

CS 332	3
Minor.....	3
Humanities/Fine Arts	3
General elective`	3
General elective.....	3
Total	15

Minor in Computer Science

A minor in computer science is offered through the College of Engineering and also through the College of Arts and Science. 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:

CS 1050: Algorithm Design & Programming I.....	3
CS 2050: Algorithm Design & Programming II	3
CS 3270: Introduction to Digital Logic	3
Three additional department-approved CS courses with at least one numbered above 3000	9

Note: For course descriptions, see College of Engineering, Department of Computer Science.

Department of Economics

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RESIDENT INSTRUCTION ASSISTANT PROFESSOR S. A. Ryan

VISITING ASSISTANT PROFESSOR K. Y. Choe, S. K. Klein, Myoung Lee

PROFESSOR EMERITUS D. J. Loschky, C. F. Menezes

ASSOCIATE PROFESSOR EMERITUS D. Schilling

RESEARCH ASSOCIATE K. S. Jeon

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 the Bachelor of Science in Business Administration (BS BA) 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.

Major core requirements (with a grade of C or above)

ECONOM 1051H: General Economics (5) OR
ECONOM 1015: Principles of Macroeconomics 3-5

ECONOM 1014: Principles of Microeconomics OR
ECONOM 1024: Fundamentals of Microeconomics.....6
ECONOM 3229: Money and Banking3
ECONOM 4351: Intermediate Price Theory3
ECONOM 4353: Intermediate Income Analysis3
ECONOM 4970: Senior Seminar in Economics (capstone course)3

Electives

At least two of the following, with one at the 3000 level, selected with the adviser and completed with a grade of C or above:

ECONOM 3002: Topics
ECONOM 3224: Introduction to International Economics
ECONOM 3256: Economics of Public Policy: Antitrust
ECONOM 3261: Economic Transformation in Eastern Europe and the Former Soviet Union
ECONOM 4995: Economics Proseminar
ECONOM 4385: Problems (cr. arr.)
ECONOM 4002: Topics in Economics (1-5)
ECONOM 4311: Employment and Wages
ECONOM 4312: Special Topics in Labor Markets
ECONOM 4315: Public Economics
ECONOM 4316: State and Local Finance
ECONOM 4320: Economic Doctrines
ECONOM 4322: Economics of Regulation
ECONOM 4325: The International Monetary System
ECONOM 4326: Economics of International Trade
ECONOM 4329: Banking and Money Markets
ECONOM 4335: Economics for Decision-Making
ECONOM 4340: Economic Theory of Games
ECONOM 4345: Economics of Education
ECONOM 4355: Structure of Industry
ECONOM 4360: Economic Development
ECONOM 4361: Comparative Economic Systems
ECONOM 4362: Welfare Economics
ECONOM 4368: Macroeconomic Forecasting
ECONOM 4370: Introduction to Quantitative Economics (4)
ECONOM 4371: Applied Econometrics
ECONOM 4384: Structural Change in Economic History
ECONOM 4970: Senior Seminar in Economics
ECONOM 4965: Independent Study (cr. arr.)

Options

Students majoring in economics may earn either a BS or a BA degree. Depending upon which degree is sought; students must choose one of the options below:

BA with a major in economics:

Related subject8
Courses approved by the adviser OR minor in another department in the College of Arts and Science (including two upper-class courses)

Required prerequisite courses 9-11

STAT 2500: Introduction to Probability and Statistics I3
MATH 1300: Finite Mathematics3
MATH 1320: Elements of Calculus (3) OR
MATH 1500: Analytic Geometry and Calculus I (5).... 3-5

BS with a major in economics:

The BS degree is for students who plan to attend graduate school in economics or finance. The student fulfills all University general education requirements, including one laboratory course.

ECONOM 4970: Senior Seminar in Economics (with a grade of C or above).....	3
Mathematics courses	28
MATH 1500: Analytic Geometry and Calculus I	5
MATH 1700: Calculus II	5
MATH 2300: Calculus III	3
MATH 2120: Elementary Matrix Theory OR	
MATH 4140: Matrix Theory	3
STAT 4750: Introduction to Probability Theory and	
STAT 4760: Statistical Inference I OR	
STAT 4710: Introduction to Mathematical Statistics and	
STAT 4510: Regression and Correlation Analysis.....	6
CS 1050: Algorithm Design and Programming I	3
One of the following courses	3
MATH 4700: Advanced Calculus I	
STAT 4210: Nonparametric Statistical Methods	
CS 2050: Algorithm Design and Programming II	

Language Option (for majors seeking a BS)

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 adviser and must be approved by the director of undergraduate studies.

Major Program Requirements – Business Administration

See the Department of Business Administration in the College of Business for requirements for the Bachelor of Science with a major in Business Administration (BS BA).

Dual Major and Five-Year Program

Students may earn dual majors in economics and mathematics and in economics and accounting. Careful choices of electives in addition to required courses can facilitate a dual major in economics and finance, for example. By planning their courses carefully, economics majors can earn a bachelor's and a master's degree in economics in five years. Students interested in pursuing any of these options should contact the director of undergraduate studies in economics for 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 ECON 4371: Applied Econometrics and ECON 4995: The Honors Pro Seminar class (capstone course) during the senior year in order to be awarded departmental honors. Interested students should contact the Director of Undergraduate Studies.

Minor in Economics

Students wishing to minor in economics must take a minimum of 18 credits in economics. Courses must include ECONOM 1014 (or 1024) and 1015 (or 1051H instead of the previous two courses), 3229, and 3251 or 4351 plus two economics electives including at least one at the 3000 level. Students who take both ECONOM 3251 and 4351 will receive credit for only one of these courses.

Sample Eight-Semester Programs

Bachelor of Arts with a major in Economics

Check the *Undergraduate Catalog* for course prerequisites.

Fall I

MATH 1100 or 1120	3
Language.....	4
ECONOM 1014	3
ENGLSH 1000.....	3
Social science elective ...	3
Total.....	16

Fall II

MATH 1320	3
Language.....	3
ECONOM 3229	3
Social science elective ...	3
Humanities elective.....	3
Total.....	15

Fall III

ECONOM 4351	3
Humanities elective.....	3
Behavioral science elective	3
Related field elective.....	3
Elective	3
Total.....	15

Fall IV

Economics WI elective ...	3
Economics elective	3
Humanities elective.....	3
Elective	3
Elective	3
Total.....	15

Winter I

MATH 1300.....	3
Language	4
ECONOM 1015.....	3
Lab science	4
Total	14

Winter II

STAT 2500.....	3
Behavioral science elective	3
Humanities elective	3
Social science elective.....	3
Elective.....	3
Total	15

Winter III

ECONOM 4353.....	3
ECONOM 4371.....	3
Related field elective	3
Humanities elective	3
WI elective	3
Total	15

Winter IV

ECONOM 4970.....	3
Elective.....	3
Total	15

Bachelor of Science with a major in Economics

Check the *Undergraduate Catalog* for course prerequisites.

Fall I

MATH 1500	5
Missouri state requirement	3
ECONOM 1015	3
ENGLSH 1000	3
Total.....	14

Fall II

MATH 1320	3
CECS 1050	3
ECONOM 3229	3
ECONOM 4351	3
Elective	3
Total.....	15

Winter I

MATH 1700.....	3
Humanities WI elective ...	3
ECONOM 1014.....	3
Lab science	4
Elective.....	3
Total	16

Winter II

MATH 4140.....	3
ECONOM 4353.....	3
STAT 4750 or 4710	3
Track or language elective	3
Humanities elective	3
Total	15

Fall III
 ECONOM WI elective... 3
 STAT 4760 or 4510 3
 Elective 3
 Track or
 language elective..... 3
 Humanities elective..... 3
Total..... 15

Winter III
 Economics elective..... 3
 ECONOM 4371..... 3
 Track or
 language elective 3
 Science elective 3
 Math, Statistics or
 computer science elective ..3
Total 15

Fall IV
 Track or
 language elective..... 3
 ECONOM 4370 3
 Humanities elective..... 3
 Elective 3
 Elective 3
Total..... 15

Winter IV
 ECONOM 4970..... 3
 Science elective 3
 Elective..... 3
 Elective..... 3
 Elective..... 3
Total 15

ECONOMICS COURSES

ECONOM 1013—Economic Analysis for Social Issues (3). An introduction to the basic tools of economic analysis and their use in analyzing current economic and social issues.

ECONOM 1014—Principles of Microeconomics (3). Survey of microeconomic principles and their application to contemporary economic issues. Not open to students who have completed ECONOM 1024, 1051H, or 4332.

ECONOM 1015—Principles of Macroeconomics (3). Survey of macroeconomic principles and their application to contemporary economic issues. Not open to students who have completed ECONOM 1051H. Prerequisites: ECONOM 1014 or 1024.

ECONOM 1024—Fundamentals of Microeconomics (3). Elementary analysis of the price system and the allocation of economic resources. Not open to students who have completed ECONOM 1024, 1051H, or 4332. Prerequisite: Prior completion of MATH 1100/1120 or equivalent with grade of C or better.

ECONOM 1051H—General Economics (5). Introduces economics; emphasizes certain fundamental principles, and their application to questions of policy. Honors eligibility required.

ECONOM 1111—Environmental Economics (3). Deals with the interaction of people with the world around them. Emphasis on the impact of one's actions on others, external to the transaction. A diverse set of problems is considered, ranging from urban congestion to global warming.

ECONOM 2002—Undergraduate Topics in Economics-Biological/Physical/Mathematical (1-3). Organized study of selected topics. Subjects and credits may vary from semester to semester. Prerequisites: departmental consent for repetition.

ECONOM 3002—Topics in Economics-General (cr.arr.). Organized study of selected topics. Subjects and credit may vary from semester to semester.

ECONOM 3210—Labor Economics (3). Surveys economic activity of the population, trade unionism, wage and employment

determination, employment and income insecurity, and under utilization of human resources from the standpoint of public policy. Prerequisites: ECONOM 1014 or 1024 and 1015, or 1051H.

ECONOM 3214—Principles of Economics for Teachers (3). Covers mostly micro concepts, but includes some macro. Course includes demonstration lessons on how to teach economics K-12. (Limited to Education majors).

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, multilateral trade negotiations, trade and development, exchange rates, the International Monetary System, and economic integration. Prerequisite: ECONOM 1014, or 1024 or 1051H.

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: ECONOM 1014 or 1024 and 1015 or 1051H.

ECONOM 3229H—Money and Banking (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: ECONOM 1014 or 1024 and 1015 or 1051H. Honors eligibility required.

ECONOM 3251—Theory of the Firm (3). Introduces price theory and the economics of the firm. No credit for students who have completed 351. Prerequisites: ECONOM 1014 or 1024 and 1015, or 1051H.

ECONOM 3256—Economics of Public Policy: Antitrust Economics (3). Competition and monopoly and their roles in the American

economy. Prerequisites: ECONOM 1014 or 1024 and 1015, or 1051H.

ECONOM 3261—Economic Transformation in Eastern Europe & Former Soviet Union (3). An analysis of economic stabilization, liberalization and structural transformation in the transition from centralized planning toward a market economy. Prerequisites: ECONOM 1014 or 1024 or 1051H or instructor's consent.

ECONOM 3271—Introduction to Applied Econometric Practice (3). Introduction to the use of regression analysis of economic data, including simple and multiple regression, dummy variables. Econometric problems considered include heteroscedasticity, autocorrelation, multicollinearity and simultaneous equation issues. Prerequisites: ECONOM 1014 or 1024 and 1015, or 1051H and STAT 2500.

ECONOM 4002—Topics in Economics-Biological/Physical/Mathematical (1-5). Study in applied or theoretical economics. May be repeated for credit to a maximum of 5 hours. Prerequisite: instructor's consent.

ECONOM 4311—Labor Economics (3). Surveys theoretical explanations of wage and employment determination in contemporary labor markets. Prerequisite: ECONOM 3251 or 4351.

ECONOM 4312—Labor Market Analysis (3). Topics illustrate the economics of labor market institutions, including union formation, discriminatory labor market behavior and the structure of compensation. Prerequisite: ECONOM 3251 or 4351 or instructor's consent.

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: ECONOM 3251 or 4351.

ECONOM 4316—State and Local Finance (3). State and local tax and expenditure problems, intergovernmental fiscal relations, problems of metropolitan areas. Prerequisites: ECONOM 3251 or 4351 or instructor's consent.

ECONOM 4320—Introduction to Economic Doctrines (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: ECONOM 1014 or 1024 and 1015 or 1051H.

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: ECONOM 3251 or 4351.

ECONOM 4325—The International Monetary System (3). Study of macroeconomic and monetary relationships between the US and the world. Topics include balance of payments, foreign exchange rates, history of the international monetary system. Prerequisite: 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 LDC's and the trade effects of economic growth. Prerequisite: ECONOM 4251 or 4351 or instructor's consent.

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: ECONOM 3229.

ECONOM 4332—Microeconomics for Managers (3). Microeconomic concepts presented at the intermediate level, graphic treatment with limited calculus, managerial issues presented at the MBA level. Prerequisites: ECONOM 1014 or 1024, MATH 1300. +/- grading systems. (Not open to economics majors) must have a consent card for MBA program.

ECONOM 4333—Macroeconomics for Managers (3). Measurement of economic activity; determinants of national income and investment; forecasting national income; money, prices and inflation; monetary and fiscal policy. Prerequisite: ECONOM 4332 or instructor's consent. Not open to undergraduate majors or students in Economics.

ECONOM 4335—Economics for Decision Making (3). Process of economic reasoning and application of economic concepts, theory, and methods to a wide range of management problems at both private firms and public agencies. Prerequisites: ECONOM 3229 and 3251 or 4351.

ECONOM 4337—Economics of Speculative Markets (3). Considers the economic purpose of speculative markets and derives their price formation mechanisms. A historical approach is used to develop the problems involved in predicting prices and to evaluate the tools that have been used in attempting prediction. Prerequisite: ECONOM 1014 or 1024 and 1015, or 1051H and MATH 1320 or instructor's consent.

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: ECONOM 3251 or 4351 or instructor's consent.

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: ECONOM 1014 or 1024, or 1051H and 3271 or 4371 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 251. Prerequisites: ECONOM 1014 or 1024 or 1051H and MATH 1320 or equivalent.

ECONOM 4353—Intermediate Macroeconomics (3). National income concepts; national income accounting; theory of income determination. Prerequisite: ECONOM 3229.

ECONOM 4355—Industrial Organization (3). Analyzes the structure of industry; its impact on the operations of the firm; and its significance for public policy. Prerequisites: ECONOM 3251 or 4351.

ECONOM 4360—Economic Development (3). (same as Peace Studies 360). 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: ECONOM 3229 and 3251 or 4351.

ECONOM 4361—Comparative Economic Systems (3). Study of capitalism, market socialism, and central planning. Prerequisites: ECONOM 3229 and 3251 and 4351.

ECONOM 4362—Welfare Economics (3). Role of value judgments; meaning and measurement of economic welfare; interpersonal comparisons; cardinal and ordinal utility; Pareto optimality, conflicts of interest and distribution of income; individual values and social choice. Prerequisite: ECONOM 4351.

ECONOM 4368—Macroeconomic Forecasting (3). Theory and practice of forecasting macroeconomic variables. Emphasis on acquiring skills in data analysis, basic SAS programming, single equation regression and time-series analysis, and the mathematical principles of forecasting. Prerequisite: ECONOM 3229 and STAT 2500.

ECONOM 4370—Introduction to Quantitative Economics (3). Introduction to the mathematical language of economic theory. Topics include multivariate calculus, introductory linear algebra, optimization, dynamic analysis, and stability. Prerequisite: MATH 1500 or equivalent, or instructor's consent.

ECONOM 4371—Applied 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: ECONOM 3251 or 4351 and STAT 1320 and MATH 1320 or instructor's consent.

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: ECONOM 1014 or 1024 and 1015, or 1051H or instructor's consent.

ECONOM 4385—Problems in Economics (cr.arr.). Credit arranged by instructor.

ECONOM 4965—Independent Study in Economics (cr.arr.). Individual work, with conferences adjusted to needs of student. Prerequisite: instructor's consent.

ECONOM 4970—Senior Seminar in Economics (3). (capstone course). 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 4995—Honors Proseminar (2-3). Research for graduation with Honors in economics.

Department of English

Howard Hinkel, Chair
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FACULTY

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VISITING ASSISTANT PROFESSOR F. Dickey
PROFESSOR EMERITUS C. H. Hinnant, R. A. Hocks

The English Department provides a major with tracks in literature, African 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 1999.

Major core requirements.....30
UNIT I: Prerequisite3
ENGLSH 3100: Introduction to Literary Study
UNIT II: Literature18
At least 3 credits 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 Criticism6
UNIT IV: Capstone3
ENGLSH 4970 Capstone Experience

Departmental Honors

To graduate with honors in English, students must have a 3.3 GPA and take ENGLSH 4996 and the capstone, ENGLSH 4995. More information is available from the director of undergraduate studies.

Tracks

Students may choose an optional track in Africana 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 tracks described below. (Note: Tracks do not appear on transcripts or diplomas.)

Africana studies track9
Three of the following courses in Africana studies
ENGLSH 2400, 3400, 3410, 3420, 4410, 4420, 4480, 4400 and 4710.
English language track9
Three of the following courses in the English language
ENGLSH 1060: Introduction to Language
ENGLSH 4600: Structure of American English
ENGLSH 4610: History of the English Language
ENGLSH 4620: Regional and Social Dialects
ENGLSH 4630: Phonology
ENGLSH 4640: Syntax
ENGLSH 4650: Teaching English as a Second Language
Creative writing track9
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 track9
Three of the following courses in folklore and oral tradition
ENGLSH 2700: Introduction to Folklore OR
ENGLSH 2770: Introduction to Oral Literature
ENGLSH 3700: American Folklore
ENGLSH 4700: Special Themes in Folklore
ENGLSH 4780: Women's Folklore
ENGLSH 4770: Oral Tradition

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 required composition course. 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 ENGLISH 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 adviser.

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 adviser for specific requirements.

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 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 1000 is a prerequisite for any Writing Intensive course. Honors eligibility required.

ENGLISH 1060—Human Language (3). (same as Anthropology 1060, Communication Science Disorders 1060 and Linguistics 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data, with some attention to application to 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 1100 course for description.

ENGLISH 1107—Reading Literature, 1603 to 1789 (3). See English 1100 course for description.

ENGLISH 1108—Reading Literature, 1789-1890 (3). See English 1100 course for description.

ENGLISH 1109—Reading Literature, 1890 to Present (3). See English 1100 course for description.

ENGLISH 1150—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 1156—Introduction to World Literatures, Beginnings to 1603 (3). See English 1150 for course description.

ENGLISH 1157—Introduction to World Literatures, 1603 to 1789 (3). See English 1150 for course description.

ENGLISH 1158—Introduction to World Literatures, 1789 to 1890 (3). See English 1150 for course description.

ENGLISH 1159—Introduction to World Literatures, 1890 to Present (3). See English 1150 for course 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 1160 for course description.

ENGLISH 1167—Themes in Literature, 1603 to 1789 (3). See English 1160 for course description.

ENGLISH 1168—Themes in Literature, 1789 to 1890 (3). See 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 1200 for course description.

ENGLISH 1207—Readings in British Literature, 1603 to 1789 (3). See English 1200 for course description.

ENGLISH 1208—Readings in British Literature, 1789 to 1890 (3). See English 1200 for course description.

ENGLISH 1209—Readings in British Literature, 1890 to Present (3). See English 1200 for course description.

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 1300 for course description.

ENGLISH 1308—Readings in American Literature, 1789 to 1890 (3). See English 1300 for course description.

ENGLISH 1309—Readings in American

Literature, 1890 to Present (3). See English 1300 for course description.

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 1810—Introduction to Film: The Beginnings to 1945 (3). Surveys the basic techniques of filmmaking, some important film genres and classic films of the period. Students who have already completed English 2830 cannot receive credit for English 1810.

ENGLISH 1820—Introduction to Film: 1945-Present (3). Surveys the basic techniques of filmmaking, some important film genres and classic American and European films of the period. 91 is not a prerequisite. Students who have already completed English 2840 cannot receive credit for English 1820.

ENGLISH 2000—Topics in English Studies (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 2001—Topics in English Studies (3). Underclass topics. Subjects vary from semester to semester. May be repeated to 6 hours maximum.

ENGLISH 2004—Topics in English Studies (3). Underclass topics. Subjects vary from semester to semester. May be repeated to 6 hours maximum.

ENGLISH 2006—Topics in English Studies, Beginning to 1603 (3). See English 2000 for course description.

ENGLISH 2007—Topics in English Studies, 1603 to 1789 (3). See English 2000 for course description.

ENGLISH 2008—Topics in English Studies, 1789 to 1890 (3). See English 2000 for course description.

ENGLISH 2009—Topics in English Studies, 1890 to Present (3). See English 2000 for course description.

ENGLISH 2010—Intermediate Composition (3). Provides intensive guided practice in expository and persuasive writing. Prerequisite: ENGLISH 1000 or equivalent.

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 1000.

ENGLISH 2100—Introduction to 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 1000.

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 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 1000.

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 1000. No more than six hours may be taken in the Major Authors series. No more than six hours may be taken in the Major Authors series.

ENGLISH 2166—Major Authors, Beginning to 1603 (3). See English 2160 for course description.

ENGLISH 2167—Major Authors, 1603 TO 1789 (3). See English 2160 for course description.

ENGLISH 2168—Major Authors, 1789 to 1890 (3). See English 2160 for course description.

ENGLISH 2169—Major Authors, 1890 to Present (3). See English 2160 for course description.

ENGLISH 2180—Introduction to Women's Literature (3). (same as Women's and Gender Studies 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: 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 2186). See English 2180 for course description.

ENGLISH 2187—Introduction to Women's Literature, 1603 to 1789 (3). (same as Women's and Gender Studies 2187). See English 2180 for course description.

ENGLISH 2188—Introduction to Women's Literature, 1789 to 1890 (3). (same as Women's and Gender Studies 2188). See English 2180 for course description.

ENGLISH 2189—Introduction to Women's Literature, 1890 to Present (3). (same as

Women's and Gender Studies 2189). See English 2180 for course description.

ENGLISH 2200—Topics in British Literature (3). Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. Prerequisite: ENGLISH 1000. No more than six hours may be taken in the Topics in British Literature series.

ENGLISH 2206—Topics in British Literature, Beginning to 1603 (3). See English 2200 for course description.

ENGLISH 2207—Topics in British Literature, 1603 to 1789 (3). See English 2200 for course description.

ENGLISH 2208—Topics in British Literature, 1789 to 1890 (3). See English 2200 for course description.

ENGLISH 2209—Topics in British Literature, 1890 to Present (3). See English 2200 for course description.

ENGLISH 2300—Topics in American Literature (3). Topic (e.g., American Culture, The Frontier) announced at time of registration. Prerequisite: ENGLISH 1000. No more than six hours may be taken in the Topics in American Literature series.

ENGLISH 2306—Topics in American Literature, Beginning to 1603 (3). See English 2300 for course description.

ENGLISH 2307—Topics in American Literature, 1603 to 1789 (3). See English 2300 for course description.

ENGLISH 2308—Topics in American Literature, 1789-1890 (3). See English 2300 for course description.

ENGLISH 2309—Topics in American Literature, 1890 to Present (3). See English 2300 for course description.

ENGLISH 2400—Introduction to Anglophone Africana Literature (3). (same as Black Studies 2400). Introduces students to Africana literature with an emphasis on literature written originally in English. Prerequisite: ENGLISH 1000.

ENGLISH 2407—Introduction to Anglophone Africana Literature, 1603 to 1789 (3). (same as Black Studies 2407). See English 2400 for course description.

ENGLISH 2408—Introduction to Anglophone Africana Literature, 1789 to 1890 (3). (same as Black Studies 2408). See English 2400 for course description.

ENGLISH 2409—Introduction to Anglophone Africana Literature, 1890 to Present (3). (same as Black Studies 2409). See English 2400 for course description.

ENGLISH 2510—Creative Writing: Intermediate Fiction (3). Provides intensive guided practice in the writing of short fiction. Prerequisite: ENGLISH 1510 or equivalent.

ENGLISH 2520—Creative Writing: Intermediate Nonfiction Prose (3). Provides guided practice in the writing of creative nonfiction. Prerequisite: ENGLISH 1520 or equivalent.

ENGLISH 2530—Creative Writing: Intermediate Poetry (3). Provides intensive guided practice in the writing of poetry. Prerequisite: ENGLISH 1530 or equivalent.

ENGLISH 2560—Beginning Playwriting (3). (same as Theatre 2920). Study and practice

of playwriting fundamentals; emphasizes the one-act play.

ENGLISH 2700—Introduction to Folklore (3). (same as Anthropology 2480). Introduces the study of folklore, including the methodology, approaches and genres of folklore. Prerequisite: ENGLISH 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 Odyssey, and Beowulf). Prerequisite: ENGLISH 1000.

ENGLISH 2830—American Film in an International Context, 1895-1950 (3). (same as Film Studies 2830). Examines the development of American cinema in relation to other national cinemas. No credit for students who have completed English 1810. Prerequisite: ENGLISH 1000.

ENGLISH 2840—American Film in an International Context, 1950-Present (3). (same as Film Studies 2840). Examines the relationship of American cinema to world cinema, 1950-present. No credit for students who have completed English 1820. Prerequisite: ENGLISH 1000.

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 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 departments consent. Prerequisite: sophomore standing.

ENGLISH 3100—Introduction to Literary Study (3). Instruction in the fundamentals of writing about literature for prospective English majors; emphasizes the basic vocabularies and processes of literary research, interpretation, and criticism. Course covers two or more literary theories and two or more literary genres. Prerequisite: ENGLISH 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 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 3110 for course descriptions.

ENGLISH 3117—Special Themes in Literature

ture, 1603 to 1789 (3). See English 3110 for course descriptions.

ENGLISH 3118—Special Themes in Literature, 1789 to 1890 (3). See English 3110 for course descriptions.

ENGLISH 3119—Special Themes in Literature, 1890 to Present (3). See English 3110 for course descriptions.

ENGLISH 3170—World Dramatic Literature (3). (same as Theatre 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 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 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 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 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 1000 or equivalent.

ENGLISH 3400—Survey of African American Literature, Beginnings to 1900 (3). (same as Black Studies 3400). A survey of major authors and movements in African American literature from its beginnings to 1900. Prerequisite: ENGLISH 1000.

ENGLISH 3410—Survey of African American Literature, 1900-Present (3). (same as Black Studies 3410). A survey of major authors and movements in African American literature from 1900 to the present. Prerequisite: ENGLISH 1000.

ENGLISH 3420—Periods and Genres in Anglophone Africana Literature (3). (same as Black Studies 3420). Topic (e.g. Harlem Renaissance Africana Poetry) Announced at time of registration. Prerequisite: ENGLISH 1000. No more than six hours may be taken in the Periods and Genres in Anglophone Africana Literature series.

ENGLISH 3427—Periods and Genres in Anglophone Africana Literature, 1603 to 178 (3). (same as Black Studies 3427). See English 3420 for course description.

ENGLISH 3428—Periods and Genres in Anglophone Africana Literature, 1789 to 1890 (3). (same as Black Studies 3428). See English 3420 for course description.

ENGLISH 3429—Periods and Genres in Anglophone Africana Literature, 1890-Present (3). (same as Black Studies 3429). See English 3420 for course description.

ENGLISH 3560—Intermediate Playwriting (3). (same as Theatre 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 2560.

ENGLISH 3570—Performance of Literature (3). (same as Communication 3570 and Theatre 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 3480). 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 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—Topics 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 2010 or instructor's consent.

ENGLISH 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 1000 and sophomore standing.

ENGLISH 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.

ENGLISH 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.

ENGLISH 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.

ENGLISH 4106—Genres, Beginning to 1603 (3). See English 4100 for course description.

ENGLISH 4107—Genres, 1603 to 1789 (3). See English 4100 for course description.

ENGLISH 4108—Genres, 1789 to 1890 (3). See English 4100 for course description.

ENGLISH 4109—Genres, 1890 to Present (3). See English 4100 for course description.

ENGLISH 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.

ENGLISH 4127—Ethnic Literature, 1603 to 1789 (3). See English 4120 for course description.

ENGLISH 4128—Ethnic Literature, 1789 to 1890 (3). See English 4120 for course description.

ENGLISH 4129—Ethnic Literature, 1890 to Present (3). See English 4120 for course description.

ENGLISH 4140—Modern Literature (3). A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

ENGLISH 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.

ENGLISH 4156—World Literatures, Beginning to 1603 (3). See English 4150 for course description.

ENGLISH 4157—World Literatures, 1603 to 1789 (3). See English 4150 for course description.

ENGLISH 4158—World Literatures, 1789 to 1890 (3). See English 4150 for course description.

ENGLISH 4159—World Literatures, 1890 to Present (3). See English 4150 for course description.

ENGLISH 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.

ENGLISH 4166—Major Authors, Beginning to 1603 (3). See English 4160 for course description.

ENGLISH 4167—Major Authors, 1603-1789 (3). See English 4160 for course description.

ENGLISH 4168—Major Authors, 1789-1890 (3). See English 4160 for course description.

ENGLISH 4169—Major Authors, 1890-Present (3). See English 4160 for course description.

ENGLISH 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.

ENGLISH 4176—Comparative Approaches to Literature, Beginning to 1603 (3). See English 4170 for course description.

ENGLISH 4177—Comparative Approaches to Literature, 1609-1789 (3). See English 4170 for course description.

ENGLISH 4178—Comparative Approaches to Literature, 1789-1890 (3). See English 4170 for course description.

ENGLISH 4179—Comparative Approaches to Literature, 1890-Present (3). See English 4170 for course description.

ENGLISH 4180—Major Women Writers (3). (same as Women's and Gender Studies 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.

ENGLISH 4181—Themes in Literature by Women (3). (same as Women's and Gender Studies 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.

ENGLISH 4186—Major Women Writers, Beginning to 1603 (3). (same as Women's and Gender Studies 4186). See English 4180 for course description.

ENGLISH 4187—Major Women Writers, 1603-1789 (3). (same as Women's and Gender Studies 4187). See English 4180 for course description.

ENGLISH 4188—Major Women Writers, 1789-1890 (3). (same as Women's and Gender Studies 4188). See English 4180 for course description.

ENGLISH 4189—Major Women Writers, 1890-Present (3). (same as Women's and Gender Studies 4189). See English 4180 for course description.

ENGLISH 4200—Introduction to Old English (3). (same as Linguistics 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.

ENGLISH 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.

ENGLISH 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.

ENGLISH 4226—Renaissance and Seventeenth Century Literature, Beginning to 1603 (3). See English 4220 for course description.

ENGLISH 4227—Renaissance and Seventeenth Century Literature, 1603 to 1789 (3). See English 4220 for course description.

ENGLISH 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.

ENGLISH 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.

ENGLISH 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.

ENGLISH 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.

ENGLISH 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.

ENGLISH 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.

ENGLISH 4400—Topics or Genres in Anglophone African Literature (3). (same as Black Studies 4400). Topics (e.g., African American Poetry, Africana Drama) announced at time of registration. No more than six hours may be taken in the Genres in Anglophone African Literature series. Prerequisite: junior standing.

ENGLISH 4407—Topics or Genres in Anglophone African Literature, 1603 to 1789 (3). (same as Black Studies 4407). See English 4400 for course description.

ENGLISH 4408—Topics or Genres in Anglophone African Literature, 1603 to 1789 (3). (same as Black Studies 4408). See English 4400 for course description.

ENGLISH 4409—Topics or Genres in Anglophone African Literature, 1603 to 1789 (3). (same as Black Studies 4409). See English 4400 for course description.

ENGLISH 4410—Major Anglophone African Writers (3). (same as Black Studies 4410). An intensive study of selected writers of African literature, focusing on texts original in English. No more than six hours may be taken in the Major Anglophone African Writers series. Prerequisite: junior standing or instructor's consent.

ENGLISH 4417—Major Anglophone African Writers, 1603 to 1789 (3). (same as Black Studies 4417). See English 4410 for course description.

ENGLISH 4418—Major Anglophone African Writers, 1789 to 1890 (3). (same as Black Studies 4418). See English 4410 for course description.

ENGLISH 4419—Major Anglophone African Writers, 1890 to Present (3). (same as Black Studies 4419). See English 4410 for course description.

ENGLISH 4420—African Womanism (3). (same as Black Studies 4420). An intensive study of African Womanism, focusing on selected African women writers. Prerequisites: junior standing or instructor's consent. May be repeated to six hours with departmental consent.

ENGLISH 4480—Major Anglophone African Women Writers (3). (same as Women's and Gender Studies 4480 and Black Studies

4480). Study of selected African women writers, focusing on texts originally in English. No more than six hours may be taken in the Major African Women Writers series. Maximum of 6 hours for 4180 and 4480.

ENGLISH 4487—Major Anglophone African Women Writers, 1603 to 1789 (3). (same as Women's and Gender Studies 4487 and Black Studies 4487). See English 4480 for course description.

ENGLISH 4488—Major Anglophone African Women Writers, 1789 to 1890 (3). (same as Women's and Gender Studies 4488 and Black Studies 4488). See English 4480 for course description.

ENGLISH 4489—Major Anglophone African Women Writers, 1789 to 1890 (3). (same as Women's and Gender Studies 4489 and Black Studies 4489). See English 4480 for course description.

ENGLISH 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 2510 or equivalent.

ENGLISH 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 2520 or equivalent.

ENGLISH 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 2530 or equivalent.

ENGLISH 4560—Advanced Playwriting: Problems (3). (same as Theatre 4920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques. Prerequisite: ENGLISH 3560.

ENGLISH 4570—Adaptation of Literature for the Stage (3). (same as Theatre 4200). Explores adaptation principles and practices with literature not originally written for the stage. Identical to Theatre 4200. Graded on A/F basis only.

ENGLISH 4600—Structure of American English (3). (same as Linguistics 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax. Prerequisite: junior standing.

ENGLISH 4610—History of the English Language (3). (same as Linguistics 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.

ENGLISH 4620—Regional and Social Dialects of American English (3). (same as Linguistics 4620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English. Prerequisite: ENGLISH 4600 and 4610 or equivalent.

ENGLISH 4630—Phonology (3). (same as Linguistics 4630). Survey of the sound patterns of English, with some comparison to other languages. Prerequisite: ENGLISH 4600 or another introductory course in linguistics

or phonetics.

ENGLISH 4640—Syntax (3). (same as Linguistics 4640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages. Prerequisite: ENGLISH 4600 or another comparable linguistics course.

ENGLISH 4650—Principles of Teaching English as a Second Language (3). (same as Linguistics 4650). Linguistic and pedagogical principles of teaching English to speakers of other languages. Prerequisite: ENGLISH 4600 and 4610 or equivalent.

ENGLISH 4700—Special Themes in Folklore (3). (same as Anthropology 4480). 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.

ENGLISH 4710—Themes in Africana Folklore (3). (same as Anthropology 4490 and Black Studies 4710). Intensive study in a selected area of Africana folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. 385 and 385A may be repeated for a maximum of six hours with instructor's consent. Prerequisite: junior standing.

ENGLISH 4770—Oral Tradition (3). (same as Classical Humanities 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.

ENGLISH 4780—Women's Folklore and Feminist Theory (3). (same as Women's and Gender Studies 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.

ENGLISH 4940—Internship in English (1-3). Students work in an agency or institution using their English English-related skills for one to three credit hours. Prerequisite: junior standing, department's consent. Graded on an S/U basis only.

ENGLISH 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.

ENGLISH 4955—Independent Research in English (1-3). Development of a carefully considered independent research project under close supervision of a faculty member. Open to undergraduate students only. Prerequisites: ENGLISH 3100 and departmental consent.

ENGLISH 4960—Special Readings in English (cr.arr.). Individual work with conferences adjusted to needs of student. Prerequisites: 300-level course in area of proposed work and written consent of instructor. Restricted to senior English majors in their final semester.

ENGLISH 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.

ENGLISH 4995—Honors Senior Essay (3). Independent project for completion of honors work in English. Open to departmental honors candidates only.

ENGLISH 4996—Honors Seminar in English (3). Studies major critics, with emphasis on the application of criticism to the study of literature.

General Studies Program

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Office of Special Degree Programs
College of Arts and Science
210 Switzler Hall
(573) 882-6060

The Bachelor of General Studies (BGS) is designed for students who cannot meet their educational objectives by pursuing a degree from an existing program on campus. The BGS program was originally designed to help older students returning to school, but today the majority of the students in this program are traditional students looking for a degree that provides the flexibility to combine their interests into a coherent program.

The program requires 120 credits. The balance of requirements differs from traditional Arts and Science degree programs. This is true particularly in regard to the major requirements. General studies students are required to take 45 credits in the major. Students divide their work among three areas of study, called components, and may select courses offered by any academic division or department at MU. At least one component must come from a department in the College of Arts and Science. In addition to the major program requirements, students must complete college and University graduation requirements including University general education.

Students who pursue this degree typically have a high degree of motivation and independence. Most students declare a major in general studies during their junior year.

Major Program Requirements

- Majors in general studies must maintain a minimum 2.0 GPA in all courses taken in each component, a 2.0 minimum cumulative GPA and a 2.0 minimum GPA in all courses taken in the final 30 credits.
- Grades of D are not acceptable in program components.
- A minimum of 30 credits in courses numbered 3000 or above is required.
- A course with a science lab is required.
- Native English speakers who satisfy the A&S foreign language requirement (12-13 credits) need take only 18 credits in four of the remaining fields.
- Within each component, the student must complete 15 credits, of which 6 are at the 3000-level or higher.
- One component must come from a department in the College of Arts and Sciences.
- No more than 6 credits of independent study or internship may be included in any one component; total credits for such work is limited to 12.
- Transfer students must include at least 6 credits at the 3000+ level taken at MU in each component.
- If a transfer student has 9 credits of 3000+ level course work in two components, one component may be comprised solely of courses taken at another institution.
- There are several ways to complete the capstone experience: an independent research project, an internship, a service learning project or a specific course that serves the function of a capstone course for the student with approval of the program director.

GENERAL STUDIES PROGRAM COURSES

G STDY 2940—Internship in General Studies (1-6). Internship limited to students pursuing the bachelor of general studies degree. S/U graded only.

G STDY 2960—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 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.

Department of Geography

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INSTRUCTOR J. D. Harlan
PROFESSOR EMERITUS C. L. Salter
ASSOCIATE PROFESSOR EMERITUS J. T. Kostbade,
 W. A. Noble, W. A. Schroeder,
RESEARCH ASSOCIATE 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 solve problems
- 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 systems 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 Systems. Two minors are also available.

Major Program Requirements - Geography

Students majoring in geography are required to take a total of 33 credits in geography. 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: Cultural Geography.....	3
GEOG 2610: Intro to Physical Geography.....	3
GEOG 2840: Introduction to Geographic Information.....	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 2260: Geography of East Asia
- GEOG 2340: South America
- GEOG 2660: Environmental Geography
- GEOG 2780: World Political Geography
- GEOG 3140: Mexico, Central America and the Caribbean
- GEOG 3270: Geography of the Middle East
- GEOG 3510: Historical Geography of North America

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 2660: Environmental Geography
 GEOG 3600: Climates of the World
 GEOG 3610: Physical Geography of North America
 GEOG 3630: Process Geomorphology
 GEOG 4620: Biogeography
 GEOG 4630: Fluvial Geomorphology
 GEOG 4810: Landscape Ecology & GIS Analysis

Emphasis in Urban/Population Systems

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
 GEOG 3740: Geography and Planning
 GEOG 4710: Spatial Analysis in Geography
 GEOG 4840: Geographic Information Systems I

Emphasis in Geographic Information Systems

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 analyse such data. Students must take four of the following courses:

GEOG 4710: Spatial Analysis in Geography
 GEOG 4810: Landscape Ecology & GIS Analysis I
 GEOG 4830: Remote Sensing
 GEOG 4840: Geographical Information Systems I
 GEOG 4940: Geographical 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 adviser 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 systems 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, 9 of them numbered 2000 and above. GEOG 2840 is the required technique course.

Minor in Geographic Information Systems

Fifteen credits are required for the minor in geographic information systems, and must include GEOG 2840 and 4840. Nine hours of elective courses must be selected from the following

list: Geog 4710: Spatial Analysis in Geography, Geog 4810: Landscape Ecology & GIS Analysis I, Geog 3840: Computer-Assisted Cartography, Geog 4830: Remote Sensing, Geog 4860: Digital Image Processing for Spatial Analysis, and Geog 4940: GIS II. Students may earn both the minor in geography and minor in geographic information systems 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 adviser.

Eight-Semester Program

Bachelor of Arts with a major in Geography

Check the *Undergraduate Catalog* for prerequisites.

Fall I

*ENGLSH 1000 3
 *GEOL 1100 4
 ^GEOG 1100..... 3
 *Foreign language.....5-6
Total..... 15-16

Fall II

*Foreign language..... 3
 *Social science/Mo.
 state law 3
 Elective/minor 3
 ^GEOG 2550..... 3
 ^GEOG 2840..... 3
Total..... 15

Fall III

*Biological or
 physical science 3
 ~GEOG 4830 3
 *Social science 2000+ ... 3
 *Social science..... 3
 Elective/minor 3000+ ... 3
Total..... 15

Fall IV

~GEOG 4840 3
 *Hum/fine arts..... 3
 ^STAT 1200/1300 3
 Elective/minor 3000+ ... 3
 Elective/minor 3
Total..... 15

Winter I

*MATH 1120..... 3
 ^GEOG 1200 3
 ^GEOG 2610..... 3
 *Foreign language5-6
Total 14-15

Winter II

*Behavioral science..... 3
 *Behavioral science..... 3
 *Writing Intensive 3
 ^GEOG 3840 3
 ~GEOG 4710..... 3
Total 15

Winter III

~GEOG 4810..... 3
 *Humanities/fine arts..... 3
 *Hum/fine arts 2000+ 3
 Biol/phys science
 with lab..... 3-5
 Elective/minor 3000+ 3
Total 15-17

Winter IV

~GEOG 4940..... 3
 ^GEOG 4990 (WI) 3
 Elective/minor 3
 *Hum/fine arts 2000+ 3
 Elective/GEOG 2720..... 3
Total 15

* Denotes General Education and A&S Foundation Requirements

^ Denotes Degree Program Requirements

~ Denotes Emphasis Area Requirements

GEOGRAPHY COURSES

GEOG 1050—Introductory Meteorology (3). (same as Atmospheric Science 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 (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 of geography. May be taken independently of Geography 1100. concepts in the field of geography. May be taken independently of GEOG 1100.

GEOG 1205H—Regions and Nations General Honors (5). Honors eligibility required.

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: 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: GEOG 1200.

GEOG 2270—Geography of Asia (3). (same as South Asian Studies 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). 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: GEOG 1100 or 1200.

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 geographics 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: 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: 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 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: GEOG 1100 or 1200 or sophomore standing.

GEOG 2840—Introduction to Mapping Science (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 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 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 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 3600—Climates of the World (3). (same as Atmospheric Science 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: 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: 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: 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: GEOG 2840 and 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: GEOG 2480.

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—Meteorology of the Biosphere (3). (same as Atmospheric Science 4520). Energy balance of biological systems including plant canopies, forests and animals. Effects of weather events on plant and animal production. Prerequisites: GEOG 1050 or instructor’s consent.

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 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: 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: 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: MATH 1100/1120.

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 4780—Selected Themes in Political Geography (3). Study of basic writing, dominant geographers, case studies, bibliographies and development of research methods.

GEOG 4810—Landscape Ecology and GIS Analysis I (3). (same as Natural Resources 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: GEOG 4840, or instructor’s consent.

GEOG 4815—Landscape Ecology and GIS Analysis II (3). (same as Natural Resources 4395). Provide students with principles and applications of landscape ecology and firm understandings of spatial analysis techniques using GIS. Discuss metrics for spatial pattern and models for landscape-scale dynamics.

Prerequisite: NAT R 4365; FOREST 4302 or equivalent; basic statistics; GEOG 4810 recommended; 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: GEOG 2840 and instructor’s consent.

GEOG 4840—Geographic Information Systems I (3). 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: GEOG 2840.

GEOG 4860—Digital Image Processing for Spatial Analysis (3). Resource management techniques for processing digital imagery acquired by land resource satellites; emphasis on classification and mapping of agricultural land uses and wildlife habitats. Prerequisite: 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: 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.

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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.....	34
GEOL 1200: Environmental Geology or	
GEOL 1100: Principles of Geology	4
GEOL 2350: Historical Geology	3
GEOL 2400: Surficial Earth Processes and Products	4
GEOL 3110: Geology of Missouri	3
GEOL 3115: Geology of Missouri Laboratory	1
GEOL 3200: Rocks and Rock-forming Minerals.....	3
GEOL 3210: Rocks and Rock-forming Minerals	
Laboratory	1
GEOL 3800: Sedimentary Environments and Facies.....	3
GEOL 4100: Hydrogeology	3
GEOL 4991: Investigation of Earth Materials	3
Additional geological sciences course at or above 2000	
level	3
Additional geological sciences course chosen from 4200,	
4300, 4500 or 4700	3

Related courses.....	19-21
CHEM 1320: General Chemistry II	3
CHEM 1330: General Chemistry III.....	3
PHYSICS 1210: College Physics	4
MATH 1400: Calculus for Social and Natural Sciences I ...	3

MATH 2100: Calculus for Social and Natural Sciences II or	
STAT 2530: Statistical Methods in Natural Resources	3
BIO SCI 1010 and 1020: General Principles and Concepts	
of Biology and lab (5) OR BIO SCI 1060: Basic	
Environmental Studies (3) OR	
BIO SCI 1200: General Botany (5).....	3-5

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.....	48-49
GEOL 1100: Principles of Geology or	
GEOL 1200: Environmental Geology	4
GEOL 2350: Historical Geology	3
GEOL 2400: Surficial Earth Processes and Products or	
GEOL 2100: Introduction to Soil Science	4-5
GEOL 3250: Mineralogy	5
GEOL 3600: Plate Tectonics	3
GEOL 3800: Sedimentary Environments and Facies	3
GEOL 3900: Igneous and Metamorphic Petrology.....	4
GEOL 4150: Structural Geology.....	6
GEOL 4992: Field Course.....	6
Additional geological sciences course at or above 2000	
level	3
Three additional geological sciences courses at 4000 level	
(cannot be fulfilled by problems or senior thesis).....	9

Related courses.....	27-29
CHEM 1320: General Chemistry II	3
CHEM 1330: General Chemistry III	3
PHYSICS 2750 (5) and 2760 (5): University Physics OR	
PHYSICS 1210 (4) and 1220 (4): College Physics.....	8-10
MATH 1500: Analytic Geometry and Calculus I	5
MATH 1700: Calculus II	5
Computer programming course	3

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. For more information, contact an adviser 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 adviser in the department.

Sample Eight-Semester Program

Bachelor of Science with a Major in Geological Science

Fall I	
GS 1100.....	4
Chem 1320.....	3
Math 1160.....	5
English 1000.....	3
Total.....	15

Fall II	
GS 2400.....	4
GS 3250.....	5
Math 1700.....	5
Humanities or Fine Arts...3	
Total.....	17

Fall III	
GS 3600.....	3
GS 3800.....	3
Physics 2760.....	5
Foreign Language or Alternative.....	3-5
Total.....	14-16

Fall IV	
GS Elective.....	3
2000 Level Humanities or Fine Arts.....	3
2000 Level Social or Behavioral Sciences.....	3
Foreign Language or Alternative.....	3
Elective.....	3
Total.....	15

Winter I	
GS 2350.....	3
Chem 1330.....	3
Math 1500.....	5
American History or Political Science.....	3
Total.....	14

Winter II	
GS 3900.....	4
Physics 2750.....	5
GS Elective.....	3
Behavioral Sciences.....	3
Total.....	15

Winter III	
GS 4150.....	4
GS Elective.....	3
Humanities or Fine Arts...3	
Foreign Language or Alternative.....	3-5
Total.....	13-15

Summer	
GS 4992.....	6

Winter IV	
GS Elective.....	3
Foreign Language or Alternative or Elective.....	3
Elective.....	3
elective.....	3
Total.....	12

TOTAL HOURS .. 121-125

Sample Eight-Semester Program

Bachelor of Arts with a Major in Environmental Geology

Fall I	
GS 1200.....	4
Chem 1320.....	3
Math 1160.....	5
English 1000.....	3
Total.....	15

Fall II	
GS 2400.....	4
GS 3110.....	3
GS 3115.....	1
Math 2100 or Stat 2530...3	
Foreign Language.....	5
Total.....	16

Fall III	
GS 3800.....	3
GS Elective.....	3
Humanities or Fine Arts...3	
Behavioral Sciences.....	3
Elective.....	3
Total.....	15

Fall IV	
GS 4991.....	3
2000 Level Humanities or Fine Arts.....	3
2000 Level Social Sciences.....	3
Elective.....	3
Total.....	12

Winter I	
GS 2350.....	3
Chem 1330.....	3
Math 1400.....	3
Foreign Language.....	5
American History or Political Science.....	3
Total.....	17

Winter II	
GS 3200.....	3
GS 3210.....	1
Physics 1210.....	4
Foreign Language.....	3
Humanities or Fine Arts...3	
Social Sciences.....	3
Total.....	17

Winter III	
GS 4100.....	3
Biology Elective.....	3
Humanities or Fine Arts...3	
2000 Level Behavioral Sciences.....	3
Elective.....	3
Total.....	15

Winter IV	
GS Elective.....	3
Elective.....	3
Elective.....	3
Elective.....	3
Elective.....	3
Total.....	15

TOTAL HOURS 122

GEOLOGICAL SCIENCES COURSES

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 trips.

GEOL 1100H—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 trips. Honors eligibility 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 1200H—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. Honors eligibility required.

GEOL 1300—Geology of Our National Parks (3). An introduction to geologic principles illustrated by the natural history of our national parks and monuments.

GEOL 1301—Undergraduate Topics in Geological Sciences-General (1-3). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

GEOL 1302—Topics in Geological Sciences-Biological/Physical/Mathematics (1-3). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

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 2107). 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: 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: 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 tecton-

ics, and theories of extinction will be covered. Prerequisite: 1000-level science course.

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: MATH 1100/1120.

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: ENGLSH 1000. Honors eligibility required.

GEOL 2250—Planetary Geology (3). Comparative geology of planets, moons and meteorites. Formulation of the solar system and geologic evolution of planetary bodies. Major geologic processes on planetary bodies. Evidence for life. Prerequisites: MATH 110/1120, CHEM 1310.

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: GEOL 1100 or 1200 and ENGLSH 1000.

GEOL 2400—Surficial Earth Processes and Products with Laboratory (4). Semiquantitative analysis of geologic processes that shape the earth's surface. Includes topics in sedimentation and geomorphology. Prerequisites: GEOL 1100 OR 1200 and 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: GEOL 1100 or 1200 and MATH 1100/1120.

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: GEOL 1100 or 1200. May be repeated for credit.

GEOL 3085—Problems in Geological Sciences (1-5). Prerequisite: instructor's consent.

GEOL 3102—Topics in Geological Sciences-Biological/Physical/Mathematics (cr.arr.). Organized study of selected topics. Subject and earnable credit may vary. Prerequisites: junior standing or higher and instructor's consent, departmental consent for repetition.

GEOL 3110—Geology of Missouri (3). The physical, historical, and environmental geology of Missouri are describe, discussed and interpreted. Prerequisite: GEOL 2350.

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: GEOL 3110.

GEOL 3200—Rocks & Rock-Forming Mineral: Identification, Occurrence & Origin (3). Introduction to the classification, occurrence, and origin of rocks and rock-forming minerals. Prerequisites: GEOL 1100 or 1200 and 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: 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: CHEM 1310.

GEOL 3500—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: GEOL 1100 or 1200.

GEOL 3600—Plate Tectonics (3). Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features. Prerequisites: GEOL 3250, PHYSCS 1210 or 2750 and MATH 1500.

GEOL 3800—Sedimentary Environments and Facies (3). Mechanics of sediment transport, development of stratification and sedimentary structures, characteristics of non-marine, marginal-marine, and deep-marine depositional environments. Laboratory emphasizes description and classification of hand samples and thin sections. Prerequisite: GEOL 3250 or 3200 and 3210.

GEOL 3900—Igneous and Metamorphic Petrology with Laboratory (3-4). Basic understanding of 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. Prerequisite: GEOL 3250.

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—Hydrogeology (3). Analysis of geologic factors related to occurrence, distribution, recovery and use of ground water. Prerequisites: GEOL 110 or 1200, PHYSCS 1210 and MATH 1500.

GEOL 4110—Karst Hydrology (3). Study of the mechanisms of groundwater flow in Karst terrains. Emphasizing several scales including that of a conduit, a catchment, and regional framework. Prerequisite: GEOL 1100 or 1200, PHYSCS 1210 and MATH 1500.

GEOL 4120—Engineering Geology (3). Fundamentals of earth materials and geological processes and their applications in engineering works and environmental sciences. Includes properties of minerals and rocks, rock and soil

mechanics, surficial geological processes, and practice of engineering. Prerequisite: GEOL 1100 or 1200 MATH 1500 or 1400.

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: GEOL 1100 or 1200 and MATH 1500 or 1400.

GEOL4200—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: 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: GEOL 3800 CHEM 1330 and PHYSICS 1220.

GEOL 4220—Petroleum Geology (3). Processes of petroleum generation, migration, and accumulation; characterization of source and reservoir rocks; distribution of petroleum, with emphasis on tectonic setting and basin types. Lab stresses introduction to, and application of exploration techniques. Prerequisites: GEOL 2350, 3250 and 3800.

GEOL4300—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: CHEM 1330.

GEOL 4320—Introduction to Seismology (3). Principles of wave propagation in layered elastic media. Applications of digital signal processing to seismological problems. Emphasis on theoretical basis behind modern analysis techniques. Prerequisites: PHYSICS 2760, MATH 4500 and CECS 1050.

GEOL4400—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: GEOL 3250.

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 4600—Seismic/Sequence Stratigraphy (3). Concepts and techniques of seismic and sequence stratigraphy and the origin of sequences and sequence boundaries. Includes lectures, workshops, and demonstrations utilizing seismic reflection profiles, borehole and outcrop data. Prerequisite: GEOL 3800.

GEOL4700—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: GEOL3250, CHEM 1330 and 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 1210 or 2750 and MATH 1700.

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 4991—Investigation of Earth Materials (3). Hands-on experience in all facets of quantitative field and laboratory analyses of near-surface earth materials. Prerequisite: GEOL 2350, 4100, and 3800.

GEOL4992—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: GEOL 2350, 4150, and 3800.

Department of German and Russian Studies

Roger Cook, Chair
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FACULTY

PROFESSOR G. Barabtarlo, R. F. Cook
ASSOCIATE PROFESSOR C. Strathausen
ASSISTANT PROFESSOR S. Engelstein, S. M. Ireton,
T. C. Langen, N. M. Monnier, B. J. Prager
VISITING ASSISTANT PROFESSOR W. Asby, J. Packer,
J. Trzeciak
LECTURER H. Miyagi-Lusthaus, D. Ni

The Department of German and Russian Studies offers courses in German and Russian language, literature, film and civilization. It also offers instruction in Chinese, Japanese, Hebrew and Korean. Some 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.

Major Program Requirements - German

The major in German consists of 27 credits in German beyond GERM 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 2160: German Conversation and Composition I.....	3
GERMAN 3130: Advanced German Reading	3
GERMAN 3160: German Conversation and Composition II	3
GERMAN 3630: German Classics I OR GERMAN 3640: German Classics II.....	3
GERMAN 4980: German Capstone Seminar	3
One 4000-level literature course	3
GERMAN 2310 or 2320 (Writing-Intensive German civilization courses)	3

Electives6

Elective courses and equivalents to replace the required courses above should be selected in consultation with the adviser.

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 studying abroad at a Russian university, preferably in their third year of the language. 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:

RUSS 2130: Second-Year Russian I	4
RUSS 2160: Second-Year Russian II.....	4
RUSS 3130: Intermediate Russian.....	3
RUSS 3630: Russian Classics I OR RUSS 3640: Russian Classics II	3
Two of the following four courses:	6
RUSS 3310: Heroes of Their Times	
RUSS 3320: Matters of Life and Death: Tolstoy & Dostoevsky	
RUSS 3330: Decline, Fall and Resurrection in Modern Russian Literature	
RUSS 3350: The Split Tree of Russian Literature: Contemporary Russian Prose	
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 adviser.

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, 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

The department offers minors in German, consisting of 15 credits in German beyond GERMAN 2100. A minimum of 6 of these 15 credits must be in German courses numbered 3000 or above. In addition, a minimum of 9 of the 15 credits must be completed in residence.

Sample Eight-Semester Program in German

Bachelor of Arts degree with a major in German

Fall I

German Conversation & Comp I 21603
 American History3
 English Composition3
 Course for Second Major .3
 General Education (Humanities)3
Total.....15

Fall II

German Conversation & Comp II 31603
 Course for Second Major .2
 Course for second Major .3
 General Education (Sciences–Math Reasoning Proficiency)3
 General Education (Behavioral sciences)3
Total.....15

Fall III (Study Abroad at German University)

Topics in German 2005 ...3
 German Conversation & Comp III 41603
 Elective in German3
 Elective in German3
 General Education (Social Sciences)3
Total.....15

Fall IV

Recent German Lit 4660 ..3
 Course for Second Major .3
 Course for Second Major .3
 General Education (Social Sciences)3
 Elective3
Total.....15

Total Hours: 122

Winter I

Advanced German Reading 31303
 Course for Second Major .3
 College Algebra3
 General Education (Sciences with Lab)5
 General Education (Social Sciences)3
Total.....17

Winter II

German Classics II 3640 ..3
 German Civilization 1950–Present (WI) 23203
 Course for Second Major .3
 Course for Second Major (WI)3
 General Education (Sciences)3
Total.....15

Winter III (Study Abroad at German University)

German Classics I 3630 ...3
 Course for Second Major .3
 General Education (Behavioral Sciences)3
 Elective3
 Elective3
Total.....15

Winter IV

German Capstone Seminar 49803
 Capstone Course for Second Major3
 General Education (Humanities)3
 Elective3
 Elective3
Total.....15

Sample Eight-Semester Program for Russian

Bachelor of Arts degree with a major in Russian

Fall I

RUSS 1100: Elementary .. Russian 6
 American history 3
 English composition 3
 General education (humanities) 3

Total..... 15

Fall II

RUSS 2130: Second-Year Russian (I) 4
 RUSS 2310: Russian Civilization (WI) 3
 Course for second major / minor 3
 General education (sciences, Math Reasoning Proficiency) .. 3
 General education (social science) 3
Total..... 16

Fall III

RUSS 3310: Intermediate Russian 3
 RUSS 3330: Russian Literature 3
 General education (humanities) 3
 Course for second major / minor 3
 Course for second major / minor 3
Total..... 15

Fall IV

RUSS 3890: Russian and Soviet Cinema 3
 4000-level Russian literature/culture course 3
 General education (humanities) 3
 Second major / minor / elective 3
 Second major/ minor / elective 3
Total 15

Winter I

RUSS 1200: Elementary Russian 6
 Course for second major / minor 3
 College Algebra 3
 General education (behavioral sciences) 3
Total 15

Winter II

RUSS 2160: Second-Year Russian (II) 4
 RUSS 3320: Russian Literature 3
 Course for second major / minor 3
 General education (humanities) 3
 General education (sciences) 3
Total 16

Winter III

RUSS 3630: Russian Classics II 3
 General education (sciences with lab) 5
 General education (behavioral sciences) 4
 Course for second major / minor / elective 3

Total 14

Winter IV

4000-level Russian literature course 3
 Capstone course for second major / elective ... 3
 General education (social sciences) 3
 Second major/ minor / elective 3
 Second major/ minor / elective 3
Total 15

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 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. No knowledge of Chinese required. No language credit.

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 2160—Chinese Conversation and Composition (3). Prerequisite: C- or better in 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 3085—Problems in Chinese (1-3). Supervised study in Chinese language and/or culture. May be taken for a maximum of 6 credits. Prerequisite: instructor's consent.

CHINSE 3310—Chinese Poetry (3). Helps students become familiar with and appreciate classical Chinese poems from the Tang and Song Dynasties, and the heydays of classical Chinese poetry. Poems and lectures in English. Prerequisite: sophomore standing or instructor's consent.

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.

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 1200—Elementary German II (5). A continuation of 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 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. No language credit.

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—Elementary German III (3). A continuation of 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 1200, or equivalent.

GERMAN 2160—German Conversation and Composition I (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 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 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 2310. No foreign language credit.

GERMAN 2470—Witches: Myth and Historical Reality (3). Course is designed for students across the curriculum as a beginning seminar experience into a cultural topic of broad interest. Requires the student to analyze social constellations in history with respect to myth, legend, and the cultural representation of gender stereotypes. Prerequisite: ENGLSH 1000. 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: ENGLSH 1000 or equivalent.

GERMAN 2810—Introduction to Film Analysis (3). (same as Film Studies 2810 and Romance Languages 2810). This course familiarizes students with the basic analytical tools for describing and interpreting films, and helps them develop a critical vocabulary for discussing and writing about film. It also introduces some theoretical approaches to film analysis. Prerequisite: sophomore standing, or instructor's consent.

GERMAN 2820—Trends in World Cinema (3). (same as Film Studies 2820 and Romance Languages 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, FILM S 2810 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 3130—Advanced German Reading (3). This course further expands communicative skills in German through readings of German short stories, longer prose texts, or drama. Prerequisite: C- or better in GERMAN 2160, or equivalent.

GERMAN 3160—German Conversation and Composition II (3). A continuation of German 2160. This course help 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: C- or better in GERMAN 2160, or equivalent.

GERMAN 3180—Business German (3). Conversation, composition, and reading based on terminology used in business situations. Prerequisite: GERMAN 2160 and 3130 or equivalent.

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, ENGLSH 1000.

GERMAN 3440—After the Fact: Holocaust in Contemporary History, Art & Literature (3). (same as Peace Studies 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: standing, ENGLSH 1000.

GERMAN 3620—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 3130 and 3160 or equivalent language capacity.

GERMAN 3630—German Classics I (3). Reading and discussion of selected works by major German writers from 1740 to 1870. Prerequisite: GERMAN 3130 or equivalent.

GERMAN 3640—German Classics II (3). Reading and discussion of selected works by

major German writers from 1870 to the present. Prerequisite: GERMAN 3130 or equivalent.

GERMAN 3830—History of the German Film (3). (same as Film Studies 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 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 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 general education requirements. Prerequisites: GERMAN 2160, 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—German Conversation and Composition III (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 3130 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 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 3630 or equivalent.

GERMAN 4450—German Romanticism (3). Prerequisite: GERMAN 3630 or equivalent.

GERMAN 4530—The German Novelle (3).

Prerequisite: GERMAN 3630 or equivalent.

GERMAN 4630—German Drama from 1750 - 1850 (3). Study of one drama by Lessing, one by Goethe, two by Schiller, two by Kleist. Prerequisite: GERMAN 3630 or equivalent.

GERMAN 4640—German Drama from 1840 - Present (3). Study of one drama by Buechner, one by Hebbel, one by Brecht, one by Durrenmatt, one by Hauptmann and two of the instructor's choosing. Prerequisite: GERMAN 3630 or equivalent.

GERMAN 4650—Faust (3). Prerequisite: GERMAN 3630 or equivalent.

GERMAN 4660—Recent German Literature (3). Prerequisite: GERMAN 3630 or equivalent.

GERMAN 4670—Medieval German Literature 1170-1210 (3). Analysis of major narrative and lyric poetry of the Age of Chivalry. Prerequisite: GERMAN 3630 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 3630, or instructor's consent.

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, and departmental consent.

GERMAN 4996—Honors in German (1-3). Special problems in Germanic literature or linguistics. Prerequisite: consent of departmental Honors director.

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 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. No knowledge of Hebrew required. No language credit.

HEBREW 2005—Topics in Hebrew - Humanities (1-3). Organized study of selected topics. Subjects and topics may vary semester to semester. May be repeated with consent of department. No knowledge of Hebrew required. No language credit.

HEBREW 2310—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 3085—Problems in Hebrew (1-3). Supervised study of Hebrew language and/or culture. May be taken for a maximum of 6 credits. Prerequisite: instructor's consent.

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 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. No knowledge of Japanese required. No language credit.

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 JAPNSE 1200, or equivalent.

JAPNSE 2310—Japanese Civilization I (3). Survey of Japanese culture and arts before 1945. May be taken independently of Japanese 2320. No knowledge of Japanese required. No foreign language credit.

JAPNSE 2320—Japanese Civilization II (3). Survey of Japanese culture and arts from 1945. May be taken independently of 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. May be taken for a maximum of 6 credits. 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 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 "Essays in Idleness" (Tsurezuregusa) by Yoshida Kenko in the 14th century and "Hojoki" by Kamona Chomei in the 13th century. 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 skills and acquisition of more Kanji. Prerequisite: C- or better in JAPNSE 3160, or equivalent, or instructor's consent.

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 techniques, artistry, psychology, and social impact. English dubbing or 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. May be repeated to a maximum of 6 hours with departmental consent. Suitable for students who have taken up to JAPAN 3370 or equivalent. Prerequisites: instructor's consent; sophomore standing.

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 1100.

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 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 2310.

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 (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 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.

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 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. No language credit.

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: RUSS 1200, equivalent, or instructor's consent.

RUSS 2160—Second-Year Russian II (4). Continuation of Russian 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 1917. No foreign language credit. Humanities 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 2540—Monks, Martyrs, Holy Fools: The Image of Ste. in Russian Tradition (3). Intended to introduce students to the history of the hagiographic tradition and its impact upon Russian culture. Traces the Russian understanding and concepts of saints and saintliness, interpretations in Russian literature, expressions in art, architecture, and music.

RUSS 2550—Russian Mythology (3). Exploring the concept of mythology using examples from Russian culture, the course rests on a very broad conception of myth: an entity (story, painting, historical episode, etc.) that exists in a culture's past but is felt as a continuing presence. This way of framing the issues will allow us to discuss questions of cultural history that will retain their significance long after students leave the course.

RUSS 2570—The Supreme Measure: Capi-

tal Punishment in Russian History & Lit. (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 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: 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: RUSS 2160 and 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 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 RUSS 3630. Prerequisite: RUSS 3130 or instructor's consent.

RUSS 3890—Russian and Soviet Cinema (3). 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 teachers-aids or tutors in foreign language/culture classes at area schools. Graded on S/U basis only. Does not meet A&S general education requirements. Prerequisites: RUSS 2160, or 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 (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 4160—Advanced Russian Conversation (3). Advanced syntax, idiomatic constructions, and vocabulary building. Prerequisite: RUSS 3160 or equivalent.

RUSS 4310—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.

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: RUSS 3130 or equivalent.

RUSS 4430—Russian Drama (3). Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century. Prerequisite: RUSS 3630 or equivalent.

RUSS 4440—The Russian Novel (3). Selected readings and seminar discussion of major novelists of the 19th and 20th centuries. Prerequisites: RUSS 3630 or equivalent.

RUSS 4510—The Art and Life of Pushkin (3). Gives a conceptual thematic overview of Alexander Puskin'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 graduate standing 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 graduate standing 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 methods and religious beliefs. Prerequisites: Russian majors or graduate standing 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, graduate standing or instructor's consent.

RUSS 4560—Old Russian Literature (3). Considers the genres, periodization, and development of Russian literature from the beginnings of literacy to the end of the Rurikovich dynasty. Emphasis on literary genres and their evolution. Readings in English or in Russian. Prerequisites: Russian major or graduate standing or instructor's consent

RUSS 4570—Russian Symbolism (3). Study of the history, aesthetics, and creative works associated with the Symbolist movement in Russian literature and art. Primary emphasis on poetry, drama, and prose fiction. Prerequisites: Russian major or graduate standing 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.

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

S. Watts, Chair
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FACULTY

DISTINGUISHED PROFESSOR W. King
CURATORS PROFESSOR J. Sperber
PROFESSOR R. T. Bienvenu, J. L. Bullion, R. M. Collins,
S. L. Flader, K. A. Miller, A. M. Smith, S. Watts,
R. E. Weems Jr, R. Zguta
ASSOCIATE PROFESSOR C. E. Anderson,
L. L. Huneycutt, A. A. Ibrahim, T. Koditschek,
M. C. Neth, L. Okamura, J. L. Pasley, L. S. Reeder,
L. Whites, J. H. Wigger, I. Worthington
ASSISTANT PROFESSOR M. M. Carroll, J. M. Frymire,
H. Li, C. E. Rymph
VISITING ASSISTANT PROFESSOR M. D. Morris

The Department of History offers undergraduate work in the history of ancient, medieval and modern Europe, the United States, Latin America, Asia and Africa. In addition, the department participates in interdepartmental programs in Ancient Studies, Black Studies, Medieval and Renaissance Studies, Peace Studies, Women and Gender Studies and Latin American, Russian and South Asia Area Studies.

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. In addition,

students must complete all University graduation requirements and Arts and Science Foundation Requirements.

Major core requirements.....	33
Foundation 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 (above 1000, 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
HIST 4980/4981 (Undergraduate Thesis) OR	
HIST 4995/4996 (Honors Thesis) OR	
Two undergraduate seminars in history (4970, 4971, 4972) OR	
One undergraduate seminar and one additional history course at the 4000-level	

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. In general, the specific courses counted toward the minor in history cannot also be used to meet University general education requirements, however, students should check with the major department for specific guidelines.

Sample Eight-Semester Program

Bachelor of Arts Degree with a major in History

Fall I	Winter I
MATH 1000 3	ENGLSH 1000 3
Behavioral Science 3	Biological/Physical/Math w/lab 5
Social Science 3	Minor 3
Humanities 3	History 3
History 3	
Total 15	Total 14
Fall II	Winter II
Foreign Language 5	Foreign Language 5
Behavioral Science 3	Minor 3
Humanities 3	Humanities 3
Social Science 3	History 3
History 3	
Total 17	Total 14

Sample Eight-Semester (Cont.)

Fall III	Winter III	Fall IV	Winter IV
Foreign Language 3	Humanities 3	Minor..... 3	Social Science 3
Biological/Physical/ Math 4	Minor..... 3	Minor..... 3	History 3
History 3	History 3	History..... 3	History 3
History..... 3	History 3	Elective 3	Elective..... 3
Elective 3	Elective..... 3	Elective 3	Elective..... 3
Total..... 16	Total 15	Total 15	Total 15

HISTORY COURSES

HIST 1001—Undergraduate Topics in History-General (1-3). Organized study of selected topics. Subjects and credits may vary from semester to semester. Prerequisite: departmental consent for repetition.

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 (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 (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.

HIST 1410—African American History (3). (same as Black Studies 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 (3-4). 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 (3-4). 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 1520—The Ancient World (3). Survey of institutional and cultural development of ancient Near East, Greece, Rome, and Asia.

HIST 1530—Arguments About Antiquity (3). The course discusses controversial aspects of the ancient world and also considers their reuse in modern drama and film. The instructors offer different viewpoints on various topics, as well as engaging audience participation.

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 1550—Britain 1688 to the Present (3). Surveys British history from 1688 to present. Emphasizes social and economic change.

HIST 1560—The World of the Middle Ages (3). Survey of European development from the fall of Rome to the 16th century.

HIST 1570—Europe in the Ages of Renaissance and Reformation (3). A study of the changes in European economy, society, religion, the arts, and the sciences from 1300-1650, with an emphasis on social, intellectual, and religious history. Particular emphasis on Renaissance developments in Italy and the birth of Protestantism in Germany.

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 1610). Survey of Russian history from 1801 to present.

HIST 1800—History of Modern Africa (3). (same as Black Studies 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 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 1820, Art History and Archeology 1230 and South Asian Studies 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.

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 2001—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 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 HIST 4210, 4220, or 4230.

HIST 2220—America in the 1960's (3). (same as Peace Studies 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—U.S. Women's Political History, 1880-Present (3). (same as Women's and

Gender Studies 2230). 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.

HIST 2400—Social History of U.S. Women (3). (same as Women's and Gender Studies 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 and Women's and Gender Studies 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 2500—Irish History to the Great Famine, 1100s-1850 (3). Ireland's history as the first British colony, from the English conquests of the 1000s and 1500s-1600s to the Irish rebellions of the 1798 and 1848, and the Great Famine of 1845-50. Prerequisite: sophomore standing.

HIST 2510—Irish History from the Great Famine (1845-50) to the Present (3). Ireland's history as the first British colony to rebel and achieve partial independence, from the Famine (1845-50) to the "Troubles" in Northern Ireland. Prerequisite: sophomore standing.

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 in the independence in 1991.

HIST 2600—Early Christianity (3). (same as Religious Studies 2600). History of Christian origins and of the patristic period of the church; study of the beliefs and practices of Christianity, as reflected in its literature, art, music, architecture. Prerequisite: sophomore standing.

HIST 2610—Medieval Christianity (3). (same as Religious Studies 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. Begin-

ning with Augustine and concluding with the 15th century. Prerequisite: REL ST 2600

HIST 2620—History of Christianity, 1500-Present (3). (same as Religious Studies 2620). Protestant and Catholic Christianity in age of European expansion; enlightenment; 19th and 20th-century challenges and responses. Prerequisites: REL ST 2600 AND 2610.

HIST 3000—History of Religion in America to the Civil War (3). (Same as Religious Studies 2200). 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.

HIST 3200—Black Freedom Movement, 1955-1973 (3). (same as Black Studies 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.

HIST 3210—History of Religion in Post-Civil War America (3). (same as Religious Studies 2210). 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.

HIST 3400—Religious Biography: Black Religion (3). (same as Black Studies 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.

HIST 3410—History of Black Nationalism in the United States (3). (same as Black Studies 3670). 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. Prerequisite: HIST 1410 or SOCIOL 2210.

HIST 3420—America's Environmental Experience (3). (same as Peace Studies 2430). 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.

HIST 3430—Sex Radicals in U.S History (3). (same as Women and Gender Studies 3430). Survey of the history of sexuality in the United States. Prerequisite: sophomore standing.

HIST 3500—Power and Oratory in Ancient Greece (3). (same as Classical Humanities 3200). 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: sophomore standing or instructor's consent.

HIST 3510—The Ancient Greek World (3). Political and social institutions, intellectual life of Greek city-states to time of Alexander.

HIST 3520—The Roman World (3). Rise and

development of Roman institutions, Rome's imperialism and culture through reign of Marcus Aurelius.

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.

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.

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.

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: ophomore standing.

HIST 3570—European Women in the 19th Century (3). (same as Women's and Gender Studies 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.

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.

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.

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.

HIST 3800—Women in African History (3). (same as Black Studies 3800). Focuses on the varied and changing roles of women in sub-Saharan Africa from pre-colonial times to the present. Prerequisites: sophomore standing or instructor's consent.

HIST 3810—Imperial China (3). (same as Peace Studies 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.

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.

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.

HIST 3840—Nonviolence in the Modern World (3). (same as Peace Studies 3840 and South Asia Studies 3245). Readings on recent world history, emphasis on Gandhi and nonviolent tradition in America Europe and the Third World. Prerequisite: sophomore standing.

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.

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.

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.

HIST 4020—United states History from 1800-1860 (3). American history from the Jeffersonian "revolution" in 1800 to the election of 1860 focuses on major discussion topics including the War of 1812, Jacksonian democracy, the growth of slavery, westward expansion, reform movements, and the coming of the Civil War.

HIST 4030—History of the Old South (3). Study of the South to 1860.

HIST 4040—Houses Divided: Society and Politics in the Civil War Era (3). All major aspects of the period considered; rivalry between nationalizing and sectionalizing forces emphasized.

HIST 4050—American Colonial History to 1760 (3). Study of colonial America; special emphasis on creation of a native American culture prior to 1760.

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.

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. Pre-

requisite: HIST 1100 or equivalent.

HIST 4080—American Foreign Policy from Colonial Times to 1898 (3). (same as Peace Studies 4080).

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.

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.

HIST 4210—Origins of Modern America, 1877-1919 (3). Political, social, economic, and intellectual evolution of America into a modern society, 1877-1918.

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.

HIST 4230—Our Times: United States Since 1945 (3). Detailed examination of American history from end of World War II to the present.

HIST 4240—History of the New South (3). Study of the South since 1860.

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.

HIST 4260—The Age of Ascendancy: U.S. Foreign Relations, 1945-Present (3). (same as Peace Studies 4260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy. Prerequisite: sophomore standing.

HIST 4270—African-Americans in the Twentieth Century (3). (same as Black Studies 4270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

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: HIST 1100, 1200, or 1400.

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.

HIST 4420—American Urban History (3). Growth, development and implications of the city in American history; historical analysis of urban problems.

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.

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.

HIST 4450—Historic Preservation (3). (same as Art History and Archaeology 7170). "State of the art" survey of the historic preservation movement and techniques by UMC faculty and guest speakers active in the field.

HIST 4460—Economic Characteristics of the African American Experience (1). (same as Black Studies 4460). Examines how economic considerations have influenced African American history from the trans-Atlantic slave trade to the present. Prerequisite: junior standing or instructor's consent.

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.

HIST 4500—From Democracy to Fiefdom-Greek History & Culture in 4th Century (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.

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. Prerequisites: junior standing.

HIST 4520—The Roman Revolution (3). Analysis of the downfall of Republican institutions and the origins of autocracy, from the Gracchi to the death of Augustus in A.D. 14.

HIST 4530—The Roman Empire (3). Roman imperialism; management of, and rebellion in, the Empire; cultural exchange between Rome and its provinces.

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.

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: HIST 1500, 1540, 1600 or 2560 recommended; junior standing required or instructor's consent.

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.

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.

HIST 4580—Intellectual History of Europe, 19th and 20th Centuries (3). Topics include: Romanticism, Darwin, Marx and Freud. Prerequisite: junior standing or departmental consent.

HIST 4590—Stuart England (3). Treatment of period covering social, political, religious, imperial development.

HIST 4600—English Legal and Constitutional History (3). Development of English institutions; chief emphasis on their relation to general social, economic backgrounds.

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.

HIST 4620—Modern England (3). Surveys British history in the 18th and 19th centuries. Emphasizes social and economic change.

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."

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.

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.

HIST 4660—European Women in the 20th Century (3). (same as Women's and Gender Studies 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.

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.

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.

HIST 4690—Modern France 1815 to Present (3). Principal social, economic, and political developments in modern French history from the restoration to the present day. Prerequisite: junior standing and departmental consent.

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.

HIST 4710—The Russian Revolution (3). Analyzes the transformation of Russian so-

ciety 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.

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.

HIST 4810—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.

HIST 4820—History of Mexico (3). Survey of Mexican history from Cortes to present day.

HIST 4830—Social Revolution in Latin America (3). Twentieth century social revolutions in selected Latin American countries.

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 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 4995. Prerequisite: departmental consent.

Department of Mathematics

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FACULTY

PROFESSOR I. M. Aberbach, M. S. Ashbaugh, N. Asmar, P. Casazza, C. C. Chicone, S. D. Cutkosky, D. S. Edidin, F. Gesztesy, L. Grafakos, A. D. Helfer, S. Hofmann, N. J. Kalton, A. Koldobskiy, Y. Latushkin, K. A. Makarov, M. Mitrea, S. Montgomery-Smith, I. J. Papick, D. H. Pettey, Z. Qin, E. Saab, P. Saab, H. Srinivasan, M. I. Taksar, I. Verbitsky
ASSOCIATE PROFESSOR W. D. Banks, T. Christiansen, S. Dostoglou, A. Iosevich, S. Iyengar, Y. Li, D. I. Mitrea, C. Morpurgo, M. M. H. Pang, M. Rudelson, J. Segert, A. Tsoi, S. Wang, D. T. Weston, Q. Zhang
ASSISTANT PROFESSOR A. Agashe, A. Harcharras
RESIDENT INSTRUCTION ASSISTANT PROFESSOR C. J. Johnston
ADJUNCT INSTRUCTOR A. Athanassiou
PROFESSOR EMERITUS K. W. Schrader, F. D. Sentilles Jr

The Department of Mathematics offers a major with either a Bachelor of Arts or Bachelor of Science degree. The BA degree program is intended for students seeking a traditional liberal arts education with a math concentration. The BS degree program prepares students for professional opportunities or graduate work in mathematics. It has more course requirements in the mathematical and physical sciences than the BA program. The BS degree offers an optional emphasis in Mathematical Finance and Insurance.

Students in either degree program must take assessment tests. Exceptions to these requirements must be approved by the director of undergraduate studies and must be an equivalent variation of these requirements.

The department offers BA, BS and MA degrees with majors in Math, as well as MST and MS degrees in Applied Mathematics and PhD degrees in Mathematics. A minor is available.

Major Program Requirements - Mathematics

The Department of Mathematics approves majors in mathematics only for students who have met the following criteria:

- Completion of MATH 2300 (or equivalent)
- Cumulative GPA of at least 2.50 overall
- GPA for math courses numbered 1500 or above (with the exception of MATH 2100) of at least 2.50

In addition, students must meet all degree, college and University requirements including University general education.

Math requirements for a BA degree

Core requirements	22
MATH 1500: Analytic Geometry and Calculus I	5
MATH 1700: Calculus II	5
MATH 2300: Calculus III	3
CS 1050: Algorithm Design and Programming I	3
CS 2050: Algorithm Design Programming II	3
MATH 4970: Senior Seminar or	
MATH 4980: Mathematics Problem Solving.....	3

Additional requirements for BA degree

Students must select a minimum of seven additional courses in math, statistics or computer science at the 4000-level, with at least five taught in the Department of Mathematics.

At least one of the following three courses:

- MATH 4310: Numerical Linear Algebra
- MATH 4140: Matrix Theory
- MATH 4920: Introduction to Abstract Algebra II

One of the following two courses:

- MATH 4110: Advanced Calculus with Applications
- MATH 4700: Advanced Calculus I

At least two of the following nine pairs of courses:

- Sequence 1:
 - MATH 4110: Differential Equations
 - MATH 4940: Introduction to Complex Variables
- Sequence 2:
 - MATH 4100: Differential Equations
 - MATH 4500: Applied Analysis
- Sequence 3:
 - MATH 4300: Numerical Analysis
 - MATH 4310: Numerical Linear Algebra
- Sequence 4:
 - MATH 4700: Advanced Calculus I
 - MATH 4900: Advanced Calculus II
- Sequence 5:
 - MATH 4320: Introduction to Probability Theory (same as STAT 4750)
 - MATH 4520: Statistical Inference (same as STAT 4760)
- Sequence 6:
 - MATH 4720: Introduction to Abstract Algebra I
 - MATH 4920: Introduction to Abstract Algebra II
- Sequence 7:
 - MATH 4340: Projective Geometry
 - MATH 4400: Introduction to Topology
- Sequence 8:
 - MATH 4345: Foundations of Geometry
 - MATH 4400: Introduction to Topology
- Sequence 9:
 - MATH 4350: Non-Euclidean Geometry
 - MATH 4400: Introduction to Topology

Courses in Related Fields approved by the Math Department.

Mathematics major with a BS degree

Students majoring in mathematics and earning a BS degree will be prepared for professional opportunities or graduate work in mathematics.

A student who is considering graduate studies in mathematics should take as many of the following courses as possible:

- For graduate studies in pure mathematics: MATH 4940, 4500, 4900, 4580, 4400, 7620
- For graduate studies in applied mathematics: MATH 4300, 4310, 4500, 4540, 4315, 4320

Core requirements	25
MATH 1500: Analytic Geometry and Calculus	5
MATH 1700: Calculus II	5
MATH 2300: Calculus III	3
MATH 4100: Differential Equations	3
MATH 4700: Advanced Calculus	3
MATH 4140: Matrix Theory	3
MATH 4720: Introduction to Abstract Algebra	3

Students are also required to choose one course from each of the following three pairs:

- MATH 4970: Senior Seminar OR
- MATH 4980: Mathematics Problem Solving
- CS 1040: Intro to Prob Solv and Progr OR
- CS 1050: Algorithm Design and Programming I
- MATH 2320: Discrete Mathematical Structures OR
- CS 2050: Algorithm Design Programming II

In addition to the courses listed above, a student must take at least three more math courses at the 4000-level and will be required to take the assessment tests.

The student must also complete a minimum of 13 credits from the following two groups. Both groups must be represented.

Group I

- PHYSICS 2750: University Physics I (5)
- PHYSICS 2760: University Physics II (5)
- CHEM 1310: General Chemistry I (3)
- CHEM 1320: General Chemistry II (3)
- CHEM 1330: General Chemistry III (2)
- BIO SCI 1500: General Biology (5)

Group II

- Any 4000-level course in statistics or CECS

Foreign language alternative (for BS degree)

Students may elect to fulfill a different option instead of taking a foreign language. This area consists of at least 12 credits in courses numbered 2000 or above, not from the Mathematics Department, not normally required of all math majors and not appearing elsewhere in the area of concentration. This program is planned by the student's adviser and must be approved by the director of undergraduate studies.

Double Majors and Dual Degrees

For double majors and dual degrees, students must satisfy all requirements of both degree programs. Some courses may be allowed to count towards both degrees.

Examples of double majors (within Arts and Science):

- BS with majors in Math and Economics
- BS with majors in Math and Statistics
- BS with majors in Math and Chemistry
- BS with majors in Math and Physics

Examples of dual degrees (with other schools and colleges):

- BS with majors in Math and Math Education
- BS with majors in Math and Electrical Engineering
- BS with majors in Math and Computer Science

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.

Emphasis in Mathematical Finance and Insurance

The department is experiencing a growing demand from students for courses related to quantitative methods in finance and insurance. This is a result of an increasing demand from financial and insurance institutions for specialists in quantitative methods. The emphasis in mathematical finance and insurance will serve those who want to pursue a career in the financial and insurance industries and will also help BS students to prepare for their first actuarial exams.

Emphasis core requirements

MATH 1500: Analytic Geometry & Calculus I	5
MATH 1700: Calculus II	5
MATH 2300: Calculus III	3
MATH 4100: Differential Equations	3
MATH 4700: Advanced Calculus I	3
MATH 4140: Matrix Theory	3
MATH 4720: Introduction to Abstract Algebra I	3
MATH 4355: Investment Science I.....	3
MATH 4590: Investment Science II.....	3
MATH 4360: Actuarial Mathematics	3
MATH 4315 (same as STAT 4710): Introduction to Mathematical Statistics	3
MATH 7320 (same as STAT 4750): Introduction to Probability Theory	3
MATH 4520 (same as STAT 4760): Statistical Inference I..	3

Select one of the following two math capstone courses:

- MATH 7970: Senior Seminar in Math OR
- MATH 4980: Mathematics Problem Solving.....3

Select one of the following two courses:

- CS 1001: Topics OR
- CS 1050: Algorithm Design/Programming I

Select one of the following two courses:

- MATH 2320: Discrete Math Structures OR
- CS 2050: Algorithm Design/Programming II

Additional requirements

A minimum of 13 credits from the following two groups with at least 6 credits from Group 2. Both groups must be represented and the courses from Group 2 must not coincide with the required courses in Group 1.

Group 1

- PHYSCS 2750: University Physics I (5)
- PHYSCS 2760: University Physics II (5)
- CHEM 1310: General Chemistry I w/lab (2)
- CHEM 1320: General Chemistry II w/lab (3)
- CHEM 1330: General Chemistry III w/lab (3)
- BIO SCI 1500: Intro. Biological Systems w/lab (5)

Group 2

Any 3000-level courses in statistics

Basic skills requirement

Basic skills and general education requirements must be met in accordance with University and College of Arts and Science rules governing degree programs.

Composition

- ENGLSH 1000: Exposition & Argumentation.....3
- Special emphasis area or foreign language..... 12-13
- GERMAN 1100, 1200, 2100 (13)
- SPAN 1100, 1200, 2100 (13)
- FRENCH 1100, 1200, 2100 (13)
- ITAL 1100, 1200 (12)
- PORT 1100, 1200 (12)
- LATIN 1100, 1100h, 1200, 1200H, 2000, 2000H (13)
- GREEK 1100, 1100H, 1200, 2000 (13)
- CHINSE 1100, 1200 (12)
- JAPNSE 1100, 1200 (12)
- KOREAN 1100, 1200, 2100 (13)
- RUSS 1100, 1200 (12)
- OR
- Upper lever courses outside mathematics (12)

Foundation and graduation requirements of the College of Arts and Science

Minor in Mathematics

To minor in mathematics, a student must satisfactorily complete the following requirements.

- The equivalence of MATH 1500, MATH 1700 and MATH 2300
- 9 additional credits in math (students not taking MATH 2320 must take all 9 credits at the 4000 level; students taking MATH 2320 need only 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)

Sample Eight-Semester Programs

Bachelor of Science with a major in Mathematics

Check *Undergraduate Catalog* for prerequisites of courses.

Fall I

- MATH 1500 (Calculus I)..5
- *HIST 1100 or POL SC 1100..... 3
- *Gen. ed. elective in humanities and fine arts . 3
- *ENGLSH 1000..... 3
- Total..... 14**

Fall II

- MATH 2300 3
- MATH 2320 3
- PHYSCS 2740 5
- SPAN 1100..... 5
- Total..... 16**

Fall III

- MATH 4700 3
- 4000-level math course.. 3
- *Writing intensive elective 3
- SPAN 2100..... 3
- Elective 3
- Total..... 15**

Fall IV

- MATH 4720 3
- 4000-level course in statistics or CS 3
- Elective 3
- Elective 3
- Elective 3
- Total..... 15**

*Denotes general education requirement

Winter I

- MATH 1700..... 5
- *Gen. ed. elective in behavioral science 3
- *Gen. ed. elective in humanities and fine arts... 3
- CS 1001 or CS 1050..... 3
- Total 14**

Winter II

- MATH 4100..... 3
- MATH 4140..... 3
- PHYSCS 2760..... 5
- SPAN 1200 5
- Total 16**

Winter III

- 4000-level math course ... 3
- 4000-level math course ... 3
- *2000-level gen. ed. elective in humanities and fine arts 3
- Elective..... 3
- Elective..... 3
- Total 15**

Winter IV

- MATH 4970 or MATH 4980..... 3
- *2000-level gen. ed. elective in social or behavioral science 3
- Elective..... 3
- Elective..... 3
- Elective..... 3
- Total 15**

Bachelor of Arts with a major in Mathematics

Check *Undergraduate Catalog* for prerequisites of courses.

Fall I

MATH 1500	5
Humanities and fine arts course	3
ENGLSH 1000	3
HIST 1100 or 1200 or POL SCI 1100	3
Total	14

Fall II

MATH 2300	3
MATH 2320	3
Foreign language (level 2)	5
Humanities and fine arts course	3
Elective	3
Total	17

Winter I

MATH 1700	5
Foreign language (level 1)	5
Humanities and fine arts course	3
Biological, physical and mathematical sciences course with a lab (not taught by the Math Department)	4
Total	17

Winter II

MATH 4100	3
MATH 4140	3
Foreign language (level 3)	3
Biological, physical and mathematical sciences course (not taught by the Math Department)	3
CS 1001	3
Total	15

Fall III

MATH 4300	3
MATH 4500	3
2000-level course in biological, physical and mathematical sciences (not taught by the Math Department)	3
Behavioral science course	3
Elective	3
Total	15

Fall IV

STAT 4750	3
2000-level course in behavioral science	3
Humanities and fine arts course, Writing Intensive ...	3
Social science course	3
Elective	3
Total	15

Winter III

MATH 4700	3
MATH 4310	3
Social science course (in a field different from the history or political science course taken in Fall I)	3
Elective	3
Elective	3
Total	15

Winter IV

MATH 4970 or MATH 4980	3
STAT 4751	3
2000-level course in humanities and fine arts ...	3
Social science course	3
Elective	3
Total	15

MATHEMATICS COURSES

MATH 0110—Intermediate Algebra (3). MATH 0110 is a preparatory course for college algebra that carries no credit towards any baccalaureate degree. However, the grade received in 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 MATH 0110 based on the student's ACT math score or equivalent, in addition to other criteria.

MATH 1100—College Algebra for Calculus Bound Students (3). MATH 1100 offers a solid mathematical background for students who intend to take business calculus or calculus for the social sciences. Emphasis is placed on developing math skills essential for the study of calculus and on problem-solving. MATH 1100 is a college algebra course, consisting of basic review of the laws of exponents, operations with radical expressions and rational exponents, polynomial identities, factoring, and operations with rational expressions. Students will solve linear, absolute value, quadratic, polynomial, and rational equations in inequalities; equations involving radicals, exponential and logarithmic equations, and systems of equations along with applications. The course covers equations and graphs of lines and circles; the concepts of functions, domain, range, operations with functions, rigid and non-rigid transformations with func-

tions and average rates of change along with the characteristic properties of linear, quadratic, polynomial, exponential and logarithmic functions, applications and modeling. Prerequisite: a score of 22-23 or above on the math component of the ACT or equivalent, or successful completion of Intermediate Algebra with a grade in the C range or above

MATH 1120—College Algebra for Non-Calculus Bound Students (3). MATH 1120 is a college algebra course designed for students who will not be taking calculus. It is an application-driven course, leading the student from applications to theory. MATH 1120 starts with a unit on making sense of data and functions. Families of functions are used to model real-world behavior and emphasis is placed on linear, exponential, logarithmic, and quadratic functions along with their characteristic properties. Real data sets are used extensively throughout, motivating abstract concepts, and forming the basis of many exercises and examples. Mathematical modeling and curves of best fit are an integral part of the course. The course includes: a review of sets and operations with sets; the laws of exponents and radicals; the solution of linear equations and inequalities; quadratic, polynomial, radical, exponential, and logarithmic equations; and systems of linear and non-linear equations. Also covered in the course: multiple conversion factors allowing to go from one unit system to another, scientific notation, logarithmic scales, and an extensive study of average rate of change with applications. Prerequisites: A score of 22-23 or above on the math component of the ACT or equivalent, or successful completion of Intermediate Algebra

with a grade in the C range or above.

MATH 1140—Trigonometry (2). Prerequisite: MATH 1100 or 1120. A student may receive at most 5 units of credit from among the mathematics courses MATH 1100, 1120, 1140, 1160, 1180.

MATH 1160—Precalculus Mathematics (5). Review of elementary algebra. Background material for Mathematics 1500, including algebraic, trigonometric, logarithmic, exponential functions. Prerequisites: mathematics placement test. A student may receive at most 5 units of credit from among the mathematics courses 1140, 1100/1120, 1160, and 1180.

MATH 1180—Elementary Functions (3). Review of elementary algebra. Background material for Mathematics 1150 including algebraic, trigonometric, logarithmic, exponential functions. Prerequisites: 2 units high school algebra, 1 unit geometry. A student may receive at most 5 units of credit from among the mathematics courses 1140, 1110, 1120, 1160, 1180.

MATH 1300—Finite Mathematics (3). Introduces matrices and linear programming and probability. Prerequisite: grade of C or better in MATH 1100 or 1120.

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: grade of C or better in MATH 1100.

MATH 1340—Algebra and Number Systems for Teachers (3). This course covers the tools of problem solving, problem posing, modeling, the real number system, other number systems, functions, logic, sets, probability and statistics, with a focus on number sense. Prerequisite: MATH 1100 or 1120.

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: MATH 1100 or 1120 or equivalent.

MATH 1380—The Mathematics of Finance (3). Compound interest, annuities with variety of applications; introduction to mathematics of life insurance. Prerequisite: grade of C or better in MATH 1100 or 1120.

MATH 1400—Calculus for Social and Natural 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 MATH 1100.

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 MATH 1160.

MATH 1500H—Analytic Geometry and Calculus I (5). Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. Prerequisite: grade of C or better in MATH 1160. Honors eligibility required.

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 MATH 1500.

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 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 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 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 Natural 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: MATH 1320 or 1400.

MATH 2120—Elementary Matrix Algebra with Applications (3). Systems of linear equations, matrices, determinants, and properties of n -dimensional Euclidean space. Various applications will be considered. Prerequisite: one of MATH 1320, 1300, 1340, or 1500.

MATH 2140—Geometric Axioms and Structures (3). Euclidean Geometry, Axiom systems, spherical geometry, finite geometries, and explorations with technology. Prerequisite: MATH 1340 or 1360.

MATH 2300—Calculus III (3). Vectors, solid analytic geometry, calculus of several variables. Prerequisite: grade of C or better in MATH 1700.

MATH 2320—Discrete Mathematical Structures (3). Sets, functions, logic, relations, inductions, recursions, counting techniques, graphs, trees, algorithms. Prerequisites: one of MATH 1700, 2340, or 2140.

MATH 2340—Algebraic Structures (3). Introduction to axiomatic mathematics with emphasis on rings and groups. Applications to elementary number theory. Prerequisite: MATH 1340 and one of MATH 1320 or 2120.

MATH 2500—Elementary Logic and Set Theory (3). Introduction to logic, set theory, denumerable and nondenumerable sets, and cardinal arithmetic. Prerequisites: one of MATH 2300, 2120, or 2340.

MATH 4001—Topics in Mathematics-General (cr.arr.). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: 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: 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: 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: MATH 1320, enrollment is restricted to Math Education majors.

MATH 4080—Calculus for Teachers (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: 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: 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: 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: MATH 2320, or instructor's consent.

MATH 4130—Theory of Equations (3). Study of polynomials and their zeros and elementary determinant and matrix theory. Prerequisites: MATH 2300 or 2320.

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 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: MATH 2300 or 2340.

MATH 4160—Mathematical Logic (3). Introduction to classical modern logics as deductive systems; applications to foundations of mathematics. Prerequisites: junior or senior standing and interest in Mathematics or Philosophy.

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: MATH 2300 and familiarity with softwares such as Mathematica or 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: MATH 2300 and prior experience writing programs in Mathematica and/or in a computer language such as Fortran, Pascal, or C. Recommended: MATH 4140.

MATH 4315—Introduction to Mathematical Statistics (3). (same as Statistics 4710). Introduction to theory of probability and statistics using concepts and methods of calculus. Prerequisites: MATH 2300 or instructor's consent.

MATH 4320—Introduction to Probability Theory (3). (same as Statistics 4750). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems. Prerequisites: 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: 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: 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: 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: 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, division rings, skew fields, and fields. Prerequisite: 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: 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: MATH 2300 and STAT 2500 or instructor's consent.

MATH 4360—Actuarial Mathematics (3). Basic actuarial methods, mathematical popu-

lation 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: MATH 2300 and STAT 2500, or instructor's consent. No variable credit.

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: 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: MATH 4100.

MATH 4510—Higher Algebra (3). Introduction to rings, integral domains, fields, groups. Prerequisites: MATH 2300 OR 2320.

MATH 4520—Statistical Inference I (3). (same as Statistics 4760). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses. Prerequisite: MATH 4320.

MATH 4530—Applied Modern Algebra (3). Introduction to modern algebra; emphasis on applications to computer science, engineering, related subjects. Basic concepts of modern algebra applied to computer design. Prerequisites: MATH 2300 or 2320 and the ability to program in a high level language such as Fortran, Pascal or C.

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—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: MATH 4100/ 7100, 4140/7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE.

MATH 4570—Fluid Dynamics and Geophysical Applications (3). Mathematical theory of fluid dynamics and applications to meteorology and oceanography. Prerequisites: MATH 2300 and instructor's consent.

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. 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: MATH 2300 and STAT 2500 or instructor's consent. Recommended: MATH 4355. No variable credit.

MATH 4700—Advanced Calculus I (3). Basic topology of the real line, numerical sequences and series, continuity, differentiability, Riemann integration, uniform convergence, power series. Prerequisite: MATH 2300. Recommended 4140 and one other mathematics course number above 2300.

MATH 4720—Introduction to Abstract Algebra I (3). Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields. Prerequisite: MATH 2300. Recommended: MATH 4140 and one other Mathematics course numbered above 2300.

MATH 4900—Advanced Calculus II (3). This is a course in calculus in several variables. The following is core material: Basic topology of n -dimensional Euclidean 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: 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: MATH 4720.

MATH 4940—Introduction to Complex Variables (3). Complex functions, contour integration, power series, residues and poles, conformal mapping. Prerequisites: MATH 4110 OR 4700.

MATH 4960—Special Readings in Mathematics (1-3). Prerequisites: 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 Euclidean geometry. Prerequisite: 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.

Department of Military Science and Leadership

LTC Malcolm K. Wallace, Jr., Chair
College of Arts and Science
Army Reserve Officers' Training Corps
202 Crowder Hall
(573) 882-7721

FACULTY

VISITING PROFESSOR M. K. Wallace

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,

MILITARY SCIENCE AND LEADERSHIP 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: 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. w.

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: MIL SC 1120.

MIL SC 2160—Topics in Military Science (1-3). Organized study of selected military science topics. Subjects and credit vary semester to semester. Repeatable once with departmental consent. Prerequisites: departmental consent.

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

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 30 when commissioned. To be admitted into the advanced course, students must maintain an academic average of 2.0 and pass an Army medical examination.

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-C 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 curriculum
- 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
- MIL SC 3240: Leadership and Ethics
- MIL SC 3250: Leadership and Management
- MIL SC 3260: Officership

Additionally, students must complete an approved course in American military history.

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: 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: MIL SC 2220.

MIL SC 3160—The Military and Wars in American Society (3). Study of how wars and service in the military by citizen volunteers or conscripts affected the subsequent course of United States history.

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: 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: 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: MIL SC 3250.

School of Music

(IN THE COLLEGE OF ARTS AND SCIENCE)

Melvin Platt, Director
140 Fine Arts Center
(573) 882-2604

FACULTY

PROFESSOR W. T. McKenney, M. C. Platt, W. L. Sims,
E. D. Szekely, J. K. Wenger
ASSOCIATE PROFESSOR M. Bergee, M. J. Budds,
R. P. Crabb, E. Dolbashian, D. L. Dolezal,
P. W. Garritson II, S. R. Geibel, A. M. Harrell,
J. D. McLeod, N. B. Minturn, T. J. O'Neal, L. Perna,
M. L. Spence, J. E. Todd, D. L. Willett
ASSISTANT PROFESSOR I. Akhmadullin, J. R. Gaines,
O. Haldey, M. E. Jones, Jr., P. Miyamoto
ADJUNCT ASSISTANT PROFESSOR A. Appold,
N. Bolshakova, E. Manzo, S. Pendergass, S. Stubbs
VISITING ASSOCIATE PROFESSOR K. Larvick
VISITING ASSISTANT PROFESSOR T. Blake,
S. R. Freund, A. A. Manzo, T. Marsh, A. P. Moe,
S. Renaud, L. C. Saguiguit, S. Unger,
RESIDENT INSTRUCTOR ASSISTANT PROFESSOR
M. Knight

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, For All We Call Mizzou, 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. BS, BM, MEd, MAEd, EdD and PhD degrees with majors in Music Education are offered through the Department of Curriculum and Instruction. A minor is also available.

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 University general education.

Major core requirements

Studio instruction courses including recitals.....	16-33
Music theory	23-28
Music history.....	12-20

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 3550-level (for performance concentrations) or 2550-level (for all other concentrations). 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 be included in the area of concentration without the approval of the adviser 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.

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 adviser. Further information and an application form may be obtained by contacting the director of undergraduate studies in music.

Options

All students majoring in music must select one of the options below.

Note: Tracks do not appear on transcripts or diplomas.

Composition Track:

MUSIC 1230: Aural Training & Sight Singing I	2
MUSIC 1231: Aural Training & Sight Singing II	2
MUSIC 2230: Aural Training & Sight Singing III.....	2
MUSIC 2231: Aural Training & Sight Singing IV	2
MUSIC 1220: Syntax, Structure & Style I.....	2
MUSIC 1221: Syntax, Structure & Style II	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2221: Syntax, Structure & Style IV.....	2
MUSIC 4220: 20th Century Composition Techniques	2
MUSIC 4222: Computer Technology & Music	2
MUSIC 4233: Eighteenth-Century Counterpoint	3
MUSIC 4225: Sixteenth-Century Counterpoint.....	3
MUSIC 4227: Orchestration	2
MUSIC 2215: Composition I	2
MUSIC 2216: Composition II.....	2
MUSIC 3215: Composition III	2
MUSIC 3216: Composition IV	2
MUSIC 4215: Composition V.....	2
MUSIC 4216: Composition VI (Capstone Experience).....	2
MUSIC 4245: Introduction to Electronic Music.....	2
MUSIC 4200 level: Theory Elective.....	2
MUSIC 4200 level: Theory Elective.....	2

MUSIC 1435: Studio Instruction (secondary instr.).....	1
MUSIC 1435: Studio Instruction (secondary instr.).....	1
MUSIC 1435: Studio Instruction (secondary instr.).....	1
MUSIC 1435: Studio Instruction (secondary instr.).....	1
MUSIC 2455: Studio Instruction: Major instr. (2+2+2+2) ..	8
MUSIC 3455: Studio Instruction: Major instr. (2+2+2+2) ..	8
MUSIC 1841/1842: Instrumental/Choral Ensembles	8
MUSIC 1322: Music in the United States.....	2
MUSIC 2307: History of Western Music I	2
MUSIC 2308: History of Western Music II	2
MUSIC 4300: History elective (Writing Intensive).....	3
MUSIC 4300: History elective.....	3
MUSIC 1610: Piano Class for Proficiency	1
MUSIC 1611: Piano Class for Proficiency II.....	1
MUSIC 2610: Piano Class for Proficiency III	1
MUSIC 2611: Piano Class for Proficiency IV	1
MUSIC 2631: Basic Conducting and Score Reading	2
MUSIC 1091: Recital Attendance (7 semesters).....	0
Total credits in music	86-87

Vocal Performance Track:

MUSIC 2455: Studio Instruction: Voice (3+3+3+3).....	12
MUSIC 4455: Studio Instruction: Voice (3+3+3+3).....	12
MUSIC 3970: Junior Recital.....	1
MUSIC 4970: Senior Recital (Capstone Experience).....	1
MUSIC 3767: Vocal Literature I.....	2
MUSIC 3768: Vocal Literature II.....	2
MUSIC 3670: Diction in Music: Italian.....	1
MUSIC 3671: Diction in Music: German.....	1
MUSIC 3672: Diction in Music: French.....	1
MUSIC 1842: Vocal Ensembles.....	8
MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 2230: Aural Training & Sight Singing III.....	2
MUSIC 2231: Aural Training & Sight Singing IV	2
MUSIC 1220: Syntax, Structure & Style I.....	2
MUSIC 1221: Syntax, Structure & Style II	2
MUSIC 2220: Syntax, Structure & Styles III	2
MUSIC 2221: Syntax, Structure & Style IV.....	2
MUSIC 4220: 20th Century Composition Techniques	2
MUSIC 4222: Computer Technology & Music	2
MUSIC 4223: Eighteenth-Century Counterpoint	3
MUSIC 4200 level: Theory elective	2
MUSIC 4200 level: Theory elective	2
MUSIC 1322: Music in the United States.....	2
MUSIC 2307: History of Western Music I	2
MUSIC 2308: History of Western Music II	2
MUSIC 4300 level: History elective (Writing Intensive)	3
MUSIC 4300 level: History Elective	3
MUSIC 1610: Piano Class for Proficiency I.....	1
MUSIC 1611: Piano Class for Proficiency II.....	1
MUSIC 2610: Piano Class for Proficiency III	1
MUSIC 2611: Piano Class for Proficiency IV	1
MUSIC 2631: Basic Conducting and Score Reading	2
MUSIC 1091: Recital Attendance (7 semesters).....	0
Total credits in music	86

Wind or Percussion Performance Track

MUSIC 2455: Studio Instruction: Major Instr. (4+4+4+4)	16
MUSIC 4455: Studio Instruction: Major Instr. (4+4+4+5)	17
MUSIC 3970: Junior Recital.....	1
MUSIC 4970: Senior Recital (Capstone Experience).....	1
MUSIC 1841: Instrumental Ensembles.....	8
MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 2230: Aural Training & Sight Singing III.....	2
MUSIC 2231: Aural Training & sight Singing IV	2
MUSIC 1220: Syntax, Structure & Style I.....	2

MUSIC 1221: Syntax, Structure & Style II	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2221: Syntax, Structure & Style IV.....	2
MUSIC 4220: 20th Century Composition Techniques	2
MUSIC 4322: Computer Technology & MUSIC.....	2
MUSIC 4223: Eighteenth-Century Counterpoint	3
MUSIC 4200 level: Theory elective	2
MUSIC 4200 level: heory elective.....	2
MUSIC 1322: Music in the United States.....	2
MUSIC 2307: History of Western Music I	2
MUSIC 2308: History of Western Music II	2
MUSIC 4300: History elective (Writing Intensive).....	3
MUSIC 4300 level: History elective.....	3
MUSIC 1610: Piano Class for Proficiency I.....	1
MUSIC 1611: Piano Class for Proficiency II.....	1
MUSIC 2610: Piano Class for Proficiency III	1
MUSIC 2611: Piano Class for Proficiency IV	1
MUSIC 2631: Basic Conducting and Score Reading	2
MUSIC 2634: Rehearsal Clinic: Band Conducting	2
MUSIC 1091: Recital Attendance (7 semesters).....	0
Total credits in music	90

Bachelor of Arts with a major in Music

Students majoring in music 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. BA degrees include a breadth of study. While music is the major, students are required to pursue, in some depth, a minor or related field. Students must also complete all degree, college and University graduation requirements, including University general education. (Note: Tracks do not appear on transcripts or diplomas.)

Major core requirements

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 2230: Aural Training & Sight Singing III.....	2
MUSIC 2231: Aural Training & Sight Singing IV	2
MUSIC 1220: Syntax, Structure & Style I.....	2
MUSIC 1221: Syntax, Structure & Style II	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2221: Syntax, Structure & Style IV.....	2
MUSIC 1322: Music in the United States.....	2
MUSIC 2307: History of Western Music I	2
MUSIC 2308: History of Western Music II	2
MUSIC 4300 level: History elective (Writing Intensive)	2
MUSIC 3085: Problems (Capstone Experience)	1
MUSIC 1091: Recital Attendance (7 semesters).....	0
MUSIC 2455: Studio Instruction (2+2+2+2).....	8
MUSIC 3455: Studio Instruction	2
MUSIC 1841: Instrumental Ensembles.....	4
Total credits in music	40

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. A minimum of 18 credits is required:

Music Theory.....	4
MUSIC 1220: Syntax, Structure and Style of Music I	2
MUSIC 1221: Syntax, Structure and Style of Music II	2
Music History	6
MUSIC 1322: Intro to Music in the United States	2
MUSIC 2307: History of Western Music I	2
MUSIC 2308: History of Western Music II	2
Ensembles/Applied Music	4
Any combination of MUSIC 1841, 1842, 2445	

Sample Eight-Semester Programs

Sample four-year schedules are shown below.

Bachelor of Music with Music Composition Track

Fall I

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1220: Syntax, Structure & Style I	2
MUSIC 2455: Studio Instruction	2
MUSIC 1610: Piano Proficiency I.....	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	8
MUSIC 1091: Recital Attendance	0
Non-Music course(s).....	8-10

Winter I

MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 1221: Syntax, Structure & Style II.....	2
MUSIC 2455: Studio Instruction	2
MUSIC 1611: Piano Proficiency II.....	1
MUSIC 1841 or 1842: Instrumental or Choral Ensemble	8
MUSIC 1322: Music in the United States	2
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	6-8

Fall II

MUSIC 2230: Aural Training & Sight Singing III	2
MUSIC 2220: Syntax, Structure & Style III, IV	2
MUSIC 2215: Composition I.....	2
MUSIC 2455: Studio Instruction	2
MUSIC 1435: Studio Instruction, secondary instr.	1
MUSIC 2610: Piano Proficiency III	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	8
MUSIC 2307: History of Western Music I.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	3-5

Winter II

MUSIC 2231: Aural Training & Sight Singing IV	2
MUSIC 2221: Syntax, Structure & Style.....	2
MUSIC 2216: Composition II	2
MUSIC 2455: Studio Instruction	2
MUSIC 1435: Studio Instruction, secondary instr.	1
MUSIC 2611: Piano Proficiency IV	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	8
MUSIC 2308: History of Western Music II.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	3-5

Fall III

MUSIC 4220: 20th-Century Composition Techniques.....	2
MUSIC 3215: Composition III	2
MUSIC 4227: Orchestration	2
MUSIC 3455: Studio Instruction	2
MUSIC 1435: Studio Instruction, secondary instr.	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	8
MUSIC 1091: Recital Attendance	0
MUSIC 4233: 19th-Century Counterpoint	3
Non-music course(s).....	3

Winter III

MUSIC 4222: Computer Technology & Music.....	2
MUSIC 3216: Composition IV	2
MUSIC 2631: Basic Conducting & Score Reading.....	2
MUSIC 3455: Studio Instruction	2
MUSIC 1435: Studio Instruction, secondary instr.	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	8
MUSIC 1091: Recital Attendance	0
MUSIC 4245: Introduction to Electronic Music	2
Non-music course(s).....	4-6

Fall IV

MUSIC 4215: Composition V	2
MUSIC 3455: Studio Instruction	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	8
MUSIC 4300: Music History Elective.....	3
MUSIC 4200: Music Theory Elective	2-3
MUSIC 4225: 16th-Century Counterpoint	3
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	3-5

Winter IV

MUSIC 4216: Composition VI.....	2
MUSIC 3455: Studio Instruction	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	8
MUSIC 4300: Music History Elective.....	2-3
MUSIC 4200: Music Theory Elective	2-3
MUSIC 3085: Problems in Theory	1
MUSIC 2634: Rehearsal Clinic: Band Conducting.....	2
Non-music course(s).....	2-5

Bachelor of Music with Music History Track

Fall I

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1220: Syntax, Structure & Style I	2
MUSIC 2455: Studio Instructions	2
MUSIC 1610: Piano Proficiency	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	8-10

Winter I

MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 1221: Syntax, Structure & Style II.....	2
MUSIC 2455: Studio Instruction	2
MUSIC 1611: Piano Proficiency II.....	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 1322: Music in the United States	2
Non-music course(s).....	6-8

Bachelor of Music with Music History Track (Cont.)

Fall II

MUSIC 2230: Aural Training & Sight Singing III	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2455: Studio Instruction	2
MUSIC 2610: Piano Proficiency III	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 2307: History of Western Music I.....	2
MUSIC 2309: Recital Attendance	0
Non-music course(s)	6-8

Winter III

MUSIC 2231: Aural Training & Sight Singing IV	2
MUSIC 2221: Syntax, Structure & Style IV	2
MUSIC 2455: Studio Instruction	2
MUSIC 2611: Piano Proficiency.....	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 2308: History of Western Music II.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s)	6-8

Fall III

MUSIC 4220: 20th-Century Composition Techniques.....	2
MUSIC 4300: Music History Elective.....	3
MUSIC 3455: Studio Instruction	2
MUSIC 1435: Studio Instruction (piano)	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 4223/5: 16th-Century Counterpoint	3
Non-music course(s)	4-6

Winter III

MUSIC 4222: Computer Technology & Music.....	2
MUSIC 4300: Music History Elective.....	3
MUSIC 2631: Basic Conducting & Score Reading.....	2
MUSIC 3455: Studio Instruction	2
MUSIC 1435: Studio Instruction (piano)	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
Non-music course(s)	7-9

Fall IV

MUSIC 3455: Studio Instruction	2
MUSIC 1435: Studio Instruction (piano)	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 4300: Music History Elective.....	3
MUSIC 1091: Recital Attendance	0
Non-music course(s)	8-14

Winter IV

MUSIC 3455: Studio Instruction	2
MUSIC 1435: Studio Instruction (piano)	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 4300: Music History Elective.....	3
MUSIC 2634: Rehearsal Clinic Band Conducting	2
MUSIC 3085: Problems in Music (Capstone).....	1
Non-music course(s)	7-10

Bachelor of Music with Music Theory Track

Fall I

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1220: Syntax, Structure & Style I.....	2
MUSIC 2455: Studio Instruction	2
MUSIC 1610: Piano Proficiency I.....	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
Non-music course(s)	8-10

Winter I

MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 1221: Syntax, Structure & Style II.....	2
MUSIC 2455: Studio Instruction	2
MUSIC 1611: Piano Proficiency II.....	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 1322: Music in the United States	2
Non-music course(s)	6-8

Fall II

MUSIC 2230: Aural Training & Sight Singing II.....	1
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2215: Composition I.....	2
MUSIC 2455: Studio Instruction	2
MUSIC 1435: Studio Instruction, secondary instr.....	1
MUSIC 2610: Piano Proficiency III	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 2307: History of Western Music I.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s)	3-5

Winter II

MUSIC 2231: Aural Training & Sight Singing IV	2
MUSIC 2221: Syntax, Structure & Style IV	2
MUSIC 2216: Composition II	2
MUSIC 2455: Studio Instruction	2
MUSIC 1435: Studio Instruction, secondary inst.	1
MUSIC 2611: Piano proficiency IV.....	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 2308: History of Western music II	2
MUSIC 1091: Recital Attendance	0
Non-music course(s)	3-5

Fall III

MUSIC 4220: 20th Century Composition Techniques.....	2
MUSIC 4227: Orchestration.....	2
MUSIC 3455: Studio Instruction	2
MUSIC 1435: Studio Instruction, secondary instr.....	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 4233: 18th-Century Counterpoint	3
Non-music course(s)	5-7

Winter III

MUSIC4222: Computer Technology & Music.....	2
MUSIC 2631: Basic Conducting & Score Reading.....	2
MUSIC 3455: Studio Instruction	2
MUSIC 1435: Studio Instruction, secondary inst.	1
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 4200: Music Theory Elective	2-3
Non-music course(s)	6-8

Bachelor of Music with Music Theory Track (Cont.)

Fall IV

MUSIC 3455: Studio Instruction	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 4300: Music History Elective.....	3
MUSIC 4200: Music Theory Elective	2-3
MUSIC 4225: 16th Century Counterpoint.....	3
MUSIC 1091: Recital Attendance	0
Non-music course(s)	5-7

Winter IV

MUSIC 3455: Studio Instruction	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 4300: Music History Elective.....	2
MUSIC 4200: Music theory Elective	
MUSIC 3085: Problems in Theory (Capstone)	1
MUSIC 2634: Rehearsal Clinic: Band Conducting.....	2
Non-music course(s)	5-7

Bachelor of Music with Piano Performance Track

Fall I

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1220: Syntax, Structure & Style I	2
MUSIC 2455: Studio Instruction	4
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
Non-music course(s)	6-8

Winter I

MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 1221: Syntax, Structure & Style II.....	2
MUSIC 2455: Studio Instruction	4
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 1322: Music in the United States	2
Non-music course(s)	4-6

Fall II

MUSIC 2230: Aural Training & Sight Singing III	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2455: Studio Instruction	4
MUSIC 2843: Piano Ensemble I.....	1
MUSIC 2307: History of Western Music I	2
MUSIC 1091: Recital Attendance	0
Non-music course(s)	4-6

Winter II

MUSIC 2231: Aural Training & Sight Singing IV	2
MUSIC 2221: Syntax, Structure & Style IV	2
MUSIC 2455: Studio Instruction	4
MUSIC 2843: Piano Ensemble.....	1
MUSIC 2308: History of Western Music II.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s)	4-6

Fall III

MUSIC 4220: 20th-Century Composition Techniques.....	2
MUSIC 4455: Studio Instruction	4
MUSIC 1846: Chamber Ensemble	1
MUSIC 4300: Music History Elective.....	3
MUSIC 4661: Pedagogy I.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s)	5-7

Winter III

MUSIC 4222: Computer Technology & Music	2
MUSIC 1846: Chamber Ensemble	1
MUSIC 4455: Studio Instruction	4
MUSIC 4300: Music History Elective.....	3
MUSIC 1091: Recital Attendance	0
MUSIC 3970: Junior Recital	1
MUSIC 4662: Piano Pedagogy II	2
MUSIC 2631: Basic Conducting & Score Reading.....	2
Non-music course(s)	3-5

Fall IV

MUSIC 4455: Studio Instruction	4
MUSIC 1846: Chamber Ensemble	1
MUSIC 3753: Piano Literature I.....	2
MUSIC 4200: Music Theory Elective	2-3
MUSIC 4220: 18th-Century Counterpoint	2
MUSIC 1091: Recital Attendance	0
Non-music course(s)	3-5

Winter IV

MUSIC 4455: Studio Instruction	4
MUSIC 1846: Chamber Ensemble	1
MUSIC 3754: Piano Literature II	2
MUSIC 4200: Music Theory Elective	2-3
MUSIC 4970: Senior Recital	1
Non-music course(s)	6-8

Bachelor of Music with String Instrument Performance Track

Fall I

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1220: Syntax, Structure & Style I.....	2
MUSIC 2455: Studio Instruction	4
MUSIC 1610: Piano Proficiency I1.....	1
MUSIC 1841: University Philharmonic	1
MUSIC 1091: Recital Attendance 0.....	0
Non-music course(s).....	5-8

Fall II

MUSIC 2230: Aural Training & Sight Singing III.....	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2455: Studio Instruction	4
MUSIC 2610: Piano Proficiency III	1
MUSIC 1841: University Philharmonic	1
MUSIC 2307: History of Western Music I.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	3-6

Fall III

MUSIC 4220: 20th-Century Composition.....	2
MUSIC 4455: Studio Instruction	4
MUSIC 1841: University Philharmonic	1
MUSIC 4300: Music History Elective.....	3
MUSIC 1091: Recital Attendance	0
MUSIC 4233: 18th-Century Counterpoint	3
Non-music course(s).....	3-6

Fall IV

MUSIC 4455: Studio Instruction	4
MUSIC 1841: University Philharmonic	1
MUSIC 4200: Music Theory Elective	2-3
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	9-11

Winter I

MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 1221: Syntax, Structure & Style II.....	2
MUSIC 2455: Studio Instruction	4
MUSIC 1611: Piano Proficiency II.....	1
MUSIC 1841: University Philharmonic	1
MUSIC 1091: Recital Attendance	0
MUSIC 1322: Music in the United States	2
Non-music course(s).....	3-6

Winter II

MUSIC 2231: Aural Training & Sight Singing IV.....	2
MUSIC 2221: Syntax, Structure & Style IV	2
MUSIC 2455: Studio Instruction	4
MUSIC 1435: Studio Instruction Secondary instr.....	1
MUSIC 2611: Piano Proficiency IV	1
MUSIC 1841: University Philharmonic	1
MUSIC 2308: History of Western Music II.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	3-6

Winter III

MUSIC 4222: Computer Technology & Music.....	2
MUSIC 2631: Basic Conducting & Score Reading.....	2
MUSIC 4455: Studio Instruction	4
MUSIC 1841: University Philharmonic	1
MUSIC 4300: Music History Elective.....	3
MUSIC 1091: Recital Attendance	0
MUSIC 3970: Junior Recital	1
Non-music course(s).....	3-5

Winter IV

MUSIC 4455: Studio Instruction	5
MUSIC 1841: University Philharmonic	1
MUSIC 4200: Music Theory Elective	2-3
MUSIC 4970: Senior Recital	1
Non-music course(s).....	8-10

Bachelor of Music with Vocal Performance Track

Fall I

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1220: Syntax, Structure & Style I.....	2
MUSIC 2455: Studio Instruction	3
MUSIC 1610: Piano Proficiency I.....	1
MUSIC 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	7-9

Fall II

MUSIC 2230: Aural Training & Sight Singing III.....	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2455: Studio Instruction	3
MUSIC 2610: Piano Proficiency III	1
MUSIC 1842: Choral Ensemble	1
MUSIC 2307: History of Western Music I.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	5-7

Winter I

MUSIC 1231: Aural Training & Sight Singing	2
MUSIC 1221: Syntax, Structure & Style II.....	2
MUSIC 2455: Studio Instruction	3
MUSIC 1611: Piano Proficiency II.....	1
MUSIC 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 1322: Music in the United States	2
Non-music course(s).....	5-7

Winter II

MUSIC 2231: Aural Training & Sight Singing IV.....	2
MUSIC 2221: Syntax, Structure & Style IV	2
MUSIC 2455: Studio Instruction	3
MUSIC 2611: Piano Proficiency IV	1
MUSIC 1842: Choral Ensemble	1
MUSIC 2308: History of Western Music II.....	2
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	5-7

Bachelor of Music with Vocal Performance Track (Cont.)

Fall III

MUSIC 4220: 20th-Century Composition Techniques.....	2
MUSIC 4455: Studio Instruction.....	3
MUSIC 1842: Choral Ensemble.....	1
MUSIC 3670: Diction in Singing: Italian.....	1
MUSIC 4300: Music History Elective.....	2
MUSIC 1091: Recital Attendance.....	0
Non-music course(s).....	6-8

Fall IV

MUSIC 4455: Studio Instruction.....	3
MUSIC 1842: Choral Ensemble.....	1
MUSIC 3767: Vocal Literature.....	2
MUSIC 4200: Music Theory Elective.....	2-3
MUSIC 3672: Diction in Singing: French.....	1
MUSIC 4233: 18th-Century Counterpoint.....	3
MUSIC 1091: Recital Attendance.....	0
Non-music course(s).....	4-6

Winter III

MUSIC 4222: Computer Technology & Music.....	2
MUSIC 2631: Basic Conducting & Score Reading.....	2
MUSIC 4455: Studio Instruction.....	3
MUSIC 1842: Choral Ensemble.....	1
MUSIC 3671: Diction in Singing: German.....	1
MUSIC 4300: Music History Elective.....	4
MUSIC 1091: Recital Attendance.....	0
MUSIC 3970: Junior Recital.....	1
Non-music course(s).....	3-5

Winter IV

MUSIC 4455: Studio Instruction.....	3
MUSIC 1842: Choral Ensemble.....	1
MUSIC 3768: Vocal Literature II.....	2
MUSIC 4200: Music Theory Elective.....	2-3
MUSIC 4970: Senior Recital.....	1
Non-music course(s).....	7-9

Bachelor of Music in Wind or Percussion Performance Track

Fall I

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1220: Syntax, Structure & Style I.....	2
MUSIC 2455: Studio Instruction.....	4
MUSIC 1610: Piano Proficiency I.....	1
MUSIC 1841: Instrumental Ensemble.....	4
MUSIC 1091: Recital Attendance.....	0
Non-music course(s).....	6-8

Fall II

MUSIC 2230: Aural Training & Sight Singing II.....	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2455: Studio Instruction.....	4
MUSIC 2610: Piano Proficiency III.....	1
MUSIC 1841: Instrumental Ensemble.....	1
MUSIC 2307: History of Western Music.....	2
MUSIC 1091: Recital Attendance.....	0
Non-music course(s).....	4-6

Fall III

MUSIC 4220: 20th-Century Composition Techniques.....	2
MUSIC 4455: Studio Instruction.....	4
MUSIC 1841: Instrumental Ensemble.....	1
MUSIC 4300: Music History Elective.....	3
MUSIC 1091: Recital Attendance.....	0
MUSIC 4233: 18th-Century Counterpoint.....	3
Non-music course(s).....	3-5

Fall IV

MUSIC 4455: Studio Instruction.....	4
MUSIC 1841: Instrumental Ensemble.....	1
MUSIC 4200: Music theory Elective.....	2-3
MUSIC 1091: Recital Attendance.....	0
Non-music course(s).....	9-11

Winter I

MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 1221: Syntax, Structure & Style II.....	2
MUSIC 2455: Studio Instruction.....	4
MUSIC 1611: Piano Proficiency II.....	1
MUSIC 1841: Instrumental Ensemble.....	1
MUSIC 1091: Recital Attendance.....	0
MUSIC 1322: Music in the United States.....	2
Non-music course(s).....	4-6

Winter II

MUSIC 2231: Aural Training & Sight Singing IV.....	2
MUSIC 2221: Syntax, Structure & Style IV.....	2
MUSIC 2455: Studio Instruction.....	4
MUSIC 2611: Piano Proficiency IV.....	1
MUSIC 1841: Instrumental Ensemble.....	1
MUSIC 2308: History of Western Music II.....	2
MUSIC 1091: Recital Attendance.....	0
Non-music course(s).....	4-6

Winter III

MUSIC 4222: Computer Technology & Music.....	2
MUSIC 2631: Basic Conducting & Score Reading.....	2
MUSIC 4455: Studio Instruction.....	4
MUSIC 1841: Instrumental Ensemble.....	2
MUSIC 4300: Music History Elective.....	3
MUSIC 1091: Recital Attendance.....	0
Non-music course(s).....	3-5

Winter IV

MUSIC 4455: Studio Instruction.....	4
MUSIC 1841: Instrumental Ensemble.....	1
MUSIC 4200: Music Theory Elective.....	2-3
MUSIC 4970: Senior Recital.....	1
MUSIC 2634: Rehearsal Clinic: Band Conducting.....	2
Non-music course(s).....	6-8

Bachelor of Arts with Major in Music

Fall I

MUSIC 1230: Aural Training & Sight Singing I.....	2
MUSIC 1220: Syntax, Structure & Style I.....	2
MUSIC 2455: Studio Instruction.....	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	8

Fall II

MUSIC 2230: Aural Training & Sight Singing III.....	2
MUSIC 2220: Syntax, Structure & Style III.....	2
MUSIC 2455: Studio Instruction.....	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 2307: History of Western Music I.....	3
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	6

Fall III

MUSIC 3455: Studio Instruction.....	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 4300: Music History Elective.....	3
Non-music courses.....	10

Fall IV

MUSIC 1091: Recital Attendance	0
Non-music courses.....	15

Winter I

MUSIC 1231: Aural Training & Sight Singing II.....	2
MUSIC 1221: Syntax, Structure & Style II.....	2
MUSIC 2455: Studio Instruction.....	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 1091: Recital Attendance	0
MUSIC 1322: Music in the United States	2
Non-music course(s).....	6

Winter II

MUSIC 2231: Aural Training & Sight Singing IV.....	2
MUSIC 2221: Syntax, Structure & Style IV.....	2
MUSIC 2455: Studio Instruction.....	2
MUSIC 1841: Instrumental or 1842: Choral Ensemble	1
MUSIC 2308: History of Western Music II.....	3
MUSIC 1091: Recital Attendance	0
Non-music course(s).....	6

Winter III

MUSIC 1091: Recital Attendance	0
Non-music courses.....	15

Winter IV

MUSIC 3085: Problems in Music (Capstone).....	1
Non-music courses.....	14

MUSIC COURSES

MUSIC-GENERAL

MUSIC 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.

MUSIC 3005—Topics in Musics-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 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.

MUSIC FOR NON-MAJORS

MUSIC 1005—Topics in Music-Humanities (2). Organized study of selected topics. Subjects vary from semester to semester. May be repeated once for additional credit with departmental consent.

MUSIC 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 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 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 1212—Fundamentals of Music II (2). Continuation of Music Theory 1211. No credit for music majors or minors. Prerequisites: MUSIC 1211 or instructor's consent.

MUSIC 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 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 1312—History of Jazz (2). Historical survey of American jazz from its origin to the present. No credit for students who have taken MUSIC 1311.

MUSIC 1313—Introduction to World Music (3). Introduction to the musical traditions of

selected nonWestern societies; emphasis on developing listening skills; directed to non-majors, but music majors may enroll.

MUSIC 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 1608—Beginning Piano Class (1). For non-music majors only.

MUSIC 1609—Intermediate Piano Class (1). For non-music majors only. Continuation of Music-Instrumental and Vocal Techniques 1608.

MUSIC 1612—Elementary Folk Guitar Class (1). Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and folk songs.

MUSIC 1615—Beginning Classical Guitar Class (1).

MUSIC 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 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 1211 or 1212.

MUSIC 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 1652—Voice Class II (1). Continuation of Music-Instrumental and Vocal Techniques 1651. Prerequisite: MUSIC 1651.

MUSIC 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 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

MUSIC 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.

MUSIC 1221—Syntax, Structure and Style of Music II (2). Continuation of Music Theory 1200. Study of smaller forms and introduction to chromatic harmony. Prerequisites: MUSIC 1220 or instructor's consent.

MUSIC 1230—Aural Training and Sight Singing I (2). Development of aural and sight singing skills. Prerequisite or concurrent registration: MUSIC 1220.

MUSIC 1231—Aural Training and Sight Singing II (2). Continuation of Music Theory 1230. Prerequisite: MUSIC 1230 and 1221 or MUSIC 1221 concurrently.

MUSIC 2215—Composition I (2). Fundamentals of composition and writing in small forms. Prerequisites: MUSIC 1221 or instructor's consent.

MUSIC 2216—Composition II (2). Continuation of Music Theory 2215. Prerequisite: MUSIC 2215.

MUSIC 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: MUSIC 1221.

MUSIC 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: MUSIC 2220.

MUSIC 2230—Aural Training and Sight Singing III (2). Continuation of Music Theory 1231. Further development of aural and sight singing skills with an emphasis on chromatic harmony and decorative pitches. Introduction of structural perception. Prerequisites: MUSIC 1231 and 2220 or MUSIC 2220 concurrently.

MUSIC 2231—Aural Training and Sight Singing IV (2). Continuation of Music Theory 2230. Prerequisites: MUSIC 2230 and 22210 or MUSIC 2221 concurrently.

MUSIC 3215—Composition III (2). Further development of creative writing in traditional forms. Prerequisite: MUSIC 2216.

MUSIC 3216—Composition IV (2). Continuation of Music Theory 3215. Prerequisite: MUSIC 3215.

MUSIC 4215—Composition V (2). Writing of works in larger forms for a solo instrument or chamber ensemble. Prerequisite: MUSIC 3216.

MUSIC 4216—Composition VI (2). Continuation of Music Theory 4215. May be repeated for additional credit. Prerequisite: MUSIC 4215.

MUSIC 4220—20th Century Composition Techniques (2). The study and application of analytical procedures to 20th century music literature. Special readings; individual projects. Prerequisite: MUSIC 2221 or instructor's consent.

MUSIC 4221—Analysis of Music (2). An analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music. Prerequisite: MUSIC 2221 or equivalent.

MUSIC 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, multipitch synthesizers and various CD-ROMS. Prerequisite: MUSIC 4220 or instructor's consent.

MUSIC 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: MUSIC 2221 or instructor's consent

MUSIC 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: MUSIC 2221.

MUSIC 4227—Orchestration (2). Study of orchestral instruments and the process of scoring for various orchestral combinations. Prerequisite: MUSIC 2221.

MUSIC 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: MUSIC 2221.

MUSIC 4230—Choral Arranging (2). Transcription and arrangement of music suitable for performance by various vocal ensembles. Prerequisite: MUSIC 2221.

MUSIC 4231—Schenkerian Analysis (3). Techniques of musical analysis developed by Heinrich Schenker. Prerequisite: MUSIC 2221.

MUSIC 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: MUSIC 2221.

MUSIC 4233—Acoustics of Music (2). The

study of tuning systems and the properties, production and reception of musical sound. Prerequisites: instructor's consent.

MUSIC 4245—Introduction to Electronic Music (2). Techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics. Prerequisites: MUSIC 4220 or instructor's consent.

MUSIC 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.

MUSIC 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: MUSIC 4221 or equivalent. Departmental consent for repetition.

MUSIC 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: MUSIC 4227.

MUSIC 4268—Advanced Orchestration II (2). Survey of original works for orchestra.

MUSIC 4271—Comparative Approaches to Music Theory I (2). Techniques and materials for teaching basic music theory courses for high schools and colleges. Prerequisite: MUSIC 2221.

MUSIC 4272—Comparative Approaches to Music Theory II (2). Techniques and materials for advanced college courses in music theory. Prerequisite: MUSIC 4271

MUSIC 4284—Contemporary Analytical Techniques (2). Study and application of various analytical systems for 20th century compositions. Analysis of music employing contemporary theories. Prerequisite: MUSIC 2221.

MUSIC-MUSIC HISTORY AND LITERATURE

MUSIC 1322—Introduction to Music in the United States (2). Historical overview of American folk, popular, and fine-art music; emphasis on listening skills.

MUSIC 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: MUSIC 1322.

MUSIC 2308—History of Western Music II (2). Historical survey of Western fine-art music from approximately 1700 to the present. Prerequisite: MUSIC 2307.

MUSIC 4311—Historical Studies in Art Song (3). Historical survey of works for solo voice and instruments. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4312—Historical Studies in Choral Music (3). Historical survey of works featuring choral ensembles. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4313—Historical Studies in Opera (3). Historical survey of opera. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4314—Historical Studies in Large

Ensemble Music (3). Historical survey of works for large instrumental ensembles. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4315—Historical Studies in Chamber Music (3). Historical survey of works for small ensembles, instrumental and vocal. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4316—Historical Studies in Keyboard Music (3). Historical survey of works for solo keyboard instruments. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4317—Historical Studies in Jazz and Popular Music (3). Historical survey of works from the realm of American jazz and popular music. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 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: MUSIC 2307 and 2308.

MUSIC 4323—Studies in Music History I (2). Selected themes for detailed investigation of the Medieval, Renaissance or Baroque periods. Special readings; individual projects. May be repeated once for additional credit. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4324—Studies in Music History II (2). Selected themes for detailed investigation of the Classic, Romantic or Modern periods. Special readings, individual projects. May be repeated once for additional credit. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4326—History of Performance Practices (2). Performance practices; emphasizes Renaissance and Baroque periods. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4335—Music of the Middle Ages and the Renaissance (3). Systematic study of European musical practice before 1600. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4336—Music in the Baroque Era (3). Systematic study of European musical practice from approximately 1600 to 1750. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4337—Music of the Classic Era (3). Systematic study of European musical practice from approximately 1750 to 1800. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4338—Music of the Romantic Era (3). Systematic study of European musical practice from approximately 1800 to 1900. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4339—Music of the Modern Era (3). Systematic study of fine-art musical practice from approximately 1900 to the present. Prerequisite: MUSIC 2308 and or instructor's consent.

MUSIC 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: MUSIC 2308 and instructor's consent. Repeatable for up to 6 hours or credit.

MUSIC 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: MUSIC 2308 and instructor's consent.

MUSIC 4342—Contemporary Issues in Musicology (3). Systematic study of single musicological problem of contemporary relevance. Prerequisite: MUSIC 2308 and instructor's consent.

MUSIC 4376—American Musicals (3). (same as Theatre 4720). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

MUSIC 4397—Honors in Music History I (3). Special readings, directed research for graduation with Honors in music history. Prerequisites: MUSIC 2307 and 2308.

MUSIC 4398—Honors in Music History II (3). Continuation of Music History and Literature 4397 leading to Honors thesis in music history. Prerequisite: MUSIC 4397.

MUSIC-APPLIED MUSIC

MUSIC 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.

MUSIC 2455—Studio Instruction (1-5). Credit accepted toward all undergraduate music and music education degrees. May be repeated for credit. Prerequisite: instructor's consent.

MUSIC 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 2455 or equivalent; audition by committee, and instructor's consent.

MUSIC 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.

MUSIC 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 2455; audition; instructor's consent.

MUSIC 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-INSTRUMENTAL AND VOCAL TECHNIQUES

MUSIC 1610—Piano Class for Proficiency I (1). Beginning piano for music majors and concentrations only. Prerequisite: instructor's consent.

MUSIC 1611—Piano Class for Proficiency II (1). Continuation of 1610. Prerequisite: instructor's consent.

MUSIC 2610—Piano Class for Proficiency

III (1). Continuation of 1611. Prerequisite: MUSIC 1610 and instructor's consent.

MUSIC 2611—Piano Class for Proficiency IV (1). Continuation of 2610. Prerequisite: instructor's consent.

MUSIC 2631—Basic Conducting and Score Reading (2). To develop the basic psychomotor and score reading skills prerequisite to the art of conducting.

MUSIC 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: MUSIC 2631 and either MUSIC 2640 or 2641; or instructor's consent.

MUSIC 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: MUSIC 2631 or instructor's consent. May be repeated once for credit.

MUSIC 2634—Rehearsal Clinic: Band Conducting (2). To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of wind and percussion ensembles. Prerequisites: MUSIC 2631 and one course chosen from MUSIC 2637, 2638, 2645 and 2646; or instructor's consent.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 2649—Percussion II (1). Extension of Music 2648. Topics include marching percussion, drumset, Latin accessory instruments, and percussion ensemble literature. Prerequisite: MUSIC 2648 or instructor's consent.

MUSIC 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.

MUSIC 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 2640 and 2641, or instructor's consent.

MUSIC 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.

MUSIC 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.

MUSIC 3645—Jazz Improvisation (1). Melodic and harmonic creation on the basis of rhythmic vitality, making use elementary and advanced forms, chord structures, and chromatic alterations. Modal tunes and basic blues progressions are emphasized in class performance. Prerequisites: MUSIC 3644 or instructor's consent.

MUSIC 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.

MUSIC 3661—Accompanying Skills I (2). Sight reading, harmonization, transposition, score reading, score reduction and figured bass realization. Prerequisites: MUSIC 1231, 1231.

MUSIC 3662—Accompanying Skills II (2). Continuation of Music-Instrumental and Vocal Techniques 3661 including basic accompanying principles for voice, string, wind and percussion. Prerequisite: MUSIC 3661.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 4663—Piano Pedagogy Laboratory (1). Supervised instruction in private and class piano. May be repeated once for additional credit. Prerequisites: MUSIC 4661 and 4662.

VOCAL REPERTORY

MUSIC 3753—Piano Literature I (2). Survey of keyboard music from ca. 1600 to ca. 1800. Prerequisites: junior standing and instructor's consent.

MUSIC 3754—Piano Literature II (2). Survey of keyboard music from Beethoven's time to the present. Prerequisites: MUSIC 3753 or instructor's consent.

MUSIC 3767—Vocal Literature I (2). Introduction to and study of song literature with emphasis on style and interpretation. Prerequisites: junior standing or instructor's consent.

MUSIC 3768—Vocal Literature II (2). Continuation of Music-Instrumental and Vocal Repertory 3767. Prerequisites: MUSIC 3767 or instructor's consent.

MUSIC-ENSEMBLE

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 2843—Piano Ensemble (1). Study, preparation, and performance of ensemble literature for piano. May be repeated for credit. Prerequisite: instructor's consent.

MUSIC 4866—Musical Theatre Performance (3). (same as Theatre 4460). A practical study for the actor of theatrical songs through character analysis, lyric interpretation, and movement. A performance course. Prerequisite: instructor's consent.

Department of Philosophy

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FACULTY

DISTINGUISHED TEACHING PROFESSOR

W. B. Bondeson

PROFESSOR J. J. Bien, B. Gupta, J. H. Kultgen Jr,

J. Kvanvig, P. J. Markie, D. E. Sievert, P. L. Vallentyne,
P. Weirich

ASSOCIATE PROFESSOR R. N. Johnson,

M. S. McGrath, A. Melnyk, A. Von Schoenborn

ASSISTANT PROFESSOR C. S. Horisk, B. B. Kierland

The philosophy curriculum includes undergraduate and graduate courses in logic, ethics, epistemology (theory of knowledge) and metaphysics (theory of reality), as well as in the major periods of the history of philosophy. The study of philosophy provides students with an opportunity to develop argumentative and critical skills while becoming familiar with some of the most important ideas and texts in the history of thought. The department also offers courses in conjunction with the Honors College and such interdisciplinary programs as South Asian Studies and Peace Studies.

The department offers BA, MA and PhD degrees with majors in Philosophy. A minor is available.

Major Program Requirements - Philosophy

Undergraduates pursuing a major in philosophy are required to complete 30 credits in philosophy, with a C- or above in every course. In addition, students must complete a minor.

The courses to be counted toward the minor, as well as the courses in philosophy, must be approved by the department's director of undergraduate studies. In addition, students must complete all degree, College of Arts and Sciences and University graduation requirements, including University general education as well as breadth and depth of study requirements.

Major core requirements.....30

History of philosophy: two courses required	
PHIL 3000: Ancient Western Philosophy	3
PHIL 3200: Modern Philosophy	3
Logic:	3
PHIL 2700: Mathematical Logic	
Ethics:.....	3
One of the following is required:	
PHIL 1100: Introduction to Ethics	
PHIL 4600: Political and Social Philosophy	
PHIL 4500: Theories of Ethics	
At least two 4000-level courses.....	6
Capstone experience: PHIL 4950: Senior Seminar.....	3
Electives	9
(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.	

Required Minor

Students must complete a minor. In choosing a minor, students are urged to concentrate on courses relevant to their main interest in philosophy, such as classical studies for ancient philosophy, math for logic, or science for philosophy of science. The minor must consist of 15 credits in a single department, including at least 6 credits at the 2000 level or above.

Double 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 adviser for that department.

Departmental Honors

To earn a BA with honors in philosophy, a student must complete PHIL 4998 and 4999 in addition to the regular major requirements, and maintain both a 3.3 GPA in all courses and a 3.5 GPA in all philosophy courses.

Minor in Philosophy

To earn a minor in philosophy, students must first gain the permission of their academic unit. Students must complete 15 credits in philosophy, including at least 6 credits at the 2000 level or above that are approved by both the adviser in the student's major and the department's director of undergraduate studies. PHIL 4998 and PHIL 4999 do not contribute to the minor.

The department recommends that students choose these courses from those required for a major in philosophy as listed above (not including PHIL 4950). However, other philosophy courses particularly relevant to the student's major may be substituted. Such substitutions are subject to approval.

Sample Eight-Semester Program

Philosophy Major

Fall I

Composition	3
Math 1100	3
Foreign Language I	5
Phil 1100 Introduction to Ethics	3
Total	14

Fall II

Phil 1000 General Introduction to Philosophy	3
Foreign Language II	5
Foundation Requirement course	3
Foundation Requirement course	3
Total	14

Fall III

Phil 2700 Mathematical Logic	3
Foreign Language III	3
Foundation Requirement course	3
Foundation Requirement course	3
Foundation Requirement course	3
Total	15

Fall IV

Phil 3200 Modern Philosophy	3
Foundation Requirement course	3
Foundation Requirement course	3
Foundation Requirement course	3
Minor course	3
Total	15

Winter I

Phil 3000 Ancient Western Philosophy	3
Foundation Requirement course	5
Foundation Requirement course	3
Foundation Requirement course	3
Minor course	3
Total	17

Winter II

Phil 2500 Philosophy and gender	3
Foundation Requirement course	3
Minor course	3
Elective	3
Elective	3
Total	15

Winter III

Phil 4210 Philosophy of Mind	3
Phil 4200 Metaphysics	3
Minor course	3
Elective	3
Elective	3
Total	15

Winter IV

Phil 4950 Senior Seminar ..	3
Phil 4300 Epistemology ..	3
Minor course	3
Elective	3
Elective	3
Total	15

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 (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 (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—Introduction to Logic (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—Introduction to Logic (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 1300—Introduction to Informal Logic (3). Methods of analyzing and evaluating arguments. Practice in the construction of effective arguments. Limited to arguments that can be analyzed using ordinary language rather than technical symbols. No credit for students who have completed PHIL 1200.

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 2100—Philosophy: East and West (3). (same as South Asia Studies 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 man's place in the universe affected? What puzzles arise in replacing old by new views? Prerequisite: sophomore standing.

PHIL 2300—Philosophy and Human Nature (3). Human existence, its nature, condition, foundations and significance, according to philosophies such as existentialism, pragmatism, Marxism, positivism, theism, etc. Students are asked to formulate their own self-conceptions. Prerequisite: sophomore standing.

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 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.

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.

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.

PHIL 2500—Philosophy and Gender (3). 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. Prerequisite: grade of C or better in MATH 1100/1120.

PHIL 2700—Mathematical Logic (3). (same as Linguistics 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 better in MATH 1100/1120.

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 Ockhamists. 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 3300—Kant to Hegel (3). Focus on the philosophic accomplishments of this very brief and yet extremely fertile period of the Enlightenment's transformation through Romanticism. 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—Contemporary Philosophy (3). The course will be a survey of some of the notable philosophers/thinkers whose contributions have been made in the twentieth century, eg., Russell, Wittgenstein, Sartre, Freud, Dennett and Searle. 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 philosopher or philosophers from the same school in the 20th century. 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 4100). Examination of contemporary views of the relationship between language, minds, and the world. Prerequisite: PHIL 2700 or instructor's consent. Some work in PHIL 1000, 3000 or 3200 recommended.

PHIL 4110—Formal Logic (3). (same as Linguistics 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: PHIL 2700 or graduate status.

PHIL 4120—Advanced Symbolic Logic (3).

Elementary set theory. Modal logic, the logic of possibility and necessity. Prerequisite: PHIL 2700 or 4110.

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 100, 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 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 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.

PHIL 4510—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. Prerequisite: junior standing.

PHIL 4600—Political and Social Philosophy (3). (same as Peace Studies 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 compo-

nents 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 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, 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 4810). General development of Indian philosophy. Prerequisite: junior standing.

PHIL 4820—Contemporary Indian Philosophy (3). (same as South Asia Studies 4820). Indian philosophical traditions as represented in backgrounds of Gandhi, Tagore, Ramkrishna, and philosophical systems of Radharkrishnan, Aurobindo, etc. 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: departmental consent.

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.

Department of Physics and Astronomy

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FACULTY

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J. E. Willett
ASSOCIATE PROFESSOR S. J. Chen, S. M. Kopeikin,
C. J. Peterson, S. Zhang
ASSISTANT PROFESSOR S. Guha, I. Kosztin,
W. T. Montfrooij, A. K. Speck, C. Wexler, P. Yu
RESIDENT INSTRUCTION ASSISTANT PROFESSOR
D. C. Kosztin

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 offers two undergraduate degree programs: the Bachelor of Arts (BA) with a major in Physics and the Bachelor of Science (BS) with a major in Physics. 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 or for further training in graduate school. A minor in physics 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 degree, students must complete 31 credits in physics and 22 credits in math, chemistry and computer science. For the BS degree, students must complete 40 credits in physics and 28 credits in math, chemistry

and computer science. The BS gives a solid foundation for the further graduate studies necessary for most careers in physics and other sciences.

In addition, students must meet all degree, college, and University requirements including University general education.

Major core requirements for the BS program

PHYSCS 2750, 2760: University Physics I & II	10
PHYSCS 3150: Introduction to Modern Physics	3
PHYSCS 4100: Electricity and Magnetism	3
PHYSCS 4120: Introduction to Thermodynamics	3
PHYSCS 4140: Mechanics	3
PHYSCS 4800: Quantum Mechanics I	3
PHYSCS 4985: Modern Physics	3
MATH 1500, 1700, 2300: Calculus I, II, II	13
MATH 4100: Differential Equations	3
CECS 1001: Algorithm Design and Programming I	3
CHEM 1320: General Chemistry	3

Major core requirements for the BA program

PHYSCS 2800: Undergraduate Physics Seminar	3
PHYSCS 2750, 2760: University Physics I, II	10
PHYSCS 3150: Introduction to Modern Physics	3
PHYSCS 4050: Major Themes in Classical Physics	3
MATH 1500, 1700, 2300: Calculus I, II, III	13
MATH 4100: Differential Equations	3
CECS 1001: Algorithm Design and Programming I	3
CHEM 1320: General Chemistry	3

Electives for the BS program

Additional physics/astronomy	12
Additional math	6

Electives for the BA program

Additional physics/astronomy	12
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Elective Tracks

Students have available a variety of courses from which they may select the required 12 credits of physics electives for the BS or BA degree. The Physics Department offers two tracks that allow students to specialize in biological physics or astronomy. Students may want to pursue one of these tracks, or follow a general track in which they can choose any of the courses listed below.

Note: Tracks are not indicated on the diploma.

Biological physics track

PHYSCS 4110: Light and Modern Optics
PHYSCS 4310: Physics in Cell and Developmental Biology
PHYSCS 4500: Computational Biological Physics
PHYSCS 4190: Physics and Chemistry of Materials

Astronomy track

ASTRON 3010: Introduction to Modern Astrophysics
ASTRON 4150: Solar System Astrophysics
ASTRON 4250: Stellar Astrophysics
ASTRON 4350: Galactic Astronomy

Other general elective courses

PHYSCS 4103: Topics of Physics and Astronomy
PHYSCS 4050: Electronic Data Processing
PHYSCS 4060 and 4070: Advanced Physics Lab I and II
PHYSCS 4110: Light and Modern Optics
PHYSCS 4130: Electricity and Magnetism II

PHYSICS 4700: Introduction to Methods in Mathematical Physics
PHYSICS 4750: Computational Methods in Physics
PHYSICS 4810: Quantum mechanics II

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 adviser.

Dual Degrees and Double Majors

Students may wish to pursue two baccalaureate 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 advisers 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 PHYSICS 4950: Undergraduate Research
- Present a paper prior to graduation at a regional or national meeting or make an oral defense of a higher research paper 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: PHYSICS 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 PHYSICS 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.

Sample Eight-Semester Programs

Bachelor Science with a major in Physics

Check the *Undergraduate Catalog* for prerequisites.

Fall I

^MATH 1500: Calculus I. 5
 *General education 3
 ^CHEM 1320: Gen Chemistry 2 w/lab 3
 *ENGLSH 1000: Exposition & Argumentation 3
 PHYSCS 2800: Undergrad Seminar in Physics 1
Total..... 15

Fall II

^PHYSCS 2760: University Physics 5
 ^MATH 2300: Calculus III..... 3
 *General education 3
 ^CS 1001: Topics in CS..... 3
Total..... 14

Fall III

^PHYSCS 4100: Electricity & Magnetism I 3
 ^PHYSCS elective 3
 ^MATH elective 3
 *General education 3
 *Enhancement area/foreign language 3
Total..... 15

Fall IV

^PHYSCS 4800: Intro
 ^Quantum Mech I 3
 PHYSCS elective 3
 PHYSCS elective 3
 *Enhancement area 3
Total..... 12

Winter I

^PHYSCS 2750: University Physics 5
 ^MATH 1700: Calculus II
 PHYSCS 2800: Undergrad Seminar in PHYSICS 2
 *General education..... 3
Total 15

Winter II

^PHYSCS 3150: Intro Modern Physics 3
 ^MATH 4100: Differential Equations 3
 PHYSCS 4140: ^Mechanics..... 3
 *General education 3
 Specialized/foreign language 3
Total 15

Winter III

^PHYSCS 4120: Intro to Thermodynamics 3
 ^PHYSCS elective 3
 ^Math elective 3
 *General education..... 3
 *Specialized/foreign language 3
Total 15

Winter IV

PHYSICS 4985: ^Modern PHYSICS 3
 *Electives/research..... 3
 Electives/research..... 3
 Electives/research..... 3
Total 12

Bachelor of Arts with a major in Physics

Check the *Undergraduate Catalog* for prerequisites.

Fall I

^MATH 1500 5
 ^CHEM 1320 3
 ^PHYSICS 2800..... 1
 *ENGL 1000 3
 *HIST 1100 or 1200 or POL SC 1100 3
Total..... 15

Fall II

^MATH 2300 3
 ^PHYSICS 2760..... 5
 *Foreign language (level 1) 5
 Elective 3
Total..... 16

Fall III

^PHYSICS 4050..... 3
 ^PHYSICS elective 3
 *Foreign language (level 3) 3
 *Social science course ... 3
 *2000-level behavioral science 3
Total..... 15

Fall IV

^PHYSICS elective/research 3
 *Humanities and fine arts course 3
 *2000-level social science 3
 Elective 3
 Elective 3
Total..... 15

Winter I

^MATH 1700..... 5
 ^PHYSICS 2750..... 5
 *Humanities and Fine Arts course 3
 ^PHYSICS 2800..... 2
Total 15

Winter II

^MATH 4100..... 3
 ^PHYSICS 3150..... 3
 *Foreign language (level 2) 5
 *Behavioral Science 3
 Elective 3
Total 17

Winter III

^PHYSICS elective 3
 ^CS 1001 3
 *2000-level Humanities and fine arts course, (Writing Intensive)..... 3
 Elective..... 3
 Elective..... 3
Total 15

Winter IV

^PHYSICS elective/research..... 3
 *Humanities and fine arts course 3
 Elective..... 3
 Elective..... 3
 Elective..... 3
Total 15

^ Course meets degree program requirements

* Course meets University general education and/or campus graduation requirements.

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. Prerequisites: high school algebra and plane geometry; 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, ASTRON 1010

ASTRON 2100—Archeo-Astronomy (3). Interpretation of evidence of mankind's early use of celestial phenomena for calendric, navigational and architectural purposes; interrelation of astronomical events to mythologies, religions and other aspects of societies. Prerequisites: ASTRON 1010.

ASTRON 3010—Introduction to Modern Astrophysics (3). (same as 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 2760.

ASTRON 3020—Astrophysical Techniques (2). (same as Physics 3020). Elements of modern astronomical instruments, observations and analysis. Prerequisite: PHYSICS 3010 or concurrently.

ASTRON 4150—Solar System Astrophysics (3). (same as Physics 4150). Investigates physical states of various members of solar system—planets, satellites, comets, sun. Emphasizes orbital mechanics, planetary interiors, structure & evolutionary state of sun, cosmogony. Prerequisite: PHYSICS 4140 or concurrent or instructor's consent.

ASTRON 4250—Stellar Astrophysics (3). (same as 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 3150 or concurrently or instructor's consent.

ASTRON 4350—Galactic Astronomy (3). (same as 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 3010, 4140 or 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.

PHYSICS COURSES

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 (3). Major advances in science and inventions and their impact on past civilizations. Assessment of current science and technology activities, funding and policies, and critical advances in technology required for future generations. Prerequisite: MATH 1100/1120 or equivalent.

PHYSICS 1150—Concepts of Physics--Physics for Poets (3). Introduction to fundamental concepts of physics for liberal arts majors. Topics include Conservation of Energy-Momentum, Special theory of relativity, entropy, quantum mechanics and structure from quarks to cosmology. Prerequisite: MATH 1100/1120 or equivalent.

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: MATH 1100/1120.

PHYSICS 1220—College Physics II (4). Continuance of 1210. Covers electricity and magnetism, optics and modern physics. Three lectures, one lab weekly. Prerequisite: grade of 2.0 or better in PHYSICS 1210.

PHYSICS 1400—Introduction to Experimental Physics (3). Introduction to processes of experimental physics with emphasis on acquisition, evaluation and interpretation of data. Extensive application of digital systems. Prerequisite: MATH 1500 or corequisite. Credit for freshmen only. Primarily for physics majors.

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: MATH 1100/1120.

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: MATH 1100/1120 and sophomore standing required.

PHYSICS 2750—University Physics (5). First course in calculus-based physics for science and engineering students. Covers kinematics, dynamics, oscillations, waves, fluids and thermodynamics. Includes a laboratory. Prerequisite: MATH 1500 or equivalent. Corequisite: MATH 1700.

PHYSICS 2760—University Physics (5). Continuation of Physics 2750. Covers electrostatics, elementary circuits, magnetism, electromagnetic phenomena, optics, matter waves and particles and modern physics. Includes a laboratory. Prerequisites: MATH 1700 and grade of 2.0 or better in PHYSICS 2750. Corequisite: MATH 2300.

PHYSICS 2800—Undergraduate Seminar in Physics (1-3). Presentation of topics of current interest in physics by staff and students at junior-senior level. May be repeated for 3 hours maximum

PHYSICS 3010—Introduction to Modern Astrophysics (3). (same as Astronomy 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 2760.

PHYSICS 3020—Astrophysical Techniques (2). (same as Astronomy 3020). Elements of modern astronomical instruments, observations and analysis. Prerequisite: 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 2760.

PHYSICS 3250—Fundamentals of Physics for High School Teachers I (2). Surveys mechanics, heat, sound for the high school teacher. Special reference to fundamental concepts, demonstrations, use of equipment, problems.

PHYSICS 3260—Fundamentals of Physics for High School Teachers II (2). Similar to Physics 3250 but covers magnetism and electricity, light, certain features of modern physics. May be taken before PHYSICS 3250.

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 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 3150.

PHYSICS 4070—Advanced Physics Labora-

tory II (3). Experiments include: superconductivity, resistivity, specific heat, optical, and computer-related measurements. Two 3-hour labs weekly. Prerequisites: 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 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 2760.

PHYSICS 4103—Topics on Physics and Astronomy (1-3). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: 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 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 2760.

PHYSICS 4130—Electricity and Magnetism II (3). Application of Maxwell's equations. Prerequisite: PHYSICS 4100.

PHYSICS 4140—Mechanics (3). Development of fundamental concepts, principles of mechanics using mathematical methods. Many problems used. Prerequisite: PHYSICS 2760.

PHYSICS 4150—Solar System Astrophysics (3). (same as Astronomy 4150). Investigates physical states of various members of solar system--planets, satellites, comets, sun. Emphasizes orbital mechanics, planetary interiors, structure and evolutionary state of sun, cosmogony. Prerequisite: PHYSICS 4140 or concurrently or instructor's consent.

PHYSICS 4190—Physics and Chemistry of Materials (3). (same as Nuclear Science and Engineering 4319 and Chemistry 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: 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 3150 and instructor's consent. Graded on A/F basis only.

PHYSICS 4250—Stellar Astrophysics (3). (same as Astronomy 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 3150 or concurrently or instructor's consent.

PHYSICS 4260—Modern Physics Laboratory for Secondary Science Teachers (3).

PHYSICS 4310—Physics in Cell and Developmental Biology (3). (same as Biological Science 4330). 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 1220 or 2760 and BIO SC 2300 or instructor's consent.

PHYSICS 4350—Galactic Astronomy (3). (same as Astronomy 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 3010, 4140 or instructor's consent.

PHYSICS 4390—Problems in Physics (cr.arr.).

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 1220 or 2760 or instructor's consent.

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: MATH 4100.

PHYSICS 4750—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 3150.

PHYSICS 4800—Introduction to Quantum Mechanics I (3). Foundations of wave mechanics; wave packets; Schrodinger equation and 1-D problems; operators and eigenfunctions, spherically symmetric systems. Prerequisite: 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 4800 or equivalent.

PHYSICS 4950—Undergraduate Research in Physics (cr.arr.). Special studies for advanced undergraduate students in physics covering subjects not included in courses regularly offered.

PHYSICS 4985—Modern Physics (3). Atomic

and structure, spectra; quantum statistics; band theory of solids, free electrons, Bloch's Theorem, semiconductors; superconductivity; nuclear models and elementary particles. Prerequisite: PHYSICS 4800.

Department of Political Science

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FACULTY

PROFESSOR P. James, K. C. Morrison, N. P. Peritore,
J. R. Petrocik, D. C. Shin, H. K. Tillema
ASSOCIATE PROFESSOR J. K. Dow, J. W. Endersby,
R. J. Hardy, C. A. Holland, L. R. Keiser, L. M. Overby,
D. J. Webber
ASSISTANT PROFESSOR A. C. Drury, J. J. Hewitt,
J. T. Kriekhaus, C. S. Lipsmeyer, S. Nicholson-Crotty,
S. L. Quackenbush
VISITING ASSISTANT PROFESSOR W. T. Horner,
A. M. Reddick
PROFESSOR EMERITUS P. Wallace

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. A minor is also available.

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. A minor is also available.

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 and at least one writing-intensive course
- MATH 1100/1120 followed by a mathematics or statistics course (STAT 1200 will not count)
- A 3-credit course in history, world geography or foreign civilizations devoted to international affairs

Students are required to complete 30 credits in political science. Fifteen of the 30 must be numbered 4000 or above.

Major core requirements

At least one political science class in each area

Comparative government

- POL SC 2600: Canadian Politics
- POL SC 2700: Comparative Political Systems
- POL SC 4600: Latin American Governments
- POL SC 4610: Western European Political Systems
- POL SC 4620: Politics in India and South Asia
- POL SC 4640: African Politics
- POL SC 4700: The Politics of Modernization: East Asia
- POL SC 4710: Terrorism: Religious, Ethnic and Ideological Politics
- POL SC 4720: Third World Politics

International affairs

- POL SC 1400: International Relations
- POL SC 4400: Theories of International Relations
- POL SC 4420: Politics of International Economics Relations
- POL SC 4440: International Organization
- POL SC 4500: The European Union in the Global System
- POL SC 4540: American Foreign Policies

Political theory/methodology

- POL SC 2800: Introduction to Political Theory
- POL SC 4000: Introductory Statistics for Political Science
- POL SC 4410: Computing Methods
- POL SC 4020: Survey Research Methods
- POL SC 4030: Formal Political Analysis
- POL SC 4040: Readings In Public Choice
- POL SC 4800: Classical Political Theory
- POL SC 4810: Modern Political Theory
- POL SC 4820: Contemporary Political Theory
- POL SC 4860: Liberal Thought and the Ownership of the Self
- POL SC 4870: Environmental Theory and Politics
- POL SC 4880: Feminist Political Thought

Two political science classes in American politics/public policy selected from the following:

- 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: Media & Politics
- POL SC 4130: African American Politics
- POL SC 4140: Congress and Legislative Policy
- 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 4330: Policy Analysis
- POL SC 4350: Issues in Public Policy
- POL SC 4370: Issues in Public Bureaucracy

Options

For students who want to concentrate on a specific area, suggestions for a course of study are available from the academic adviser. These might include:

- Government service for students who want to become govern-

- ment 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 with 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 receive 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 in the 4000-level credits. Nine credits must be in residence including 6 at the 4000 level.

Internships

The Political Science Department offers an active internship program in a variety of governmental settings including work with state legislators, administrative agencies, political candidates, 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 course work are eligible to apply.

Sample Eight-Semester Programs

Bachelor of Arts degree with a major in Political Science (Generic)

See the *Undergraduate Catalog* for prerequisites.

Fall I	
*ENGLSH 1000.....	3
*Foreign language 1100.....	5
*Behavioral science.....	3
*^POL SC 1100.....	3
Library skills.....	1
Total.....	15

Fall II	
*Foreign language 2100.....	3
^*Math/stat class.....	3
*Social science.....	3
*Social science.....	3
^Political science.....	3
Total.....	15

Fall III	
^Political science.....	3
*Humanities.....	3
*Physical science (lab)...	3
Elective.....	3
Elective.....	3
Total.....	15

Fall IV	
^*POL SC 4995.....	3
^*POL SC (WI).....	3
Humanities.....	3
Elective.....	3
Elective.....	3
Total.....	15

Winter I	
*MATH 1120.....	3
*Foreign language.....	5
*Behavioral science.....	3
^Political science.....	3
Elective.....	1
Total.....	15

Winter II	
PEA ST 1050 (WI).....	3
PHIL 1200.....	3
*Social science.....	3
*Biological science.....	3
^Political Science.....	3
Total.....	15

Winter III	
^Political science.....	3
*Humanities.....	3
*Humanities.....	3
Elective.....	3
Elective.....	3
Total.....	15

Winter IV	
^Political science.....	3
^Political science.....	3
Elective.....	3
Elective.....	3
Elective.....	3
Total.....	15
Degree Total.....	120

Bachelor of Arts degree with a major in Political Science (International Relations Option) Generic Plan

Fall I	
*ENGLSH1000.....	3
*Foreign language 1100.....	5
^*ECON 1014.....	3
^*POL SC 1100.....	3
Elective.....	1
Total.....	15

Fall II	
*MATH 1320.....	3
*Foreign Language 21003.....	3
^*ECON 3224.....	3
^POL SC 2700.....	3
*Behavioral science.....	3
Total.....	15

Fall III	
Foreign language.....	3
^Political science.....	3
^Business class.....	3
*Social science.....	3
*Physical science (lab)...	4
Total.....	16

Fall IV	
Foreign language.....	3
^Political science.....	3
^*POL SC 4995.....	3
*Humanities.....	3
*Humanities.....	3
Total.....	15

Winter I	
*MATH 1110.....	3
*Foreign Language 1200.....	5
^*ECON 1015.....	3
^POL SC 1400.....	3
Total.....	14

Winter II	
Russian 2320 (WI).....	3
Foreign Language 2160... ..	3
^ECON 3229.....	3
^Political science.....	3
*Behavioral science.....	3
Total.....	15

Winter III	
Foreign language.....	3
^Political science.....	3
^Business class.....	3
*Humanities.....	3
*Biological science.....	3
Total.....	15

Winter IV	
Foreign language.....	3
^Political science.....	3
^Political science.....	3
*Humanities.....	3
Elective.....	3
Total.....	15
Degree Total.....	120

Bachelor of Arts degree with a major in Political Science (International Relations Option)

Specific plan

Fall I	Winter I
*ENGLSH 1000..... 3	*MATH 1110..... 3
*Foreign language 1100.. 5	*Foreign language..... 5
^*ECON 1014..... 3	^*ECON 1015..... 3
^*POL SC 1100..... 3	^POL SC 1400..... 3
Elective..... 1	
Total..... 15	Total..... 14
Fall II	Winter II
^*MATH 1320..... 3	^*RUSS 2320 (WI)..... 3
*Foreign language..... 3	Foreign language 2160.... 3
ECON 3224..... 3	ECON 3229..... 3
^POL SC 2700..... 3	^POL SC 4600..... 3
*SOCIO 1000..... 3	*SOCIO 3600..... 3
Total..... 15	Total..... 15
Fall III	Winter III
Foreign language..... 3	Foreign language..... 3
^POL SC 4410..... 3	^POL SC 4140..... 3
^MANGMT 3000..... 3	^MANGMT 3540..... 3
*HIST 2500..... 3	^*KOREAN 2320..... 3
*GEOL 1100 (lab)..... 4	*BIO SCI 1010..... 3
Total..... 16	Total..... 15
Fall IV	Winter IV
Foreign language..... 3	Foreign language..... 3
^POL SC 4420..... 3	^POL SC 4710..... 3
^POL SC 4995..... 3	^POL SC 4540..... 3
GERMAN 2310..... 3	CHINSE 2310..... 3
*PHIL 2100..... 3	*ENGLSH 2700..... 3
Total..... 15	Total..... 15
	Degree Total..... 120

Bachelor of Arts degree with a major in Political Science (Liberal Arts)

Fall I	Winter I
*ENGLSH 1000..... 3	*MATH 1110..... 3
*SPAN 1100..... 5	*SPAN 1200..... 5
*PSYCH 1000..... 3	*PSYCH 2510..... 3
^*POL SC 1100..... 3	^POL SC 2100..... 3
Library skills..... 1	Elective..... 1
Total Hours..... 15	Total hours..... 15
Fall II	Winter II
*SPAN 2100..... 3	*Peace Studies 1050 (WI)..3
^*STAT 1300..... 3	PHIL 1200..... 3
*ECONOM 1014..... 3	*GEOG 1200..... 3
HIST 1840..... 3	*CHEM 1100..... 3
^POL SC 1400..... 3	^POL SC 2200..... 3
Total..... 15	Total..... 15
Fall III	Winter III
^POL SC 4610..... 3	^POL SC 4120..... 3
*ENGLSH 2610..... 3	*REL ST 2110..... 3
*BIO SCI 1010..... 3	HIST 2220..... 3
*HIST 2500..... 3	*PHIL 1100..... 3
Elective..... 3	Elective..... 3
Total..... 15	Total..... 15
Fall IV	Winter IV
^*POL SC 4995..... 3	^POL SC 4800..... 3
^*POL SC 4320 (WI)..... 3	^POL SC 4140..... 3
*COMMUN 1200..... 3	HIST 1590..... 3
HIST 4250..... 3	Elective..... 3
Elective..... 3	Elective..... 3
Total..... 15	Total..... 15
	Degree Total..... 120

POLITICAL SCIENCES COURSES

POL SC 1002—Topics in Political 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 (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.

POLSC 1400H—International Relations (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 1700—Introduction to Political Science (3). Introduces scope and content of politics: theory and operation of democratic and undemocratic governments. Meets state law constitutional requirement. Students taking this course may not take 1100, and vice versa.

POL SC 1700H—Introduction to Political Science (3). Introduces scope and content of politics: theory and operation of democratic and undemocratic governments. Meets state law constitutional requirement. Students taking this course may not take 1100/1100H, and vice versa. Honors eligibility required.

POLSC 2000—Quantitative Applications in Political Science (3). Introduction to the ways in which social scientists use data analysis for understanding social and political phenomena. Provides “hands-on” experience in using computers and various analytical techniques for answering substantive questions. Prerequisites: POL SC 1100 or 1700, instructor’s consent.

POLSC 2002—Topics in Political 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 2050—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 overviews 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 2100—State Government (3). Government and politics at the state level, with emphasis on Missouri. Meets state law constitutional requirement. cor.

POLSC 2110—Current Issues in American Politics (3). Investigation primarily through reading and discussion of contemporary issues in American politics. Content varies. Prerequisites: sophomore standing.

POL SC 2120—Black Women in American Politics (3). (same as Black Studies 2120). Analyzes the role that Black Women have played in American politics from the Reconstruction era’s civil rights and women’s movements, and bids for elective official. Prerequisites: POLSC 1100 or 1700 and sophomore standing.

POL SC 2200—The Judicial Process (3). Analysis of roles played by American judges and courts in democratic policy formation.

POLSC 2600—Canadian Politics and Gov-

ernment (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: POL SC 1100 or 1700.

POLSC 2700H—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: POL SC 1100 or 1700. Honors eligibility required.

POLSC 2710—Politics and the Military (3). (same as Peace Studies 2710). Comparative study of post-cold war civil-military relations; military as an interest group, change agent, policy instrument and competitor of civilian politicians.

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.

POLSC 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.

POLSC 2870—Black Political Thought (3). (same as Black Studies 2870). Analyzes the major political theories and their proponents from the Reconstruction era to the present. Prerequisite: POL SC 1100 or 1700 and 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: MATH 1100/1120 or equivalent, concurrent enrollment in POL SC 4010.

POL SC 4002—Topics in Political 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 POL SC 4000.

POL SC 4020—Survey Research Methods (3). Selection of survey research topics, questionnaire development, sampling, interviewing, coding and preparation of data for computer analysis. Emphasis on practical participation.

Prerequisite: POL SC 1100, 1700 and junior standing.

POL SC 4030—Formal Political Analysis (3). Introductory course in formal mathematical models of political behavior and political institutions. Topics include electoral rules, agenda control, measures of power, collective action, constitutions. Prerequisites: MATH 1100/1120 or equivalent.

POLSC 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: POL SC 1100, 1700, 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: POL SC 1100, 1700 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: POL SC 1100, 1700 and junior standing.

POL SC 4130—African-American Politics (3). (same as Black Studies 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: POL SC 1100, 1700 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: POL SC 1100, 1700 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: POL SC 1100, 1700 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: POL SC 1100, 1700 and junior standing.

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: 1 or 11; junior standing. cor.

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: POL SC 1100, 1700 and junior standing.

POL SC 4220—The United States Supreme Court (3). Role of Supreme Court in Ameri-

can system of government; particular attention given to reading biographies and writings of the Justices. Prerequisite: POL SC 1100, 1700 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: POL SC 1100, 1700 and junior standing.

POLSC 4300—Local Government (3). Politics and government of urban and rural areas in Missouri and other states. Includes municipalities, counties, and special districts; political organization and urban problems. Prerequisites: POL SC 1100, 1700, 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: POL SC 1100, 1700 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: POL SC 1100, 1700 and junior standing.

POL SC 4330—Policy Analysis (3). Approaches to designing public policies including cost-benefit accounting, decision theory, and programming. Investigation of formulation of policy objectives with special emphasis on problems of collective choice and rationales for market intervention. Prerequisite: POL SC 1100, 1700 and junior standing.

POL SC 4340—Introduction to Public Administration (3). Surveys recurring themes, conceptual problems, and substantive findings in the literature of public administration with particular attention to U.S. public bureaucracies. Prerequisites: POL SC 1100, 1700 and junior standing.

POL SC 4350—Issues in Public Policy (3). Investigates selected public policies on an intensive basis. Policy issues vary. Prerequisite: POL SC 1100, 1700 and junior standing.

POL SC 4360—Politics of Regulatory Policy (3). Role of administrative agencies, Congress, the President and the courts in the development of regulatory policy in the United States. Prerequisite: POL SC 1100, 1700 and junior standing.

POLSC 4370—Issues in Public Bureaucracy (3). Investigates selected political and administrative problems affecting public bureaucratic units. Context varies. Prerequisite: POL SC 1100, 1700 and junior 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

POLSC 4410—Politics and War (3). (same as Peace Studies 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 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: *ECONOM 1015* and junior standing.

POL SC 4440—International Organization (3). Forms and functions of governmental (United Nations, European Union, NATO) and nongovernmental international organizations. POL SC 1100, 1700 and junior standing.

POL SC 4450—Race, Ethics, and Gender in International Relations (3). (same as Peace Studies 4450). Explores topics often neglected in the study of international relations, including racism, the laws and ethics of warfare, human rights, and gender. Prerequisite: 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: POL SC 1100, 1700, 1400 and junior standing.

POL SC 4510—Western European Foreign Policy (3). (same as Peace Studies 4510). 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.

POL SC 4520—Germany and European Security (3). Focuses on the factors, both internal and external to Germany, that are likely to shape the policies and goals which Germany will advance in the foreseeable future as a major participant in European affairs. POL SC 1100, 1700 and junior standing.

POL SC 4530—Russian Foreign Policy (3). Principles, problems, and evolution of foreign policy of post-Soviet Russia towards other Soviet successor states, Western nations, East Central Europe, Asia, and the developing world. Prerequisite: junior standing.

POL SC 4540—American Foreign Policies (3). Bases, formulation, evaluation of current American foreign policies. Prerequisite: junior standing.

POL SC 4550—International Problems in the Middle East (3). (same as Peace Studies 4550). Nature and causes of the Arab-Israeli Conflict, inter-Arab rivalries, the Persian Gulf Problems, and the involvement of external powers in these conflicts. Prerequisites: junior standing.

POL SC 4600—Latin American Politics (3). Development, present status of political institutions in South America; emphasizes current political problems. POL SC 1100, 1700 and junior standing.

POL SC 4610—Western 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 4620—Politics in India and South Asia (3). (same as South Asia Studies 3620).

Contemporary political and governmental patterns of India, Pakistan, Sri Lanka, Nepal, and Bangladesh. Prerequisite: junior standing.

POL SC 4630—Contemporary Chinese Politics (3). Comparative study of the evolution of national governments and policies in China and Taiwan. Prerequisite: junior standing.

POL SC 4640—African Politics (3). (same as Black Studies 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. POL SC 1100, 1700 and junior standing.

POL SC 4650—Post Communist Europe (3). Investigates causes and consequences of the revolution of 1989-90 for Post-Cold War Communist East Central Europe. Emphasis on the clash between demands for national self-determination and the imperatives of economic reforms. Prerequisite: junior standing.

POL SC 4700—The Politics of Modernization: East Asia (3). Comparative study of the evolution of national governments and policies, primarily in Japan and Korea, sometimes China. Prerequisite: junior standing.

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—Third World Politics (3). (same as Black Studies 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.

POL SC 4730—Political Development and Social Change (3). (same as Peace Studies 4730). Interdisciplinary analysis of the dynamics of political and socioeconomic change based on an examination of theories of development and case studies from Asia, Africa, Latin America, and/or the Middle East. Prerequisite: 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 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 4860—Liberal Thought and the Ownership of the Self (3). (same as Women's and Gender Studies 4910). Introduces students to foundational premises of liberal political thought through examination of the dispute between Locke and Filmer. Analyzes subsequent rethinking of that debate in works by Rousseau, Wollstonecraft, nineteenth-century American slaves, contemporary feminists, and communitarians. Prerequisite: junior standing.

POL SC 4870—Environmental Theory and Politics (3). Introduction to ecology and human impacts/extinction, climate change, pollution. Responses to the crisis in terms of environmental economics, comparative regulatory policy and law, postmodern environmentalist ideologies, and international treaty regimes. Prerequisite: junior standing or instructor's consent.

POL SC 4880—Feminist Political Thought (3). (same as Women's and Gender Studies 4880). This course examines the deployment of sexual difference in selected canonical works of the western political tradition, and it introduces students to important debates within contemporary feminist thought about the relationship between feminism and politics. Prerequisite: 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.

Department of Psychological Sciences

Dr. David Geary
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FACULTY

PROFESSOR C. M. Borduin, M. L. Cooper, N. Cowan,
D. C. Geary, L. A. King, J. Lopiccolo, D. G. McDonald,
M. Naveh-Benjamin, T. R. Schachtman, K. Sher,
T. J. Trull, P. Wood

ASSOCIATE PROFESSOR D. J. Bell, B. A. Bettencourt,
S. A. Hackley, K. M. Sheldon, W. S. Slutske,
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A. M. Bardone-Cone, B. Bartholow, K. A. Buss-Bakken,
R. Friedman, A. R. Hafdahl, K. Hawley, J. G. Kerns,
J. W. King, J. L. Krull, D. M. McCarthy, D. K. Miller Jr,
T. M. Piasecki, C. Robert, A. J. Rose, J. N. Rouder,
D. Steinley, M. Will

CLINICAL ASSOCIATE PROFESSOR
N. Presser, J. B. Skinner, M. A. Klein-Trullser

RESEARCH PROFESSOR P. C. Rutledge

RESEARCH ASSISTANT PROFESSOR K. M. Jackson
RESIDENT INSTRUCTION ASSOCIATE PROFESSOR
A. J. Strathman

RESIDENT INSTRUCTION ASSISTANT PROFESSOR
I. L. Segert

PROFESSOR EMERITUS W. Anderson, B. Biddle,
R. G. Geen, D. Kausler, 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 students 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 at least 120 credits of course work (or 132 credits, if a dual major). At least 30 credits must be at the 3000 level. At least 30 of the last 36 credits must be completed in residence at MU. At graduation, the student must have a 2.0 MU cumulative and MU GPA, a 2.0 GPA in the major, a 2.0 GPA in the final 30 credits, and a

2.0 GPA in the final 60 credits.

In addition, students 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 1300 or its equivalent (a required course for all psychology majors).
- Students must complete at least two psychology courses numbered 3000 or above.
- Students must complete at least one psychology course that is designated Writing Intensive.
- No more than 40 credits in psychology can count toward the credits needed for graduation.

Required courses

PSYCH 1000: General Psychology.....	3
Research methods sequence	
STAT 1300 or its equivalent (also meets A&S foundation requirement)	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 each of five distribution areas. This ensures that students will have exposure to a wide range of psychological theory and research. In addition, students choose one additional Psychology course to receive additional education according to their interest. The psychology faculty believes that students with a degree in psychology should understand specific ideas related to each of the five distribution areas. 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 that 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 3110: Theories of Learning
PSYCH 3120: Human Learning
PSYCH 3130: Decisions, Values & Choice
PSYCH 3140: Cognitive Psychology
PSYCH 3150: Human Memory
PSYCH 3160: Perception & Thought
PSYCH 4110: Perception

Biological and Comparative distribution area3

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, & Behavior
PSYCH 2220: Drugs and Behavior
PSYCH 4210: Physiological Psychology
PSYCH 4220: Animal Behavior
PSYCH 4230: Clinical Psychophysiology
PSYCH 4240: Cognitive Neuroscience

Social/personality distribution area3

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 3320: Functions & Processes of the Self
- PSYCH 3330: Human Aggression
- PSYCH 4310: Theories of Personality

Developmental psychology distribution area3

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: Child Psychology
- PSYCH 3410: Infancy
- PSYCH 4410: Psychology of Aging

Note: Due to the overlap in course content, a student may receive credit for only one of the following three courses: PSYCH 2410, HDFS 2420 or E&CP 2500.

Clinical/abnormal psychology 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 4510: Community Psychology
- PSYCH 4530: Research in Psychopathology
- PSYCH 4540: Emotional Disorders in Childhood and Adolescence

PSYCH 4550: Introduction to Clinical Psychology

Note: A student may take either PSYCH 2510 or 4530, but cannot receive credit for both courses. PSYCH 2510 provides a general overview of abnormal psychology, while PSYCH 4530 provides a more in-depth overview of the field.

Psychology elective (2000-level)3

Students must complete one psychology elective course that is numbered 2000 or above.

Minor in Psychology

The psychology minor requires 15 credits or more, distributed as shown below.

- PSYCH 1000: General Psychology (3 credits)
- Three regularly-scheduled psychology courses (9 credits). 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 and PSYCH 4976 and 4977: Honors Psychology Lab.
- An additional psychology course (3 credits)

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 and/or independent study courses will be accepted toward the minor.

Sample Eight-Semester Program

Bachelor of Arts degree with a major in Psychology

This outline is only suggested, please see your adviser for a more personalized plan. Check the *Undergraduate Catalog* for course descriptions and prerequisite information.

Fall I

^PSYCH 1000: General Psychology.....	3
*+ENGLSH 1000: Expos and Argumentation.....	3
+SOCIO 1000: Intro to Sociology.....	3
*+HIST 1200: American Hist: 1860-Pres.....	3
+CL HUM 1060: Greek & Roman Myth.	3
Total.....	15

Fall II

^PSYCH 3140: Cognitive Psychology.....	3
HDFS 2400: Principles of Human Dev. (minor).....	3
+SPAN 1100: Elementary Spanish I.....	5
IS< 1110: Library Research Skills.....	1
+MUSIC 1310: Masterpiece of Music.....	3
Total.....	15

Fall III

^PSYCH 3010: Research Methods I.....	3
^PSYCH 2310: Social Psychology.....	3
+SPAN 2100: Elementary Spanish III.....	3
+SOCIO 3600: Criminology.....	3
+REL ST 2110: World Religions	3
Total.....	15

Fall IV

^PSYCH 4810: Industrial/Organizational Psychology.....	3
HDFS 1600: Intro to Study of Families (minor).....	3
HDFS 2300: Multicultural Study of Fam (minor).....	3
ART 1020: Appreciation of Art (minor).....	3
ANTHRO 1000: General Anthro (elective).....	3
Total.....	15

^ Course meets degree program requirements

+ Course meets College of Arts and Science foundation (Basic Skills)

* Course meets University general education and/or campus graduation requirements.

Winter I

^PSYCH 2220: Drugs & Behavior.....	3
*+MATH 1120: College Algebra.....	3
+BIO SCI 1010: General Biology.....	3
+GEOG 1100: Regions & Nations I.....	3
ART 1050: Beginning Drawing (elective).....	3
Total.....	15

Winter II

HDFS 1610: Relationships in Families (minor).....	3
+SPAN 1200: Elementary Spanish II.....	5
*+^STAT 1300: Intro to Stat. Reasoning.....	3
+HIST 3540: Contemp. Europe.....	3
Total.....	14

Winter III

^PSYCH 3020: Research Methods II.....	3
^PSYCH 2410: Child Psychology.....	3
PSYCH 2950: Special Problems (elective).....	3
+GEO 1100: Principles of Geology.....	4
+COMMUN 2100: Media in Society.....	3
Total.....	16

Winter IV

^PSYCH 4975: Exp. Social Psych Lab.....	3
^PSYCH 4550: Intro to Clinical Psych.....	3
HDFS 2430: Adolescence & Young Adult (minor) ...	3
SOCIO 3430: Sociology of Sport (elective).....	3
ANTHRO 4350: Psycholog. Anthro.....	3
(elective)	
Total.....	15

Total..... 15

PSYCHOLOGICAL SCIENCES COURSES

PSYCH 1000—General Psychology (3). Survey of theories, principles, and methods in the study of human behavior.

PSYCH 1000H—General Psychology (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: 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: PSYCH 1000 and instructor's consent.

PSYCH 1010—Psychology of Personal Adjustment (3). Dynamic principles of human behavior; emphasizes motivation, frustration, defense against anxiety, personality organization. Prerequisite: PSYCH 1000.

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: PSYCH 1000.

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: 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: PSYCH 1000.

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: PSYCH 1000. No credit if taken after PSYCH 4210.

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: PSYCH 1000.

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: PSYCH 1000.

PSYCH 2320—Introduction to Personality (3). Personality is the scientific study of individual differences (e.g., traits, motives, abilities). This course reviews historical theo-

retical perspectives as well as current research. Students will have an opportunity to learn about on their own motives and traits. Prerequisite: PSYCH 1000.

PSYCH 2410—Child 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: PSYCH 1000. Cannot receive credit for more than one of the following: PSYCH 2410, HDFS 2420 or ES&CPS 2500.

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: PSYCH 1000. Students may not receive credit for both PSYCH 2510 and 4530.

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: PSYCH 1000.

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: 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: PSYCH 1000.

PSYCH 3010—Research Methods in Psychology (3). Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods. Prerequisites: PSYCH 1000 and STAT 1300 (STAT 1300 may be taken concurrently).

PSYCH 3010H—Research Methods in Psychology (3). Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods. Prerequisites: PSYCH 1000 and STAT 1300 (STAT 1300 may be taken concurrently). Honors eligibility required.

PSYCH 3020—Research Methods in Psychology II (3). Continuation of Psychology 3010 and required for all further labs in psychology. Prerequisite: grade of C or better in PSYCH 3010 and STAT 1300 (or its equivalent).

PSYCH 3020H—Research Methods in Psychology II (3). Continuation of Psychology 3010 and required for all further labs in psychology. Prerequisite: grade of C or better in PSYCH 3010 and STAT 1300. Honors eli-

gibility required.

PSYCH 3110—Theories of Learning (3). Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form. Prerequisite: PSYCH 1000.

PSYCH 3120—Human Learning (3). Factors affecting human learning, retention; basic principles of learning, forgetting. Prerequisite: PSYCH 1000.

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: PSYCH 1000.

PSYCH 3140—Cognitive Psychology (3). A survey of psychological theory and research on human cognition. Prerequisite: PSYCH 1000.

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: PSYCH 1000.

PSYCH 3160—Perception and Thought (3). Covers research on various aspects of mental life: language, problem-solving, decision-making, sensory perception. Prerequisite: PSYCH 1000.

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: PSYCH 1000.

PSYCH 3320—Functions and Processes of the Self (3). Explores classic and contemporary theory and research on the "self" from a social psychological perspective. Topics focus on such areas as self-esteem, self-consistency, self-regulation, self-presentation and self-enrichment. Prerequisite: PSYCH 2310.

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: 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: PSYCH 1000.

PSYCH 3810—Normal Language Development (3). (same as Communication Science and Disorders 3020). Language development in preschool and school-age children. Specific attention to cognition and language, developmental sequences, language learning processes, language sample analysis, and the relationship between spoken and written language. Prerequisite: LINGST4600, or PSYCH

2410 or 3140.

PSYCH 3820—Environmental Psychology (3). Survey of the effects of human behavior on the natural environment and examines strategies for modifying behavior to preserve the environment. Prerequisite: 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: PSYCH 1000.

PSYCH 3840—Individual Differences (3). Surveys individual and group differences. Contributions of various factors to variations in behavior. Prerequisite: PSYCH 1000.

PSYCH 3850—Psychology of Personality (3). Introduction to study of human personality. Prerequisite: PSYCH 1000.

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: 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: PSYCH 1000 and instructor's consent.

PSYCH 4110—Perception (3). Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception. Prerequisite: PSYCH 1000.

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: PSYCH 1000.

PSYCH 4220—Animal Behavior (3). Animal behavior focus combining disciplines of behavior ecology and psychology including topics such as habitat selection, feeding, parenting, mating, communication, learning, cognition. Prerequisite: PSYCH 1000 plus 8 hours of Psychology (exclusive of PSYCH 2950) or Biology.

PSYCH 4230—Clinical Psychophysiology (3). Examines electrophysiological approaches to the diagnosis of neurological and psychiatric disorders (e.g., epilepsy, sleep disorders). Prerequisite: PSYCH 2210, 4210, 4240.

PSYCH 4240—Cognitive Neuroscience (3). The neural basis of human information processing in memory, attention, perception, imagery, movement, and language. Prerequisites: PSYCH 2210 or 4210 recommended.

PSYCH 4310—Theories of Personality (3). A survey of human personality theories. Prerequisite: PSYCH 1000.

PSYCH 4320—Group Dynamics (3). Study of theory and research on group behavior. Prerequisite: PSYCH 2310.

PSYCH 4330—Human Inference and Social Judgement (3). Focuses on social and cognitive research examining judgment and decision-making. Both person-centered judgments (e.g., attributions) and nonperson-centered judgments (e.g., covariation detection) are included. Prerequisites: PSYCH 2310 and 3120 or graduate standing.

PSYCH 4340—Attitude Change (3). Theories, methods, and experimental findings in attitude change research. Prerequisite: PSYCH 1000.

PSYCH 4410—Psychology of Aging (3). Surveys psychological processes in aging during middle/late adulthood. Emphasizes sensory, perceptual, physiological, memory, cognitive processes, and methodological issues in gerontological research. Prerequisites: PSYCH 1000.

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: PSYCH 1000.

PSYCH 4510—Community Psychology (3). Examines the theory and practice of community psychology. Topics covered include prevention, self-help/mutual help, empowerment, consultation, and program evaluation. Prerequisites: PSYCH 1000.

PSYCH 4520—Behavior Genetics (3). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level. Prerequisite: PSYCH 3010.

PSYCH 4530—Research in Psychopathology (3). Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizes experimental and explanatory approaches. Prerequisite: PSYCH 1000; cannot receive credit for both PSYCH 2510 and 4530.

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: PSYCH 2410 or equivalent.

PSYCH 4550—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: PSYCH 1000.

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.

PSYCH 4820—Ethical Issues in Psychology (3). Issues and problems in research, service, and public policy: privacy, confidentiality, consent, deception, coercion, exploitation, value conflicts. Extensive writing required. Prerequisite: PSYCH 1000.

PSYCH 4830—Psychology of Women (3). 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: PSYCH 1000

PSYCH 4840—The History of Psychology (3). Historical foundations of contemporary psychology. Prerequisites: PSYCH 1000.

PSYCH 4850—Seminar in Health Psychology (3). A broad overview of health psychology, with special emphasis on psychological theories, methods, and their applications to health behavior.

PSYCH 4860—Psychology of Stress (3). Surveys current research and theory on psychological stress and coping with emphasis on real-world stressors. Prerequisite: PSYCH 1000.

PSYCH 4870—Experimental Approaches to Personality (3). Surveys current research in personality, emphasizes experimental evidence from human and animal studies. Prerequisite: PSYCH 1000.

PSYCH 4880—The Self and Social Interaction (3). This course examines the self, its antecedents and consequences from a theoretical and experimental perspective. Prerequisite: PSYCH 2310.

PSYCH 4890—Social Motivation (3). Study of social determinants of individual behavior including affiliation, achievement, aggression, social exchange and social comparison processes. Emphasis on theoretical integration of recent finds. Prerequisite: PSYCH 2310.

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 Laboratory (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 PSYCH 3020.

PSYCH 4971—Developmental Psychology Lab (3). Introduces students to developmental research methods through relevant readings and by students conducting original research. Prerequisite: grade of C or better in PSYCH 3020.

PSYCH 4972—Animal Learning Laboratory (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 PSYCH 3020.

PSYCH 4973—Human Cognition Laboratory (3). Students review, evaluate and conduct research on various aspects of human cognition. Prerequisite: grade of C or better in PSYCH 3020.

PSYCH 4974—The Human Senses Laboratory (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 better in PSYCH 3020.

PSYCH 4975—Experimental Social Psychology (3). Experimental methods course emphasizing research in social psychology. Prerequisites: grade of C or better in PSYCH 3020.

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 (PSYCH 4977 in winter 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 PSYCH 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.

PSYCH 4977—Honors Research Seminar II (3). Prerequisite: PSYCH 4976.

Department of Religious Studies

S. Friesen, Chair
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FACULTY

PROFESSOR S. Welch
ASSOCIATE PROFESSOR S. J. Friesen
ASSISTANT PROFESSOR P. Z. Beckman, R. J. Callahan,
P. A. Clart, S. M. Cohen, P. C. Johnson
VISITING ASSISTANT PROFESSOR D. F. Kelley

The department's field of study includes religious expression from all 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 culture. 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	9
REL ST 1100: Introduction to Religion OR	
REL ST 2110: Major World Religions	3
REL ST 4100: Modern Perspectives in the Study of Religion	3
REL ST 4990: Seminar for Senior Majors	3

Additional requirements (at least one course in each of five areas)	18
Asian Religions Text Studies Culture and Religion	
Western Religions	
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 in each of five areas), including 6 in courses numbered 2000 or above. A minimum 2.0 MU GPA is required in all courses toward the minor.

Sample Eight-Semester Program

Bachelor of Arts degree with a major in Religious Studies

Fall I

REL ST 1100: *Introduction to Religion.....	3
HIST 1400/1100/1200: American History.....	3
SPAN 1100: Elementary Spanish I.....	5
PSYCH 1000: General Psychology.....	3
MATH 1100/1200: College Algebra	3

Total..... 17

Fall II

REL ST 2500: *Introduction to Hebrew Bible/Old Testament	3
SPAN 2100: Elementary Spanish III.....	3
BIO SCI 1010: General Biology with Laboratory	5
English Literature.....	3
PSYC 2310: Social Psychology.....	3

Total..... 17

Fall III

REL ST 4120: *Studies in Ritual.....	3
REL ST 2610: *Medieval Christianity.....	3
GEOL 1100: Principles of Geology with Laboratory	4
POL SC 1100: American Government.....	3

Total..... 13

Fall IV

REL ST 4100: Modern Perspectives in the Study of Religion	3
PHYSICS 1050: Concepts in Cosmology	3
Electives	9

Total..... 15

Winter I

REL ST 2310: *Religions of China and Japan.....	3
ENGLSH 1000: English Exposition and Argumentation	3
CL HUM 1060: Classical Mythology	3
ECONOM 1051: General Economics	5
SPAN 1200: Elementary Spanish II.....	5

Total..... 19

Winter II

REL ST 2210: *History of Religion in Post-Civil War America.....	3
MATH 2500: Elementary Logic.....	3
Elective.....	3
GEOG 1100: Regions and Nations of the World	3
HIST 3820: Twentieth Century China	3

Total..... 15

Winter III

REL ST 3200: *Hinduism	3
REL ST 3380: *Native American Religions	3
Elective.....	3
ANTHRO 1000: General Anthropology.....	3
AR H A 3760: Contemporary Art.....	3

Total..... 15

Winter IV

Senior Seminar.....	3
Electives	9

Total..... 15

*Degree requirements that also meet University general education requirements

RELIGIOUS STUDIES COURSES

RELST 1100—Introduction to Religion (3). Engages students in reflection on the religious questions which 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 (3). Engages students in reflection on the religious questions which human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history. Honors eligibility required.

RELST 1500—Religion and Culture (3). The study of religion as expressed in art, literature, music, dance, drama, architecture.

REL ST 1820—Asian Humanities (3). (same as Art History and Archeology 1230, History 1820, South Asian Studies 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 (3). (same as Art History and Archeology 1230, History 1820, South Asian Studies 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 (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 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.

REL ST 2100H—Indigenous Religions (3). (same as Anthropology 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. Honors eligibility required.

REL ST 2110—Major World Religions (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.

RELST 2110H—Major World Religions (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 2200—History of Religion in America to the Civil War (3). (same as History 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 devel-

opments. Prerequisite: sophomore standing or instructor's consent.

REL ST 2200H—History of Religion in America to the Civil War (3). (same as History 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 2210—History of Religion in Post-Civil War America (3). (same as History 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.

RELST 2210H—History of Religion in Post-Civil War America (3). (same as History 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 2270—Modern Literature and the Quest for Values (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.

REL ST 2270H—Modern Literature and the Quest for Values (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.

RELST 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, Updike, Percy, and Morrison create a history of certain American ideas as they transform traditional biblical figures and ideas.

RELST 2280H—Biblical Themes in American Literature (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 2400—Judaism (3). A comprehensive introduction to Judaism: an overview of Jewish philosophy and theology, rituals and customs.

REL ST 2410—The Torah: A Liberal View (3). Unlike others, liberal Jews view the Torah as a book authored by God-searching people, not God. The Torah purposely leaves us with parallel and ever contradictory ideas; their significance and relevance are explored.

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 (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 (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.

RELST 2600—Early Christianity (3). (same as History 2600). History of Christian practices and teachings from Christian origins through the 5th 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.

REL ST 2600H—Early Christianity (3). (same as History 2600). History of Christian practices and teachings from Christian origins through the 5th 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. Honors eligibility required.

REL ST 2610—Medieval Christianity (3). (same as History 2610). History of Christian practices and teachings from the 5th-15th century, 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.

RELST 2610H—Medieval Christianity (3). (same as History 2610). History of Christian practices and teachings from the 5th-15th century, 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.

RELST 2620—History of Christianity, 1500-Present (3). (same as History 2620). History of Christian practices and teachings from the 15th - 21st century, 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 (3). (same as History 2620). History of Christian practices and teachings from the 15th - 21st century, 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.

RELST 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.

RELST 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.

RELST 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. Y

RELST 2949—Service Learning in Religious Studies (1-3). This course examines the role of religion within the wider society. It allows students an opportunity to apply classroom knowledge in a non-profit agency that provides service to the local community. The course further explores cultural diversity and social awareness. Graded on S/U basis only. Does not meet A&S general education requirements. Prerequisites: instructor's consent.

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 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. Prerequisite: instructor's consent.

RELST 3200—Hinduism (3). (same as South Asia Studies 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 2110 or instructor's consent.

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. Prerequisites: REL ST 2110 or instructor's consent.

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: REL ST 2110, 2300, 2310 or 3200, or instructor's consent.

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: REL ST 2110 or instructor's consent.

RELST 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: 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: REL ST 2500 or instructor's consent.

REL ST 3380—Native American Religions (3). (same as Anthropology 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: REL ST 2100.

RELST 3380H—Native American Religions (3). (same as Anthropology 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:

REL ST 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: REL ST 2510 or instructor's consent.

REL ST 3400H—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: 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: REL ST 251 or instructor's consent.

REL ST 3410H—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: REL ST 251 or instructor's consent. Honors eligibility required.

REL ST 3430—Revelation and Apocalyptic Literature (3). A study of Jewish and Christian apocalyptic literature with an emphasis on the Revelation to St. John. Prerequisite: REL ST 2510 or instructor's consent.

REL ST 3430H—Revelation and Apocalyptic Literature (3). A study of Jewish and Christian apocalyptic literature with an emphasis on the Revelation to St. John. Prerequisite: REL ST 2510 or instructor's consent. Honors eligibility required.

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: REL ST 2400, 2410 or instructor's consent.

RELST 3510—Origins of Rabbinic Judaism (3). Examination of the sources of Rabbinic Judaism and its doctrines of God, humanity, Israel and Torah. Prerequisites: REL ST 2400 or instructor's consent.

REL ST 3520—Judaism in the Middle Ages through the Enlightenment (3). Social, economic, political and religious life of Jews in the medieval period; Jews in Islamic lands; Jewish mysticism; Jewish-Christian polemics; Hasidism; Enlightenment and Emancipation. Prerequisite: REL ST 2400 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: 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 20th-century 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 Religion (3). (same as Women's and Gender Studies 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 Africans. South American, and native American groups. Prerequisite: sophomore standing.

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 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-Humanities (3). Organized study of selected topics which vary by semester and are announced at time of registration.

REL ST 4100—Modern Perspectives in the Study of Religion (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—Myth and Religious Symbol-

ism (3). Emphasizes the comparison of one theme; e.g., a divine figure (Trickster, High God), memory and forgetting, creation, fertility, origins of death, etc.

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 4200—Survey of West African and US Slave Religion (3). Explores traditional African religions and African Islam prior to the slave trade. Also, will examine the Christianity of African American slaves.

REL ST 4210—African-American Religion (3). (same as Black Studies 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 4220—Religion in Afro-American Literature (3). (same as Black Studies 4220). Examination of Afro-American fiction, poetry and drama which present significant racial attitudes toward the Christian religion. Prerequisites: REL ST 2100.

REL ST 4300—Religious Narratives of South Asia (3). (same as South Asian Studies 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: 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 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 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 Literature (3). (same as Classical Humanities 3500).

Survey of religious development among the Greeks and Romans. Prerequisite: sophomore standing and CL HUM 1060 AR H A 1110 or 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: REL ST 2510 or instructor's consent.

REL ST 4550H—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: REL ST 2510 or instructor's consent. Honors eligibility required.

REL ST 4610—Elementary Biblical Hebrew I (3). This course will introduce students to the basic vocabulary, morphology, and syntax of Biblical Hebrew so they will be able to work with Biblical texts in the original language.

REL ST 4620—Elementary Biblical Hebrew II (3). A continuation of Religious Studies 4630, this course will include a research paper that will give students practical experience in using the resources. Prerequisite: graduate students or advanced undergraduate with instructor's consent.

REL ST 4630—Sanskrit I (3). (same as South Asian Studies 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 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. Prerequisite:

REL ST 4650—The Greek New Testament (3). (same as Greek 4350). Readings in the Greek New Testament and similar literature, e.g., the Septuagint. Prerequisite: Greek 4300 or instructor's consent.

REL ST 4750—Women, Religion and Culture (3). (same as Women's and Gender Studies 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: REL ST 4100 and Religious Studies Major.

Department of Romance Languages and Literature

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FACULTY

CURATORS PROFESSOR O. A. Thiher
PROFESSOR C. Lazzaro-Weis, M. A. Lewis,
 E. J. Mullen Jr, M. J. Muratore, G. P. Pierce,
 M. Ugarte, F. Zephir
ASSOCIATE PROFESSOR J. Cordones Cook,
 R. B. Gallimore, M. Garcia-Pinto, M. M. Olsen,
 C. D. Presberg, J. M. Zemke
ASSISTANT PROFESSOR C. Barriuso, R. C. Cavigioli,
 P. D. Fox, V. M. Kaussen, M. Ruiz-Garcia
RESIDENT INSTRUCTION ASSISTANT PROFESSOR
 G. A. Chosson, N. Molavi
RESIDENT INSTRUCTION INSTRUCTORS
 A. Banchieri, D. M. Heston, J. Sandone

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, 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 Foreign 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 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 Composition and Conversation (FRENCH 2100)	3
FRENCH 3160: Advanced Composition and Conversation (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 four additional 4000-level courses (one of which must be a capstone course) selected with the adviser's approval. FRENCH 4085: Special Readings 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.
- 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.

Sample Eight-Semester Program

Bachelor of Science degree with a major in French

This outline is only suggested, please see your adviser for a more personalized plan. See the *Undergraduate Catalog* for prerequisites.

Fall I

^FRENCH 2160	3
*ENGLISH 1000.....	3
*MATH 1110	3
*Social science.....	3
Total.....	12

Fall II

*Science	3
^FRENCH 3410	3
*Humanities	3
*Behav. science.....	3
Total	12

Fall III

^FRENCH 3420	3
*Social science.....	3
Elective	3
Elective	3
Elective	3
Total.....	15

Fall IV

^FRENCH 4000-level....	3
^FRENCH 4000-level....	3
Elective	3
Elective	3
Elective	3
Total.....	15

^ Course meets degree program requirements

* Course meets University general education and/or campus requirements

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 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 Composition and Conversation

(SPAN 2100) OR

SPAN 3721: Phonetics (SPAN 2160).....	3
SPAN 3160: Advanced 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 adviser'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 and one 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 4085: Special Readings 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 to the above credits, the student is required to take a Writing Intensive course in the major, normally designated sections of SPAN 3420 or 3430.

• 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.

Sample Eight-Semester Program

Bachelor of Science degree with a major in Spanish

This outline is only suggested, please see your adviser for a more personalized plan. See the *Undergraduate Catalog* for prerequisites.

Fall I

^SPAN 2160	3
*ENGLISH 1000.....	3
*MATH 1110	3
*Social science.....	3
Total.....	12

Fall II

*Science	3
^SPAN 3160 or 3280	3
*Humanities	3
*Behavioral science.....	3
Total	12

Fall III

^SPAN 3420 or 3430	3
*Social science.....	3
Elective	3
Elective	3
Elective	3
Total.....	15

Winter I

^SPAN 3150 or 3721	3
*Science/science lab.....	5
*Behavioral science.....	3
*Social science	2
Total	14

Winter II

^SPAN 3420 or 3430.....	3
*Science	3
*Humanities	3
*Humanities	3
Total	12

Winter III

^SPAN 4000-level.....	3
^SPAN 4130	3
Elective.....	3
Elective.....	3
Elective.....	3
Total	15

Fall IV	Winter IV
^SPAN 4000-level 3	^Capstone, SPAN 4970 ... 3
^SPAN 4000-level 3	Elective..... 3
Elective 3	Elective..... 3
Elective 3	Elective..... 3
Elective 3	Humanities 3
Total..... 15	Total 15

^ Course meets degree program requirements.

* Course meets University general education and/or campus requirements.

To reach 120 hours, students can add as many electives as they need, do a minor or minors, and/or double majors/dual degrees.

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 2340 Sub-Saharan Francophone Literature in Translation
- 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
- SPAN 2380 Spanish American Women Writers

Two 3000-level or 4000-level courses chosen from the following list:

- FRENCH 3710 Survey of Minority & Creole Languages of the US & the Caribbean
- SPAN 3710 Survey of Minority & Creole Languages of the US & the Caribbean
- PORT 3001 Topics in Portuguese
- RM LAN 4310 Literature of the African Diaspora

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 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.

Minor in Italian Area Studies

Students may obtain a minor in Italian area studies by completing at least 9 credits in Italian language/literature beyond ITAL 1200, e.g.: ITAL 2160, 3150, 3160, 3420 or 3430. An additional 6 credits must be chosen from the list below:

- ITAL 2310 Italian Civilization
- ITAL 2850 Italian Cinema
- ITAL 3310 20th Century Italian Fiction in Translation
- ITAL 3810 The Films of Pier Pasolini
- ITAL 3820 Films of Federico Fellini
- 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.

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 3001 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 2340 Sub-Saharan Francophone Literature in Translation
- FRENCH 2350 New World Francophone Literature in Translation
- FRENCH 2370 French Women Writers in Translation
- ITAL 2850 Italian Cinema
- ITAL 3310 20th Century Italian Fiction in Translation
- ITAL 3810 The Films of Pier Pasolini
- ITAL 3820 Films of Federico Fellini
- PORT 3001 Topics in Portuguese
- SPAN 2320 Spanish Literature in Translation
- SPAN 2340 Hispanic Minority Literature
- SPAN 2350 Afro-Hispanic Literature
- SPAN 2360 Chicano Literature
- SPAN 2370 Puertorican Literature
- SPAN 3380 Latin American Women Writers

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 & Conversation
- SPAN 3150 Advanced Spanish Conversation
- SPAN 3160 Advanced Spanish Composition

SPAN 3420 Introduction to Hispanic Literature I
SPAN 3430 Introduction to Hispanic Literature II
SPAN 3721 Phonetics

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.

FRENCH COURSES

FRENCH 1100—Elementary French I (5). cor.

FRENCH 1200—Elementary French II (5). Continuation of French 1100. Prerequisite: grade of C or better in FRENCH 1100 or its equivalent.

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 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 1200 with a grade of C or better.

FRENCH 2100—Elementary French III (3). A multi-skill course following French 1200, centering on cultural/ literary reading, and including a grammar review, practice the spoken language, as well as some practice in written expression. Prerequisite: grade of C or better in FRENCH 1200 or its equivalent course.

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 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 2340—Sub-Saharan Francophone Literature in Translation (3). This course surveys the major texts written by Francophone writers of sub-Saharan Africa. Writers include Ken Bugul, C. Beye, Laye, J.M. Adiaffi, M. Ba and F. Oyomo. Prerequisite: ENGLISH 1000.

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 1000.

FRENCH 2360—Modern French Feminism (3). Introduction to major literary and theoretical texts by 20th century women writers, including an overview of contemporary French feminist thought. All work in English. Prerequisite: sophomore standing.

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 (cr.arr.). 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 (cr.arr.). 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 2160 or equivalent.

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 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 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 3160 is required; 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 3160 is required; FRENCH 3410 is highly recommended.

FRENCH 3710—Survey of Minority & Creole Languages of the U.S. & the Caribbean (3). (same as Spanish 3710 and Linguistics 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 3720—French Phonetics (3). A comparison of French and English phonetic features with specific application to French pronunciation. Prerequisite: FRENCH 2160 or equivalent.

FRENCH 4004—Topics in French-Social Science (cr.arr.). 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 4085—Problems in French and Francophone Studies (1-3). Undergraduates must have permission of department chair. Independent study through readings, conferences, reports. Prerequisites: FRENCH 3420 and 3430.

FRENCH 4110—Advanced Oral French for Teachers (cr.arr.). Advanced speaking practice primarily for teachers with emphasis on pronunciation, syntactical accuracy and vocabulary expansion. Prerequisite: FRENCH 3160 or equivalent. May not be used toward A & S Major. May be repeated for a maximum of 12 hours credit.

FRENCH 4120—Foreign Language Teaching Methodology (3). (same as Spanish 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 3160 or 3280 and 3420 or 3430.

FRENCH 4410—French Medieval Literature (3). Prerequisites: FRENCH 3420 and 3430.

FRENCH 4420—French Renaissance (3).

Prerequisites: FRENCH 3420 and 3430.

FRENCH 4430—Seventeenth-Century French Literature (3). Prerequisites: FRENCH 3420 and 3430.

FRENCH 4440—Eighteenth-Century French Literature (3). Prerequisites: FRENCH 3420 and 3430.

FRENCH 4450—Nineteenth-Century French Literature (3). Prerequisites: FRENCH 3420 and 3430.

FRENCH4460—Twentieth-Century French Novel (3). Prerequisites: FRENCH 3420 and 3430.

FRENCH 4470—Introduction to the Contemporary French Theatre (3). Prerequisites: FRENCH 3420 and 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 3420 and 3430.

FRENCH 4490—Nineteenth-Century French Novel (3). Prerequisite: FRENCH 3420 and 3430.

FRENCH4510—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 3420 and 3430.

FRENCH 4710—History of the French Language (3). (same as Linguistics 4710). Required of M.A. candidates Prerequisites: FRENCH 3420 and 3430.

FRENCH 4720—Structure of Modern French (3). (same as Linguistics 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French. Prerequisites: FRENCH 3160 or equivalent or instructor's consent.

FRENCH 4940—Service Learning in French (1). (same as Romance Languages 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 standings and departmental consent.

FRENCH 4960—Readings in French (2-3). Subject varies according to instructor. Prerequisites: FRENCH 3420 and 3430.

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.

FRENCH 4997—Honors Thesis in French (3). Required of Honors candidates.

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 ITAL 1100 or its equivalent.

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.

ITAL2160—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: ITAL 1200.

ITAL2310—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 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 (cr.arr.). 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.

ITAL3004—Topics in Italian-Social Science (cr.arr.). 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.

ITAL3150—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: ITAL 2160.

ITAL3160—Advanced Italian Composition (3). An advanced grammar course that endeavors to a) develop writing skills in connection with a variety to text types; b) refine study skills; and c) improve style through the study of contemporary Italian culture. Prerequisite:

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 ENGLSH 1000.

ITAL3420—Introduction to Italian Literature (3). This course introduces students to the literacy terminology that will enable them to study Italian literature. Prerequisite: ITAL 3150 and 3160.

ITAL3430—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: ITAL 3420.

ITAL3810—The Films of Pier Paolo Pasolini (3). (same as Film Studies 3810). Studies the films of Pier Paolo Pasolini, Italian director, author and intellect. This course will trace the development of the artist (post semiotics and gramscian socialism to nihilism) across his films. A selection of his written works will be considered as background to the intellectual content of his films. Prerequisite: ITAL 2850 and ENGLSH 1810 or 1820, or permission of instructor.

ITAL 3820—Films of Federico Fellini (3). (same as Film Studies 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: ITAL 2850 or ENGL 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 4085—Problems in Italian Studies (1-3). Independent study through readings, conferences, reports.

ITAL 4996—Honors Reading in Italian (1). Directed readings in area of Honors thesis. Prerequisites: minor in Italian & admission to departmental Honors program.

ITAL 4997—Honors Thesis in Italian (3). Required of Honors candidates. Prerequisite: minor in Italian.

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 1200 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: PORT 1100.

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 2004—Topics in Portuguese-Social

Science (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 4070/7070 and wish to continue studying the language. Prerequisite: PORT 1200 OR 4070/7070.

PORT 2170—Portuguese Conversation (3).

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 2860—Brazilian Cinema (3). 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: ENGLSH 1000.

PORT 3001—Topics in Portuguese-General (cr.arr.). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: sophomore standing, departmental consent for repetition.

PORT 3004—Topics in Portuguese-Social Science (cr.arr.). 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). Prerequisites: PORT 2160 AND 2170.

PORT 3420—Survey of Portuguese Literature (3). Masterpieces of continental Portuguese literature from its origins to present. Prerequisites: PORT 3160 or equivalent.

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 4085—Problems in Portuguese Studies (1-3). Independent study through readings, conferences, reports.

PORT 4960—Readings in Portuguese (2-3). Subjects either in Brazilian or Portuguese literature. Varies according to instructor. Prerequisites: sophomore standing or instructor's consent.

ROMANCE LANGUAGES AND LITERATURE 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 2004—Undergraduate Topics in Romance Languages-Social Science (1-3). Organized study of selected topics. Subjects and credits may vary from semester to semester. Prerequisite: departmental consent

for repetition.

RM LAN 2310—Literature of the African Diaspora (3). A postcolonial 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: ENGLSH 1000.

RMLAN 2810—Introduction to Film Analysis (3). (same as Film Studies 2810 and German 2810). This course familiarizes students with the basic analytical tools for describing and interpreting films, and helps them develop a critical vocabulary for discussing and writing about film. It also introduces some theoretical approaches to film analysis. Prerequisite: sophomore standing, or instructor's consent.

RM LAN 2820—Trends in World Cinema (3). (same as Film Studies 2820 and 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, FILM S 2810 or instructor's consent.

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. w.

RMLAN 4730—Linguistic Theory and Language Acquisition (3). (same as Linguistics 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: SPAN 4721/7721, FRENCH 4720/7720, ENGLSH 4600/7600 or LINGST 4860/7860.

RM LAN 4940—Service Learning in Romance Languages (1). (same as Spanish 4940 and 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 standings and departmental consent.

SPANISH COURSES

SPAN 1100—Elementary Spanish I (5). cor.

SPAN 1200—Elementary Spanish II (5). Continuation of Spanish 1100. Prerequisite: grade of C or better in SPAN 1100 or its equivalent.

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: SPAN 1200 with a grade of C or better.

SPAN 2004—Undergraduate Topics in Spanish-Social Science (1-3). Organized study of selected topics. Subjects may vary from semester to semester. May be repeated

with consent of department. Prerequisite: SPAN 1200 with a grade of C or better.

SPAN 2100—Elementary Spanish III (3). A multi-skill course following Spanish 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 its equivalent course.

SPAN 2160—Intermediate Spanish Composition and Conversation (3). Prerequisite: 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). May not be included in area of concentration in Spanish. Subject 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: ENGLSH 1000.

SPAN 2350—Afro-Hispanic Literature (3). This course studies texts from Spanish America that focus on the black experience, with an emphasis on critical issues concerning ethnicity and gender. It examines the implications of who writes in Spanish America and the question of authenticity. No knowledge of Spanish required. Prerequisite: ENGLSH 1000.

SPAN 2360—Chicano Literature (3). This course studies the literature of U.S. writers of Mexican descent. It focuses on basic characteristics and themes in Chicano literature such as, the interplay of Spanish and English in the texts and attitudes toward neocolonialism and dependency. No knowledge of Spanish required. Prerequisite: ENGLSH 1000.

SPAN 2370—Puerto Rican Literature (3). This course examines important Puerto Rican (Island) literary themes such as the status of Puerto Rico as a U.S. colony and the influence on the culture of racism, sexism and poverty. Works are analyzed as literature and as interpretations of reality. No knowledge of Spanish required. Prerequisite: ENGLSH 1000.

SPAN 2380—Spanish American Women Writers (3). This course studies the writing of women authors from Spanish America. It treats the works of both major and minor figures in an effort to analyze the development of female discourse within national and international contexts. No knowledge of Spanish required. Prerequisite: ENGLSH 1000.

SPAN 2390—Latin American Women's Culture (3). (same as Women's and Gender Studies 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 included in area of concentration in Spanish.

SPAN 3001—Topics in Spanish-General (cr.arr.). 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 (cr.arr.). 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). Prerequisite: SPAN 2160 or equivalent.

SPAN 3160—Advanced Spanish Composition (3). Prerequisite: SPAN 2160 or equivalent.

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: SPAN 2160 or equivalent.

SPAN 3380—Latin American Women Writers (3). (same as Women's and Gender Studies 3380). An introduction to major literary and theoretical texts by twentieth century Latin American women writers in translation. Readings and class work in English. Prerequisite: sophomore standing.

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: SPAN 3160 or equivalent.

SPAN 3430—Introduction to Hispanic Literature II (3). Selected plays and poetry of Spain and Spanish America. Prerequisite: SPAN 3160 or equivalent.

SPAN 3710—Survey of Minority & Creole Languages of the U.S. & the Caribbean (3). (same as French 3710 and Linguistics 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—Phonetics (3). (same as Linguistics 3721). (Spanish Language). Prerequisite: SPAN 2160.

SPAN 4004—Topics in Spanish-Social Science3 (cr.arr.). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: junior standing; departmental consent for repetition.

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 4085—Problems in Hispanic Studies (1-3). Independent study through readings, conferences, reports. Prerequisites: SPAN 2100 or equivalent. Undergraduates must have departmental chair consent.

SPAN 4110—Advanced Oral Spanish for Teachers (cr.arr.). Advanced speaking practice primarily for teachers with emphasis on pronunciation, syntactical accuracy and vocabulary expansion. Prerequisite: graduate standing and SPAN 3160 or equivalent. May not be used toward A & S major. May be repeated for a maximum of 12 hours credit.

SPAN 4120—Foreign Language Teaching Methodology (3). (same as 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). Prerequisite: SPAN 3160. Recommended: SPAN 3420 and 3430.

SPAN 4410—Spanish Medieval Literature (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4420—Renaissance and Golden Age Poetry (3). Prerequisites: SPAN 3420 and 3430..

SPAN 4421—Renaissance and Golden Age Prose (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4422—Spanish Theatre in the Golden Age (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4423—Don Quijote (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4430—Spanish Poetry in the Nineteenth and Twentieth Centuries (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4431—Nineteenth-Century Spanish Drama (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4432—Nineteenth-Century Spanish Novel (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4440—Twentieth-Century Spanish Drama (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4441—Twentieth-Century Spanish Novel (3). Prerequisites: 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: 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 to change to change social conditions. Prerequisites: 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: 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: SPAN 3150 and 3160. .

SPAN 4470—Survey of Spanish American Literature I (3). From beginning to 1880. Prerequisites: SPAN 3420 and 3430.

SPAN 4471—Survey of Spanish American Literature II (3). From 1880 to present. Prerequisites: SPAN 3420 and 3430.

SPAN 4480—Mexican Literature (3). Prerequisites: 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: SPAN 3420 and 3430.

SPAN 4510—Argentine Literature (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4520—Modernista and Contemporary Poetry (3). Prerequisites: SPAN 3420 and 3430.

SPAN 4530—The Spanish American Theatre (3). Prerequisites: 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: 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: SPAN 3420 and 3430.

SPAN 4711—History of the Spanish Language (3). (same as Linguistics 4711). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects. Prerequisite: reading knowledge of Spanish. Recommended: SPAN 3420 and 3430.

SPAN 4721—Structure of Modern Spanish (3). (same as Linguistics 4721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects. Prerequisites: 4 200-level courses in Spanish.

SPAN 4940—Service Learning in Spanish (1). (same as Romance Languages 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 standings and departmental consent.

SPAN 4960—Readings in Spanish (2-3). Subject varies according to instructor. Prerequisites: SPAN 3420 and 3430.

SPAN 4970—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.

SPAN 4996—Honors Readings in Spanish (1). Directed readings in area of Honors thesis. Prerequisite: admission to departmental Honors program.

SPAN 4997—Honors Thesis in Spanish (3). Required of Honors candidates.

Department of Sociology

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FACULTY

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 J. F. Gubrium, R. M. Hessler, J. L. McCartney,
 M. J. Neitz, S. T. Ortega
ASSOCIATE PROFESSOR J. M. Hermsen, C. Y. Lo,
 I. Pearce
ASSISTANT PROFESSOR W. H. Brekhus, D. L. Brunσμα,
 V. L. Johnson, A. C. Wilkins
PROFESSOR EMERITUS B. Bank, D. Granberg, P. Hall,
 A. C. Twaddle

Sociology is a discipline founded about 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 “clinical sociologists” who see themselves as people 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 good 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 courses6
 SOCIOL 1000: Introduction to Sociology
 SOCIOL 2200: Social Inequalities
Basic courses6
 SOCIOL 2950: Social Research
 SOCIOL 3100: Recent Theories in Sociology (prerequisite:

SOCIOL 2200)
Post-basic courses9
 Three additional sociology courses numbered 3000 or above; may include no more than 3 credits in SOCIOL 4940, 4941 and/or SOCIOL 4942
Additional hours in sociology6
 An additional 6 credits in elective coursework in the major; may include no more than 3 credits in SOCIOL 2940
Capstone course3
 SOCIOL 4970: Senior Seminar
 Required for all students in the major, except those writing an honors thesis (see departmental honors below); should be taken in the last semester of undergraduate work
Departmental honors6
 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: Introduction 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, service learning opportunities and suggested courses offered by other departments. (Note: Tracks are not listed on transcripts or diplomas.) These tracks are outlined below.

Track: Law, Justice and Society

SOCIOL 1000: Law, Justice, and Society
 SOCIOL 1650: Social Deviance
 SOCIOL 3010: Social Problems
 SOCIOL 3500: State Legitimacy and Revolt
 SOCIOL 3600: Criminology
 SOCIOL 4500: Sociology of Social Policy
 SOCIOL 4600: Contemporary Corrections

Track: Power, Inequalities and Social Change

SOCIOL 1000: Power, Inequalities and Social Change
 SOCIOL 2210: The Black Americans
 SOCIOL 3200: Class, Status and Power
 SOCIOL 3320: Sociology of Sex Roles
 SOCIOL 3500: State Legitimacy and Revolt
 SOCIOL 3510: Public Opinion and Communication
 SOCIOL 3520: Collective Behavior
 SOCIOL 4220: Race and Ethnic Relations
 SOCIOL 4230: Global Perspectives on Women and Development
 SOCIOL 4510: Social Movements and Conflicts

Department of Sociology

Track: Sexuality, Health and the Life Course

- SOCIOL 1000: Sexuality, Health, and the Life Course
- SOCIOL 1360: The Female Experience
- SOCIOL 2230: Social Perspectives on Aging
- SOCIOL 3010: Social Problems
- SOCIOL 3300: Queer Theories/Identities
- SOCIOL 3320: Sociology of Sex Roles
- SOCIOL 3420: The Family
- SOCIOL 3440: Sociology of Health
- Cross-list WGST 4020: The Politics of Reproduction and Fertility Control
- SOCIOL 4210: Sociology of Aging
- SOCIOL 4400: Sociology of Health Systems

Track: Culture, Identity and the Media

- SOCIOL 1000: Culture, Identity, and Media
- 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: Sociology of Sport
- SOCIOL 3450: Sociology of Religion
- SOCIOL 3510: Public Opinion and Communication
- SOCIOL 4320: Self, Identity, and Interaction

Track: Organizations, Work, Technology and the Economy

- SOCIOL 1000: Organizations, Work, Technology and the Economy
- SOCIOL 3200: Class, Status, and Power
- SOCIOL 3500: State Legitimacy and Revolt
- SOCIOL 3520: Collective Behavior
- SOCIOL 3700: Organizations and Institutions
- SOCIOL 3710: Sociology of Work
- SOCIOL 4230: Global Perspectives on Women and Development
- SOCIOL 4530: Social Organization of Industrial Societies

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.

Sample Eight-Semester Program

Sociology

Check the *Undergraduate Catalog* for prerequisites of courses.

Fall I

- SOCIOL 1000: Introduction to Sociology 3
- *English composition 3
- Humanities elective..... 3
- *Social science elective (Missouri State Law Requirement)..... 3
- Science elective..... 3
- Total..... 15**

Fall II

- SOCIOL 1650: Social Deviance 3
- Foreign language level 1.. 3
- Humanities elective..... 5
- Social science elective (upper level) 3
- *Math/proficiency elective (preferably statistics)..... 3
- Total..... 17**

Fall III

- SOCIOL 3500: State Legitimacy and Revolt... 3
- Foreign language level 3.. 3
- Behavioral science elective (upper level) 3
- *Writing intensive elective 3
- Elective 3
- Total..... 15**

Fall IV

- SOCIOL 3010: Social Problems 3
- Elective – upper level..... 3
- Elective – upper level..... 3
- Elective 3
- Elective 3
- Total..... 15**

Winter I

- SOCIOL 2200: Social Inequalities 3
- *College Algebra..... 3
- Humanities elective 3
- Social science elective..... 3
- Science elective with lab... 4

Total 16

Winter II

- SOCIOL 2950: Social Research 3
- SOCIOL 3600: Criminology 3
- Foreign language level 2 . 5
- Humanities elective (upper level)..... 3
- Behavioral science elective 3
- Total 17**

Winter III

- SOCIOL 3100: Recent Theories in Sociology..... 3
- Elective – upper level..... 3
- Elective – upper level..... 3
- Elective..... 3
- Elective..... 3
- Total 15**

Winter IV

- *SOCIOL 4970: Senior Seminar (writing intensive) 3
- SOCIOL 4600: Contemporary Corrections...3
- Elective..... 3
- Elective..... 3
- Elective..... 3
- Total 15**

SOCIOLOGY COURSES

SOCIOL 1000—Introduction to Sociology (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 SOCIOL 1000 and RU SOC 1100.

SOCIOL 1100H—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 SOCIOL 1000 and RU SOC 1100. Honors eligibility required.

SOCIOL 1120—Population and Ecology (3). (same as Rural Sociology 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 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 2104—Topics in Sociology-Social Science (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 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 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: SOCIOL 1000 or equivalent.

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 4950). 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). (same as Rural Sociology 3000). 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 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: SOCIOL 2200.

SOCIOL 3200—Class, Status, and Power (3). Study of the structure of wealth, poverty, prestige, and power in relationship to societal, interpersonal, and individual opportunities, constraints and outcomes.

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 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 Sex Roles (3). (same as Women's and Gender Studies 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 3400—Politics of the Media (3). 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 3410—Social Bases of War and Peace (3). (same as Peace Studies 3410). Social conditions associated with and preceding war and peace; war as a social institution; international images and stereotypes; proposals for preventing war and reducing international hostilities.

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 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 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 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: 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 4110—Feminist Research and Criticism (3). (same as Women's and Gender Studies 4110). Examination of both feminist critiques of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms. Prerequisites: SOCIOL 2950 or equivalent.

SOCIOL 4120—Social Statistics (3). (same as Rural Sociology 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: SOCIOL 2950 or graduate

standing.

SOCIOL 4130—Advanced Social Statistics (3). (same as Rural Sociology 4130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized. Prerequisite: SOCIOL 4120 or equivalent.

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—Global Perspectives on Women and Development (3). (same as Black Studies 4230 and Women's and Gender Studies 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, 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: SOCIOL 3310 or graduate standing.

SOCIOL 4315—Social Demography (3). (same as Rural Sociology 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: SOCIOL 1000 or RU SOC 1100 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 subjectives. MA core course. Prerequisites: SOCIOL 3310 graduate standing or instructor's consent.

SOCIOL 4335—Social Change and Trends (3). (same as Rural Sociology 4335). Nature of social change. Emphasis on sociological theories and models of social change and their application in analysis and implementation of change in social structures.

SOCIOL 4370—Environment and Society (3). (same as Rural Sociology 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: SOCIOL 2950, 3440, and 3100 or graduate standing.

SOCIOL 4410—Sociology of Education (3). (same as Educational Leadership and Policy Analysis 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: SOCIOL 1000 or equivalent.

SOCIOL 4500—Sociology of Social Policy (3). (same as Rural Sociology 4500). 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: SOCIOL 3520, 3700, or 3320 or graduate standing.

SOCIOL 4520—Political Sociology (3). (same as Peace Studies 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: SOCIOL 3200, 3510, 3520, or 3700 or graduate standing.

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: SOCIOL 3700 or 3710 or graduate standing.

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: SOCIOL 2200 and 3600 or graduate standing.

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. MA core course. Prerequisite: SOCIOL 3700 or 3710 or graduate standing.

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: SOCIOL 3700 or 3710 or graduate standing or instructor's consent.

SOCIOL 4940—Internship in Sociology (1-9). (same as Rural Sociology 3940). 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: 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; SOCIOL 2950 and 3100.

Special Degree Programs

M. J. Porter, Director
Office of Special Degree Programs
College of Arts and Science
210 Switzler Hall
(573) 882-6060

MAJORS

INTERDEPARTMENTAL – A&S

Interdisciplinary Studies
Black Studies, Environmental Studies, Peace Studies, Women's and Gender Studies
Linguistics

MAJOR

INTERDIVISIONAL – PROVOST

International Studies
East Asian Studies, Environmental Studies, European Studies, International Business, Latin American Studies, Peace Studies, South Asian Studies

Minors

Black Studies
East Asian Studies
Film 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. All are majors with Bachelor of Arts degrees.

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).

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

Eighteen credits must be taken in courses offered in the College of Arts and Science; 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 12 months of course work)

There are four specific ways a student can complete the capstone experience in interdisciplinary studies.

1. **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 as a capstone course. The course must be numbered at least at the 3000 level, and the course must be taken in the last 12 months 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 director of interdisciplinary studies, or the Interdisciplinary Studies adviser.
2. **Independent research project:** With this option, the student completes an independent research project under the supervision of a faculty member. Most projects result in a 20-30 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.
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 director of special degree programs.
4. **Service learning project:** The project allows the student to integrate learning with real-life skills. Students are assigned to local non-profit agencies and are asked to design and execute a project that will benefit the agency and provide practical experience applying knowledge learned at MU.

Emphasis Areas

(Interdisciplinary Studies)

Emphasis in Black Studies

An Interdisciplinary Area in the College of Arts and Science
Dr. Julian Thompson, Director
313 Gentry Hall
(573) 882-6229

The Black Studies Program is an interdisciplinary program leading to a dual major and minor in the College of Arts and Science. Course offerings are open to all students.

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.

Sample Eight-Semester Program

Bachelor of Arts degree with a major in Interdisciplinary and a Black Studies emphasis

This outline is only suggested, please see your adviser for a more personalized plan. See the *Undergraduate Catalog* for prerequisites.

Fall I

College Algebra 1110..... 3
Foreign language
Level I 5
Behavioral science 3
State government
requirement..... 3

Total..... 14

Fall II

BL STU 2000 3

Biological/physical/
mathematical
science course 3
Foreign language
Level 3 3
Humanities course..... 3
Elective 3

Total..... 15

Winter I

ENGLSH 1000 3
Foreign Language
Level 2..... 5
Biological/physical
/mathematical
science course w/Lab ... 3-5
Humanity course 3

Total 14-16

Winter II

2000+foundation
course 3
Africa regional
course 3

Elective..... 3

Elective..... 3
Math proficiency
course 3

Total 15

Fall III

Humanities course..... 3

^2000+ foundation
course 3
^Black Studies
content course-
society 3
*^Biological/physical/
mathematical
science course 3
Elective 3
Total..... 15

Fall IV

Social science
course 3
Humanities course..... 3
Black diaspora
regional course 3
Elective 3

Elective 3
Total..... 15

Winter III

Black Studies
content course-culture 3
African America
regional course 3
Behavioral science
course 3

Social science
course 3

Elective..... 3
Total 15

Winter IV

Black Studies
content course-history 3
Elective..... 3
Elective..... 3

2000+ foundation
course 3
Capstone 3
Total 15

Emphasis in Environmental Studies

Jan Weaver, Director
204 Lowry Hall
(573) 882-7116

<http://www.missouri.edu/~esiwww/index.html>

Each year, nature provides over \$30 trillion worth of services that humans need to survive and thrive--cleaning drinking water, pollinating food plants, protecting coastal areas, nurturing ocean fish populations and making soil. As human populations and their needs grow, the pressure they put on nature undermines its ability to provide these services.

People in the environmental field work to restore and protect these services, whether in technical fields like conservation or hazardous waste management, or in jobs that deal with drafting and advocating for more effective environmental laws.

Working with the environment is extremely varied, with jobs to fit a student with almost any kind of background. The five main career categories include:

- Educating about or promoting environmental issues to the public
- Writing, analyzing, interpreting, lobbying for or administering environmental laws
- Managing resources, watersheds, habitats and species
- Regulating, reducing and eliminating pollution and hazardous wastes
- Educating adults and children in formal and non-formal settings about how natural systems work

The environmental studies emphasis area is designed to prepare students for careers in the first two categories (public education and environmental law). For information on majors for the other career categories, contact the Environmental Studies Office or follow the Careers link at the program's web site.

Emphasis core requirements

Prerequisites	40
Math	3
STAT 1300: Elementary Statistics	
Natural and applied sciences	19
ATM SC 1050: Introduction to Meteorology	
BIO SCI 1060: Introduction to Environmental Sciences	
CHEM 1100: Atoms and Molecules	
GEOL 1200: Environmental Geology	
NAT R 1060 or 1070	
NAT R 1080 or GEOG 2840	
Social and behavioral sciences	12
ANTHRO 1000, 1300, 1500, 2030 or 3680	
ECONOM 1014, 1024 or AG EC 1041	
GEOG 2660: Environmental Geography	
RU SOC 1120: Population and Ecology	
Humanities	6
COMMUN 1200 or 2100	
REL ST 2100 or 2100	

Emphasis area courses (selected in consultation with the environmental studies adviser)

Global synthesis (choose one course)	3
GEOL 2200: Oceanography OR	
GEOL 2300: Earth Systems and Global Change	

Geosphere/hydrophere/atmosphere (choose two courses).6

ATM SC 4520: Meteorology of the Biosphere (same as GEOG 4520)	
ATM SC 3600: Climates of the World (same as GEOG 3600)	
F & W 3400: Natural Resource Management & Water Quality	
GEOL 2450: Global Water Cycle	
SOIL 2100: Introduction to Soils	
SOIL 3290: Soils and the Environment	

Biosphere (choose two courses)6

ANTHRO 2051: Introduction to Biological Anthropology	
BIO SCI 3050: Genetics and Human Affairs	
BIO SCI 3210: Plant Taxonomy	
BIO SCI 3100: Community Biology	
ENTOM 3710: Introductory Entomology (same as BIO SC 3710)	
F & W 2600: Ornithology (same as BIO SC 2600)	
F & W 4800: Environmental Toxicology	
FOREST 2151: Dendrology	
PLNT S 2110: Plant Growth and Culture	
PLNT S 3235: Plant Environments	

Social Dimensions

Institutions and policies (choose two or three courses) 6-9

ANTHRO 2030: Cultural Anthropology	
ANTHRO 4880: Demographic Anthropology	
ANTHRO 4300: Comparative Social Organization	
AG EC 3270: Conservation and Use of Protected Areas	
AG EC 4356: Environmental Law and Policy	
HIST 2430: America's Environmental Experience	
HIST 4970: Undergrad Seminar in Third World History (Environmental Section)	
HIST 4972: Undergrad Seminar in American History (Environmental Section)	
MANGMT 3000: Fundamentals of Management	
MRKTNG 3000: Principle of Marketing	
NAT R 4353: Natural Resource Policy & Administration	
POL SC 4140: Congress & Legislative Policy	
RU SOC 4310: Sociology of Agriculture & Natural Resources	

SOCIOL 3700: Organizations and Institutions

Social change and the environment (choose two or three courses) 6-9

ANTHRO 2300: Anthropology of War	
ANTHRO 3680: Plants and People in Native America	
ANTHRO 4320: Ecological and Environmental Anthropology	
PEA ST 3521: Group Decision Making Processes (same as COMMUN 3571)	
POL SC 4870: Environmental Theory and Politics	
PSYCH 3820: Environmental Psychology	
RU SOC 2225: Social Processes of Communication & Diffusion	
RU SOC 4335: Social Change and Trends (same as SOCIOL 4335)	
RU SOC 4370: Environment and Society (same as SOCIOL 4370)	
SOCIOL 3520: Collective Behavior	

Practicum core9

Undergraduate seminar.....3

AG EC 2070: Environmental Economics & Policy	
ENV ST 2110: Analysis of Environmental Issues	
ENV ST 2150: Directed Independent Study	
ENV ST 4350: Environmental Studies Capstone Course	

Emphasis in Peace Studies

John Galliher, Director
335 Middlebush Hall
(573) 882-3441

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 core requirements.....30

Core requirements (choose from)15

PEA ST 1050: Introduction to Peace Studies (3)	
PEA ST 3280: Internship or PEA ST 4970: Senior Thesis I (1-3)	
PEA ST 1001: Topics in Peace Studies	
PEA ST 2300: Anthropology of War (same as ANTHRO 2300) (3)	
PEA ST 2410: Philosophies of War and Peace (same as PHIL 2410) (3)	
PEA ST 1180: Conflict Resolution in Theory and	

Practice (3)	
PEA ST 1181: International Conflict and Cooperation (3)	
PEA ST 1182: History and Philosophy of Nonviolent Action (3)	
PEA ST 1183: Images of War and Peace in Literature and the Arts (3)	
PEA ST 2780: World Political Geography (same as GEOG 2780) (3)	
PEA ST 2100: The Vietnam and Iraq Wars (3)	
Other cross-listed courses.....	15

Emphasis in Women's and Gender Studies

Interdepartmental Program in the College of Arts and Science
 Jacquelyn Litt, Director
 309 Switzler 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 that focuses on women's and gender studies. A minor is also available. Advising of students and aid in designing student-tailored academic plans is available from the Women's and Gender Studies Office.

The curriculum includes women's and gender studies core course as well as 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 program stresses scholarship and teaching that are broadly comparative and range across multiple cultures, national and transnational contexts, and historical period. Its faculty employ a broad range of theoretical approaches and methods.

Thirty credits are required in women's and gender studies plus 15 credits in an appropriate minor field. (Students pursuing dual majors or dual degrees are exempted from the requirement of a minor field.) In addition to degree requirements, college and University requirements, including University general education, must be met.

Emphasis core courses.....	27
WGST 1120: Feminism: The Basic Questions	3
WGST 1332: Social Perspectives on Women, Race and Class OR	
WGST1334: Women, Race and Class.....	3
WGST 2020: Feminist Theory I	3
WGST 2400: Social History of U.S. Women (Also HIST 2400)	3
WGST 4990: Senior Research Seminar in Women's & Gender Studies	3
Additional courses numbered 2000 or above	12
Additional courses.....	15

Courses from the following courses cross-listed with the women's and gender studies emphasis; 12 from courses at 3000-level or above

WGST 1100: Self-Defense for Women (2)	
SOCIO 1360: The Female Experience: Body, Identity, Culture (3)	
WGST1001, 1003, 1004, or 1005: Topics in Women and Gender Studies (3)	
ENGLSH 2180: Introduction to Women's Literature (3)	
WGST 1500: The Black Woman in America (3)	
SPAN 2390: Latin American Women's Culture (3)	
HIST 2410: African American Women in History (3)	

WGST 2001, 2003, 2004, 2005: Topics in Women and Gender Studies (3)	
ENGLSH 3180: Survey of Women Writers (3)	
SPAN 3380: Latin American Women Writers (3)	
WGST 3001, 3003, 3004, 3005: Topics (3)	
HIST 2540: European Women in the 19th Century (3)	
ENGLSH 3080: Sexuality and Gender Theory (3)	
SOCIO 3320: Sociology of Sex Roles (3)	
REL ST 3750: Women and Religion (3)	
POL SC 4910: Liberal Thought and the Ownership of the Self (3)	
WGST 4001, 4003, 4004, or 4005: Topics (3)	
WGST 4200: Woman's Health (3)	
ENGLSH 4180: Major Women Writers (3)	
ENGLSH 4480: Anglophone Africana Women Writers (3)	
JOURN 4716: Women and the Media (3)	
WGST 4020: Feminist Research and Criticism (3)	
REL ST 4750: Women, Religion and Culture (3)	
POL SC 4880: Feminist Political Thought (3)	
WGST 4420: The Politics of Reproduction and Fertility Control (3)	
SOCIO 4230: Global Perspectives on Women and Development (3)	
ENGLSH 4780: Women's Folklore and Feminist Theory (3)	
SOC WK 4400: Contemporary Issues in Domestic Violence (3)	

Linguistics

Flore Zephir, Chair
 Interdepartmental Program in the College of Arts and Science
 143 A&S
 (573) 882-5048

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.....	21
Introduction to linguistics: one or more courses such as the following	3
LINGST 2040: Anthropological Linguistics	
LINGST 4600: Structure of American English	
LINGST 4720: Structure of Modern French	
LINGST 4721: Structure of Modern Spanish	
Phonetics and phonology: one or more courses such as the following	3
LINGST 3010: American Phonetics	
LINGST 3720: French Phonetics	
LINGST 3721: Spanish Phonetics	
LINGST 4630: Phonology	
LINGST 4850: Practical Phonetics for Fieldwork	
Syntax: one or more courses such as the following	3
LINGST 4640: Syntax	
Semantics: one or more courses such as the following	3
LINGST 2700: Mathematical Logic	
LINGST 4100: Philosophy of Language	
LINGST 4110: Formal Logic	

Language variation: one or more courses such as the following3
 LINGST 3710: Survey of Minority and Creole Languages
 LINGST 4400: Language and Culture
 LINGST 4420: Historical Linguistics
 LINGST 4610: History of the English Language
 LINGST 4620: Regional and Social Dialects of American English
 Capstone course: one or more courses such as the following3
 LINGST 4730: Linguistic Theory and Language Acquisition
 LINGST 4810: Psycholinguistics
 LINGST 4860: Techniques in Linguistic Analysis
 LINGST 4870: Field Methods in Linguistics
 LINGST 4960: Special Readings
 LINGST 4970: Studies in Linguistics: Capstone
 Electives: one or more additional courses3
 Typically, electives will be additional linguistics courses, such as LINGST 1060: Human Language. Electives may also be chosen from allied fields such as anthropology, classical studies, communications, English, foreign languages, philosophy, psychology and sociology.

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 program leading to a BA with honors is also available.

Minor in Linguistics

Consistent with general guidelines for a minor, the minor in linguistics consist of at least 15 credits, including an introductory linguistics course such as one of the following:
 LINGST 1060: Human Language
 LINGST 2040: Introduction to Anthropological Linguistics
 LINGST 4600: Structure of American English
 LINGST 4720: Structure of Modern French
 LINGST 4721: Structure of Modern Spanish

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 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 these programs, 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 Anthropology3
- GEOG 1100: Regions and Nations of the World I OR
 GEOG 1200: Regions and Nations of the World II3
- POL SC 1400: International Relations OR
 POL SC 2700: Comparative Political Systems3

Three additional courses from the following.....9

- (At least one must be a humanities course)
- PEA ST 1050: Introduction to Peace Studies
- BIO SCI 1060: Basic Environmental Studies
- ECONOM 1014: Principles of Microeconomics OR
 ECONOM 1015: Principles of Macroeconomics OR
 AG EC 1041: Applied Macroeconomics
- GEOG 1200: Environmental Geology OR
 GEOL 1100: Principles of Geology
- SOCIOL 1000: Introduction to Sociology
- SOCIOL 2200: Social Inequalities
- WGST 1332: Social Perspectives on Women, Race and Class

The following are humanities courses:

- ENGLSH 1150: Intro to World Literature
- REL ST 2110: Major World Religions
- PHIL 2100: Philosophy: East and West
- AR H A 1110/1120: History of Western Art I/II
- MUSIC 1310: Masterpieces of Western Music
- MUSIC 1313: Introduction to World Music
- WGST 1334: Women, Race and Class
- GN HON 2117H: The Emerging Canons
- 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 12 months of course work)

There are four specific ways a student can complete the capstone experience in international studies. Select one option:

1. 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 numbered at least at the 3000 level, and the course must be taken in the last 12 months 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 director of international studies.

2. Independent research project: With this option, the student completes an independent research project under the supervision of a faculty member. Most projects result in a 20-30 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.
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 director of special degree programs.
4. Service learning project: The project allows the student to integrate learning with real-life skills. Students are assigned to local non-profit agencies and are asked to design and execute a project that will benefit the agency and provide practical experience applying knowledge learned at MU.

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 3000 level or higher; 18 must be taken in courses at the 4000-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 sciences12

Could include course work from geography, history, political science, economics, anthropology, sociology, rural sociology or peace studies

Focus area12

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 courses.)

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. Students who are unable to participate in the study abroad program must see the director of special degree programs to discuss alternative requirements.

For students who do not study abroad, the following alternative will apply.

- Students who are not able to study abroad as a part of their program of studies must submit a written notification to the director of international studies indicating the reason they are unable to participate in the study abroad program.
- Such students must complete 6 credits as part of their degree program that focus on a particular area or region of the world of interest to the student. These courses may be in history, religious studies, geography, political science or civilization or literature courses in the appropriate language.

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 examine 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 area studies is offered as an emphasis area for the BA with a major in International Studies. The Latin American area 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 MA and PhD Latin American study 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 adviser can tailor a program to fit specific interests.

Emphasis in Peace Studies

See Interdisciplinary Studies.

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.

The South Asia program 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 1050: Introduction to 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 in consultation with a member of the East Asian studies committee or the director of the office of special degree programs. At least 6 credits must be at the 2000 level or above. Student advisement is provided by the Office of Special Degree Programs, 210 Switzler Hall.

Minor in Film Studies

Roger Cook, Chair
Film Studies Committee
451 General Classroom Building
(573) 882-9452
CookRF@missouri.edu
<http://www.missouri.edu/~filmstud/>

The interdisciplinary Film Studies program combines interests in film and culture across the departments of English, German and Russian Studies, Romance Languages and Literatures, and Theatre. A minor is available. No major is available.

The program offers courses that help students develop basic analytical tools for describing and interpreting films and the critical vocabulary for discussing and writing about film. Drawing on

the interdisciplinary mix of its faculty, the program introduces students to the major trends in American and international cinema. Courses at the advanced level focus on a variety of topics, including particular national cinemas, specific film genres, individual directors, themes such as ethnicity and gender, and the intersection of film and other arts. Occasional courses concentrate on aspects of film production, such as screenwriting. Film studies courses are cross-listed with courses in the home department of the participating faculty.

Minor core requirements

For a minor, students must take a minimum of 15 credits. The 15 credits for the minor must include courses from at least three different departments.

Two required core courses must be completed in sequence before elective courses can count toward the minor.

First core course	3
FILM S 2810: Introduction to Film Analysis	
Second core course (choose from)	3
FILM S 2820: Trends in World Cinema	
FILM S 2830: American Film in an International Context, 1895-1950	
FILM S 2840: American Film in an International Context, 1950-Present	
Electives	9
Must include two courses at the 3000-level or above.	

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: Introduction to Women's and Gender Studies....	3
WGST 1332: Social Perspectives on Women, Race and Class	3
WGST 1334: Women, Race and Class OR	

Additional hours in courses numbered 3000 or above6

Minor in Latin American Studies

Students who have completed the language requirement in Spanish or Portuguese (or equivalent) may select, in conjunction with an adviser, 15 additional credits of approved course work. The minor in Latin American studies must be approved by a faculty member in the Department of Romance Languages.

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
204 Lowry
(573) 882-7116
envstudy@showme.missouri.edu

Many environmental careers require the kind of discipline-specific education available in the traditional majors, but

employers look especially for students who can understand the larger ramifications of environmental issues and who can work in interdisciplinary teams to solve problems. The Environmental Studies Certificate is designed to give a student the necessary breadth to address a variety of environmental problems. The certificate also prepares students for entry into graduate and professional programs.

The certificate is available to all majors at MU. Because of the variety of majors offered and the goal of the certificate program to create a complementary educational experience, students working on a certificate are required to select courses in consultation with the Office of Environmental Studies. Courses with environmental content are not necessarily approved for a particular student's certificate program.

Advising by the Office of Environmental Studies complements but does not replace advising in the student's degree program. Courses for the certificate are drawn from a variety of departments across campus. A list of courses with environmental content is available on request from the environmental studies program, or it can be reached from the web page: <http://www.missouri.edu/~esiwww/courses>

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 1150—African-American Cinema (3). (same as Theatre 1150). Study of the impact of cinema and the entertainment industry on the social perceptions of African-Americans and on African-American culture.

BL STU 1250—World Theatre Workshop (2). (same as Theatre 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.

BLSTU 1332—Social Perspectives on Women, Race and Class (3). (same as Women's and Gender Studies 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 WGST 1334.

BL STU 1334—Women, Race and Class (3). (same as Women's and Gender Studies 1334). Study of women's experiences of family, work, sexuality, spirituality, violence, power, and love across race and class lines. Examine psychological, economic, and institutional connections between racism, sexism, and classicism. No credit for students who have taken WGST 1332.

BL STU 1410—African American History (3). (Same as History 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 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 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 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 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: sophomores 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 2120—Black Women in American Politics (3). (same as Political Science 2120). This course analyzes the role that Black women have played in American politics from the Reconstruction era civil rights and

women's movements, and bids for elective official. Prerequisite: POL SC 1100 or 1700 and sophomore standing.

BLSTU 2200—Social Inequalities (3). (Same as Sociology 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 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: SOCIOL 1000 or equivalent or instructor's consent.

BLSTU 2400—Introduction to Anglophone Africana Literature (3). (same as English 2400). Introduces students to Africana literature with an emphasis on literature written originally in English. Prerequisite: ENGLSH 1000. No more than six hours may be taken in the Introduction to Anglo Africana Literature

BLSTU 2407—Introduction to Anglophone Africana Literature, 1603-1789 (3). (same as English 2407). See Black Studies 2400 for course description.

BLSTU 2408—Introduction to Anglophone Africana Literature, 1789 to 1890 (3). (same as English 2408). See Black Studies 2400 for course description.

BLSTU 2409—Introduction to Anglophone Africana Literature, 1890 to Present (3). (same as English 2409). See Black Studies 2400 for course description.

BL STU 2410—African American Women in History (3). (same as History and Women's and Gender Studies 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

Certificate core requirements

- Completion of a program of study in an existing major leading to an MU bachelor's degree
- Completion of two foundation courses
- 3 credits in environmentally related seminar courses
- 6 credits in environmentally related courses at the 2000 level or above
- a 3-credit interdisciplinary capstone experience

Foundation courses (course descriptions are listed in the respective departments).....16

- BIO SC 1060: Basic Environmental Studies3
- GEOL 1200: Environmental Geology.....4
- NAT R 1060: Ecology and Conservation of Living Resources3
- GEOG 2660: Environmental Geography3
- RU SOC 1120: Population and Ecology3

Seminar courses6

- ENV ST 2070: Introduction to Ecological Economics3
- ENV ST 2110: Analysis of Environmental Issues3

(See also: School of Natural Resources)

of Africa South of the Sahara (3). (same as Geography 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). (same as History 2610). A historical survey of the origins, development and impact of the Black Islamic tradition.

BL STU 2870—Black Political Thought (3). (same as Political Science 2870.) This course analyzes the major political theories and their proponents from the Reconstruction era to the present. Prerequisites: POL SC 1100 or 1700 and sophomore standing.

BL STU 3100—African American Psychology (3). (same as Educational, School and Counseling Psychology 3100). The research, theories, and paradigms developed to understand the attitudes, behaviors, and psychosocial realities of African-Americans are discussed. Prerequisite: PSYCH 1000.

BL STU 3200—Black Freedom Movement, 1955-1973 (3). (same as History 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. Offered once a year.

BL STU 3400—Survey of African American Literature, Beginnings to 1900 (3). (same as English 3400). A survey of major authors and movements in African American literature from its beginnings to 1900. Prerequisite: ENGLISH 1000.

BL STU 3410—Survey of African American Literature, 1900-Present (3). (same as English 3410). A survey of major authors and movements in African American literature from 1900 to the present. Prerequisite: ENGLISH 1000.

BL STU 3420—Periods and Genres in Anglophone Africana Literature (3). (same as English 3430). Topic (e.g. Harlem Renaissance Africana Poetry) Announced at time of registration. Prerequisite: ENGLISH 1000. No more than 6 hours may be taken in the Periods and Genres in Anglophone African Literature series.

BL STU 3427—Periods and Genres in Anglophone Africana Literature, 1603 to 1789

(3). (same as English 3247). See Black Studies 3420 for course description.

BL STU 3428—Periods and Genres in Anglophone Africana Literature, 1789 to 1890 (3). (same as English 3248). See Black Studies 3420 for course description.

BL STU 3429—Periods and Genres in Anglophone Africana Literature, 1890-Present (3). (same as English 3249). See Black Studies 3420 for course description.

BL STU 3590—Religious Biography: Black Religion (3). (same as History 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 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: HIST 1410 or SOCIOL 2210.

BL STU 3800—Women in African History (3). (same as History 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 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 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: POL SC 1100 or 1700 and sophomore standing.

BL STU 4181—Themes in Literature by Women (3). (same as Women's and Gender Studies and English 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.

BL STU 4210—African-American Religion (3). (same as Religious Studies 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 4220). Examination of Afro-American fiction, poetry and drama which present significant racial attitudes toward the Christian religion. Prerequisites: sophomore standing.

BL STU 4230—Global Perspectives on

Women and Development (3). (same as Sociology 4230 and Women's and Gender Studies 4300). 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, WGST 1332, BL STU 2110, or WGST 4420.

BL STU 4270—African-Americans in the Twentieth Century (3). (Same as History 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 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 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 4380). Provides students with an appreciation of the black experience in the United States on a knowledge and feeling level.

BL STU 4400—Genres in Anglophone Africana Literature (3). (same as English 4400). Topics (e.g., African American Poetry, Africana Drama) announced at time of registration. No more than six hours may be taken in the Genres in Anglophone Africana Literature series. Prerequisite: junior standing.

BL STU 4407—Genres in Anglophone Africana Literature, 1603 to 1789 (3). (same as English 4407). See Black Studies 4400 for course description.

BL STU 4408—Genres in Anglophone Africana Literature, 1789 to 1890 (3). (same as English 4408). See Black Studies 4400 for course description.

BL STU 4409—Genres in Anglophone Africana Literature, 1890 to Present (3). (same as English 4409). See Black Studies 4400 for course description.

BL STU 4410—Major Anglophone Africana Writers (3). (same as English 4410). An intensive study of selected writers of Africana literature, focusing on texts original in English. No more than six hours may be taken in the Major Anglophone Africana Writers series. Prerequisite: junior standing or instructor's consent.

BL STU 4417—Major Anglophone Africana Writers, 1603 to 1789 (3). (same as English 4417). See Black Studies 4410 for course description.

BL STU 4418—Major Anglophone Africana Writers, 1789 to 1890 (3). (same as English 4418). See Black Studies 4410 for course

description.

BLSTU 4419—Major Anglophone Africana Writers, 1890 to Present (3). (same as English 4419). See Black Studies 4410 for course description.

BL STU 4420—Africana Womanism (3). (same as 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.

BLSTU 4460—Economic Characteristics of the African American Experience (1). (same as History 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. w,s.

BLSTU 4480—Major Anglophone Africana Women Writers (3). (same as Women's and Gender Studies 4480 and English 4480). Study of selected Africana women writers, focusing on texts originally in English. No more than six hours may be taken in the Major Africana Women Writers series.

BLSTU 4487—Major Anglophone Africana Women Writers, 1603 to 1789 (3). (same as Women's and Gender Studies 4487 and English 4487). See Black Studies 4480 for course description.

BLSTU 4488—Major Anglophone Africana Women Writers, 1789 to 1890 (3). (same as Women's and Gender Studies 4488 and English 4488). See Black Studies 4480 for course description.

BLSTU 4489—Major Anglophone Africana Women Writers, 1890 to Present (3). (same as Women's and Gender Studies 4488 and English 4488). See Black Studies 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). (same as Women's and General Studies 348). 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 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: POLSC 1100 or 1700 and sophomore standing.

BLSTU 4700—Race, Gender and Ethnicity in Higher Education (3). (same as Education Leadership and Policy Analysis 4700). 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 the academy, and leadership, governance, and policy.

BLSTU 4710—Themes in Africana Folklore

(3). (same as Anthropology 4160 and English 4710.) Intensive study in a selected area of Africana 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 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 4972—Undergrad. Seminar in Black Studies: History of Race in the US (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.

ENGLISH LANGUAGE SUPPORT PROGRAM COURSES

ELSP 0100—Grammar and Composition I (3).

ELSP 0200—Reading and Vocabulary (3).

ELSP 0300—Grammar and Composition II (3).

ELSP 0400—Oral Communication (3).

ENVIRONMENTAL STUDIES COURSES

ENV ST 2070—Introduction to Ecological Economics (3). (same as Agricultural Economics 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.

ENV ST 2101—Topics in Environmental Sciences (1-3). Selected topics not in regularly offered courses.

ENV ST 2110—Analysis of Environmental Issues (3). Using a case study approach, students will develop the analytical and communication skills necessary to investigate environmental problems and create workable solutions. Prerequisites: BIO SC 1060, GEOG 2660, GEOL 1200, NAT R 1060, and RU SOC 1120 or instructor's consent.

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.

FILM STUDIES COURSES

FILM S 1850—Introduction to Film: 1945-Present (3). (same as English 92). Surveys the basic techniques of filmmaking, some important film genres and classic American and European films of the period. 91 is not a prerequisite. Students who have already complete English

192 cannot receive credit for English 92.

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 2810—Introduction to Film Analysis (3). (same as German 2810 and Romance Languages 2810). This course familiarizes students with the basic analytical tools for describing and interpreting films, and helps them develop a critical vocabulary for discussing and writing about film. It also introduces some theoretical approaches to film analysis. Prerequisite: sophomore standing, or instructor's consent.

FILM S 2820—Trends in World Cinema (3). (same as 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, FLM ST 2810 or instructor's consent.

FILM S 2830—American Film in an International Context, 1895-1950 (3). (same as ENGLISH 2830). Examines the development of American cinema in relation to other national cinemas. No credit for students who have completed English 91. Prerequisite: ENGLISH 1000, and for Film Studies credit toward minor, FLM ST 2810.

FILM S 2840—American Film in an International Context, 1950-Present (3). (same as ENGLISH 2840). Examines the relationship of American cinema to world cinema, 1950-present. No credit for students who have completed ENGLISH 2840. Prerequisite: ENGLISH 1000, and for Film Studies credit toward the minor, FLM ST 2810.

FILM S 2850—Italian Cinema (3). (same as 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 3001—Topics in Film-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 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. May be repeated to a maximum of 6 hours with departmental consent. Prerequisites: sophomore standing or instructor's consent.

FILM S 3810—The Films of Pier Paolo Pasolini (3). (same as Italian 3810). Studies the films of Pier Paolo Pasolini, Italian director, author and intellect. This course will trace the development of the artist (post semiotics and gramscian socialism to nihilism) across his films. A selection of his written works will be considered as background to the intellectual

content of his films. Prerequisite: FLMST 2850 and ENGLISH 1810 or 1820, or permission of instructor.

FILM S 3820—Films of Federico Fellini (3). (same as ITAL 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: ITAL 2850 or ENGLISH 1810 or 1820; instructor's consent.

FILM S 3830—History of German Film (3). (same as 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.

FILMS 3840—German Film After 1945 (3). (same as 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 3930—Screenwriting for Television and Film (3). (same as Theatre 3930). Fundamentals of storytelling utilizing tools and structure used by television and film. Prerequisite: 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. May be repeated to a maximum of 6 hours with departmental consent. 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. May be repeated to a maximum of 6 hours with departmental consent. Prerequisites: sophomore standing or instructor's consent.

FILM S 4963—Latin American Cinema (in Spanish) (2-3). (same as Spanish 4960). Subject varies according to instructor. Prerequisites: SPAN 3420 and 3430.

INTERDISCIPLINARY STUDIES COURSES

IINTDSC 1001—Proseminar in Interdisciplinary Studies (0-1). 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; no credit for Interdisciplinary Studies 1001 and Curriculum and Instruction 1150. Graded on S/U basis only.

INTDSC 1020—University Freshmen Seminar (1). (same as Student Success Center 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 AGRIC 1115, INTRDS 1001, IS< 1110, ELPA 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 SSC 1020 and SSC 1150 in the same semester.

INTDSC 2940—Internship in Interdisciplinary Studies (1-6). Internship limited to students pursuing the AB 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 4290—Senior Seminar in Interdisciplinary Studies (3). A seminar that focuses on interdisciplinary learning and thinking. May be used to fulfill the capstone essay requirement for interdisciplinary studies students. Open only to senior undergraduate interdisciplinary studies majors.

INTDSC 4940—Internship in Interdisciplinary Studies (1-6). Internship limited to students pursuing the AB in Interdisciplinary Studies degree. Graded on S/U basis only.

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—Special Readings in Interdisciplinary Studies (1-6). Independent readings with supervisory faculty member; this course serves as the student's capstone experience. Open only to Interdisciplinary Studies major.

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—Senior Seminar in International Studies (3). Focus on international thinking and learning. Open only to senior undergraduate international studies majors.

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.

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.

LINGUISTICS COURSES

LINGST 1060—Human Language (3). (same as Anthropology 1060, Communication Science Disorders 1060 and 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.

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—Introduction to Anthropological Linguistics (3). (same as Anthropology 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 or instructor's consent.

LINGST 2700—Mathematical Logic (3). (same as Philosophy 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 MATH 1100/1120 or equivalent.

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 Communicative Science and Disorders 3010). Analysis of Sounds of Midwestern American dialect. Standards of pronunciation, feature analysis, transcription, articulation mechanics, coarticulation.

LINGST 3210—Anatomy and Physiology Speech Mechanism (3). (same as Communication Science and Disorders 3210). Introduction to anatomical and functional aspects of the speech mechanism.

LINGST 3470—Culture as Communication (3). (same as Anthropology 3470, and Communication 3470). Study of the influence of culture on communication processes. Examines topics as the impact of values, languages, and nonverbal behavior on intercultural interaction. Prerequisites: junior or senior standing.

LINGST 3710—Survey of Minority & Creole Languages of the U.S. & the Caribbean (3). (same as Spanish 3710 and 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 3721). (Spanish Language). Prerequisite: SPAN 2160.

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 4100). Examination of contemporary views of the relationship between language, minds, and the world. Prerequisite: PHIL 2700 or instructor's consent. Some work in PHIL 1000, 3000 or 3200 recommended.

LINGST 4110—Formal Logic (3). (same as Philosophy 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: PHIL 2700 or graduate status.

LINGST 4130—History of the Greek and Latin Languages (3). (same as Classics 4100). Evolution of classical languages and their relationship to each other.

LINGST 4200—Introduction to Old English (3). (same as English 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 4400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis. Prerequisite: ANTHRO/LINGST 2040 or equivalent.

LINGST 4412—Gender, Language and Communication (3). (same as Communications 4412 and Anthropology 4412). Relationships among gender, language, nonverbal communication, and culture. Prerequisite: junior standing or departmental consent.

LINGST 4415—Language and Discourse (3). (same as Communication 4415). Analysis of the rules of social interaction and the functions of language in discourse. Prerequisites: junior standing and departmental consent.

LINGST 4420—Historical Linguistics (3). (same as Anthropology 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 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 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.

LINGST 4620—Regional and Social Dialects of American English (3). (same as English 4620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English. Prerequisite: LINGST 4600 or equivalent.

LINGST 4630—Phonology (3). (same as English 4630). Survey of the sound patterns of English, with some comparison to other languages. Prerequisite: LINGST 4600 or another course in linguistics or phonetics.

LINGST 4640—Syntax (3). (same as English 4640). Study of the properties of phrase and sentence-level grammar, emphasizing English, with some comparison to other languages. Prerequisite: LINGST 4600 or another comparable linguistics course.

LINGST 4650—Principles of Teaching English as a Second Language (3). (same as English 4650). Linguistic and pedagogical principles of teaching English to speakers of other languages. Prerequisite: LINGST 4600 or equivalent.

LINGST 4710—History of the French Language (3). (same as French 4710). Required of M.A. candidates. Prerequisites: FRENCH 3420 and 3430.

LINGST 4711—History of the Spanish Language (3). (same as Spanish 4711). Diachronic analysis of phonological morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects. Prerequisite: reading knowledge of Spanish. Recommended: SPAN 3420 and 3430.

LINGST 4720—Structure of Modern French (3). (same as French 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French. Prerequisites: FRENCH 3160 or equivalent or instructor's consent.

LINGST 4721—Structure of Modern Spanish (3). (same as Spanish 4721). Synchronic analysis of phonology morphology and syntax of spoken Spanish dialects. Prerequisites: four 2000-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: LINGST 4721, 4720, 4400 or 4600.

LINGST 4810—Psycholinguistics (3). (same as Communicative Science and Disorders 4810). Examines the knowledge and processes that underlie the human ability to produce and understand language. Prerequisite: senior or graduate standing.

LINGST 4820—Speech Perception (3). (same as Communicative Science and Disorders 4820). Selected topics in the perceptual

processing of spoken language. Prerequisite: senior standing.

LINGST 4850—Practical Phonetics for Fieldwork (3). (same as Anthropology 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 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 4870). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language. Prerequisites: 9 hours in Linguistics.

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.

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 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.

PEA ST 1150—The Amish Community (3). (same as Rural Sociology 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, and conscientious objection.

PEA ST 1180—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: PEA ST 1050 or instructor's consent.

PEA ST 1181—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: PEA ST 1050 or instructor's consent.

PEA ST 1182—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:

PEA ST 1050 or instructor's consent.

PEA ST 1183—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: PEA ST 1050 or instructor's consent.

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.

PEAST 1610—Russia in Modern Times (3). (same as History 1610). Survey of Russian History from 1801 to present.

PEA ST 2100—The Vietnam and Iraq Wars: Lessons for the Future (3). An interdisciplinary analysis of the Vietnam War and the American-lead 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.

PEAST 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 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 2300—Anthropology of War (3). (same as Anthropology 2300). 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. Offered every 3-4 semesters. Graded on A/F basis only.

PEA ST 2410—Philosophies of War and Peace (3). (same as Philosophy 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 2430—America's Environmental Experience (3). (same as History 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.

PEAST 2710—Politics and the Military (3). (same as Political Science 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 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: GEOG 1100 or 1200 or sophomore standing.

PEA ST 3130—Foreigners and Dangerous Women in Greek and Latin Literature (3). (same as Classical Humanities 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 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 3410—Social Bases of War and Peace (3). (same as Sociology 3410). Social conditions associated with and preceding war and peace; war as a social institution; international images and stereotypes; proposals for preventing war and reducing international hostilities. Prerequisites: SOCIOL 1000.

PEA ST 3440—After the Fact: Holocaust in Contemporary History, Art & Literature (3). (same as 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.

PEAST 3520—Collective Behavior (3). (same as Sociology 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. Prerequisites: SOCIOL 1000 or 1650.

PEA ST 3521—Group Decision Making Processes (3). (same as Communications 3571). Procedures and techniques for interpersonal communication and decision making in small groups. Prerequisite: junior standing or instructor's consent.

PEAST 3600—Criminology (3). (same as Sociology 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

PEA ST 3810—Imperial China (3). (same as History 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 3840 and South Asia Studies 3245). Readings on recent world history, emphasis on Gandhi and nonviolent tradition in America Europe and the Third World. Prerequisite: sophomore standing.

PEA ST 4080—American Foreign Policy from Colonial Times to 1898 (3). (same as History 4080).

PEA ST 4240—Theory and Practice of Theatre of the Oppressed (3). (same as Theatre 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including

application of techniques of specific social issues. Prerequisite: instructor's consent.

PEAST 4260—The Age of Ascendancy: U.S. Foreign Relations, 1945-Present (3). (same as History 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 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 4360—Economic Development (3). (same of Economics 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 4410). Why do wars occur? The function of force and uses of a threat of force. Problems of national security strategy and arms control.

PEA ST 4440—Ethical Issues in Communication (3). (same as Communication 4440). Exploration and analysis of ethical dimensions intrinsic to human communication. Prerequisite: junior standing or departmental consent.

PEA ST 4450—Race, Ethics, and Gender in International Relations (3). (same as Political Science 4450). Explores topics often neglected in the study of international relations, including racism, the laws and ethics of warfare, human rights, and gender. Prerequisite: POL SC 1400 or PEA ST 1050, instructor's consent.

PEA ST 4510—Western Europe's Foreign Policy (3). (same as Political Science 4510). 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.

PEAST 4520—Political Sociology (3). (same as Sociology 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: SOCIOL 3200, 3510, 3520, or 3700.

PEA ST 4550—International Problems in the Middle East (3). (same as Political Science 4550). Nature and causes of the Arab-Israeli Conflict, inter-Arab rivalries, the Persian Gulf Problems, and the involvement of external powers in these conflicts. Prerequisites:

economic, and institutional connections between racism, sexism and classism. No credit for students who have taken 111.

WGST 1360—The Female Experience: Body, Identity, and Culture (3). (same as Sociology 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 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 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 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 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 WGST 1120.

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: WGST 1120 or sophomore standing.

WGST 2180—Introduction to Women's Literature (3). (same as English 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 2186). See Women's and Gender Studies for course description.

WGST 2187—Introduction to Women's Literature, 1603 to 1789 (3). (same as English 2187). See Women's and Gender Studies for course description.

WGST 2188—Introduction to Women's Literature, 1789 to 1890 (3). (same as English 2188). See Women's and Gender Studies for course description.

WGST 2189—Introduction to Women's Literature, 1890 to Present (3). (same as English 2189). See Women's and Gender Studies for course description.

WGST 2230—U.S. Women's Political History, 1880-Present (3). (same as History 2230). 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 2390—Latin American Women's Culture (3). (same as Spanish 2390 and Women and Gender's Studies 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 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 2410). Covers major issues affecting black women since their introduction into English-speaking North America to the present.

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 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 WGST 1120.

WGST 3004—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 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 WGST 1120.

WGST 3080—Sexuality and Gender Theory (3-6). (same as English 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 departments consent. Prerequisite: sophomore standing

WGST 3180—Historical Survey of Women Writers (3). (same as English 3180). A study of writing by women from the Middle Ages to the

present. Prerequisite: sophomore standing.

WGST 3320—Sociology of Sex Roles (3). (same as Sociology 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 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 3430). Survey of the history of sexuality in the United States. Prerequisite: sophomore standing.

WGST 3570—European Women in the 19th Century (3). (same as History 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 3750—Women and Religion (3). (same as Religious Studies 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 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 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 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 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 WGST 1120.

WGST 4020—Feminist Theory II: Problems in Feminist Thought (3). Examines recent problems and critical debates within feminist theory. Prerequisite: WGST 2020 or instructor's consent.

WGST 4110—Feminist Research and Criticism (3). 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 4180—Major Women Writers (3). (same as 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 WGST 4180 and 4480.

WGST 4181—Themes in Literature by Women (3). (same as 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.

WGST 4186—Major Women Writers, Beginning to 1603 (3). (same as English 4186). See Women's and Gender Studies 4180 for course description.

WGST 4187—Major Women Writers, 1603-1789 (3). (same as English 4187). See Women's and Gender Studies 4180 for course description.

WGST 4188—Major Women Writers, 1789-1890 (3). (same as English 4188). See Women's and Gender Studies 4180 for course description.

WGST 4189—Major Women Writers, 1890-Present (3). (same as English 4189). See Women's and Gender Studies 4180 for course description.

WGST 4200—Women's Health (3). (same as Nursing 3006). 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 4230—Global Perspectives on Women and Development (3). (same as Sociology 4230 and Black Studies 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, WGST 1332, 1334, BL STU 1132, or WGST 4420.

WGST 4400—Contemporary Issues in Domestic Violence (3). (same as Social Work 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 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 Anglophone Africana Women Writers (3). (same as Black Studies and English 4480). Study of selected Africana

women writers, focusing on texts originally in English. No more than six hours may be taken in the Major Africana Women series. Maximum of 6 hours for WGST 4180 and 4480.

WGST 4487—Major Anglophone Africana Women Writers, 1603 to 1789 (3). (same as Black Studies and English 4487). See Women's and Gender Studies 4480 for course description.

WGST 4488—Major Anglophone Africana Women Writers, 1789 to 1890 (3). (same as Black Studies and English 4488). See Women's and Gender Studies 4480 for course description.

WGST 4489—Major Anglophone Africana Women Writers, 1890 to Present (3). (same as Black Studies and English 4489). See Women's and Gender Studies 4480 for course description.

WGST 4660—European Women in the 20th Century (3). (same as History 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 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 4750—Women, Religion and Culture (3). (same as Religious Studies 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/WGST 3750 or instructor's consent.

WGST 4780—Women's Folklore and Feminist Theory (3). (same as 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 4860—Liberal Thought and the Ownership of the Self (3). (same as Political Science 4860). Introduces students to foundational premises of liberal political thought through examination of the dispute between Locke and Filmer. Analyzes subsequent rethinking of that debate in works by Rousseau, Wollstonecraft, nineteenth-century American slaves, contemporary feminists, and communarians. Prerequisite: sophomore standing.

WGST 4880—Feminist Political Thought (3). (same as Political Science 4880). This course examines the deployment of sexual difference in selected canonical works of the western political tradition, and it introduces students to important debates within contemporary feminist thought about the relationship between feminism and politics. Prerequisite: junior standing.

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 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.

Department of Statistics

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FACULTY

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ASSISTANT PROFESSOR S. Holan, A. Micheas,
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RESIDENT INSTRUCTION ASSISTANT PROFESSOR
L. D. Ries
ADJUNCT PROFESSOR S. Swan, S. Osterlind, S. Sherrif,
R. D. Wolfinger, P. Wood

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 proper sequence.

The department offers BA, BS, MA and PhD degrees with a major in Statistics. A minor is also available.

Major Program Requirements - Statistics

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.

Credit for beginning courses:

- 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.

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 & Calculus I
MATH 1700: Calculus II
MATH 2300: Calculus III
MATH 4140: Matrix Theory

Applied track

MATH 1500: Analytic Geometry & Calculus I OR
MATH 1300: Finite Mathematics and MATH 1320:
Elements of Calculus

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

Both tracks

STAT 4970: Senior Seminar
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

Computing Courses

Both tracks

CS1040: Introduction to Problem Solving and
Programming OR
CS1050: Algorithm Design and Programming I

Major core requirements - Bachelor of Science

Mathematics courses

Traditional track

MATH 1500: Analytical Geometry & Calculus I
MATH 1700: Calculus II
MATH 2300: Calculus III
MATH 4140: Matrix Theory

Applied Track

MATH 1500: Analytic Geometry & Calculus I OR
MATH 1300: Finite Mathematics and MATH 1320:
Elements of calculus

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

Both tracks

STAT 4970: Senior Seminar
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

Computing courses

Both tracks

CS1040: Introduction to Problem Solving
Programming or
CS1050: 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

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 area of concentration. 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

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 4003: Topics in Statistics or
- STAT 4085: Problems in Statistics for Undergraduates

Sample Eight-Semester Programs

Bachelor of Arts with a major in Statistics

Check the *Undergraduate Catalog* for prerequisites of courses.

Fall I

+MATH 1160	3
+ENGLSH 1000	3
+Bio/phys science lab	5
+Foreign language I	5
Total.....	16

Winter I

MATH 1500	5
CS 1040	3
+Foreign language II	5
+American history or government	3
Total	16

Fall II

MATH 1700	5
STAT 2500	3
+Foreign language III	3
+WI elective.....	3
Total.....	14

Winter II

MATH 2300	3
STAT 3500	3
+Behav science elective	3
+Hum/fine arts elective	3
+Soc science elective	3
Total	15

Fall III

MATH 4140	3
+Hum/fine arts elective... 3	
+Soc science elective	3
STAT 4510	3
Elective	3
Total.....	15

Winter III

+Behav sci elective	3
+Hum/fine arts elective	3
STAT 4530.....	3
STAT 4110	3
Elective.....	3
Total	15

Fall IV

STAT 4750	3
*Hum/fine arts elective... 3	
Electives.....	9
Total.....	15

Winter IV

STAT 4760	3
*STAT 4970	3
Electives	8
Total	14

Bachelor of Science with a major in Statistics

Check the *Undergraduate Catalog* for prerequisites of courses.

Fall I

+MATH 1160	3
+ENGLSH 1000	3
+Hum/fine arts elective... 3	
+American history of government	3
Elective	3
Total.....	15

Winter I

MATH 1500	5
CS 1040	3
*Soc/behav science elec... 3	
*Bio/phys science lab	5
Total	16

Fall II

MATH 1700	5
STAT 2500	3
ENGLSH 2030	3
+Hum/fine arts elective... 3	
Elective	3
Total.....	17

Winter II

MATH 2300	3
STAT 3500	3
*Hum/fine arts elective 3	
*WI elective	3
Elective.....	3
Total	15

Fall III

MATH 4140	3
STAT 4510	3
Electives.....	6
*Foreign language..... 3 substitute	
Total.....	15

Winter III

STAT 4530	3
STAT 4110	3
*Soc/behav science elective	3
*Foreign language substitute	3
Elective.....	3
Total	15

Fall IV

STAT 4750	3
Electives.....	8
*Foreign language..... 3 substitute	
Total.....	14

Winter IV

STAT 4760	3
*STAT 4970	3
Electives	4
Total	10

* Courses used as area in lieu of foreign language
 + Course meets University General Education and/or campus requirements.

STATISTICS COURSES

STAT 1200—Introductory Statistical Reasoning (3). Statistical concepts and critical reasoning needed to evaluate conclusions based on quantitative information in health studies, opinion polls, etc. 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 Math 1100, 1120, 1160 or 1180 or exemption from college algebra by examination.

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 MATH 1100, 1120, 1160, or 1180 or exemption from college algebra by examination.

STAT 1300H—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 MATH 1100, 1120, 1160, or 1180 or exemption from college algebra by examination. Honors eligibility required.

STAT 1400—Elementary Statistics for Agriculture (3). Designed for students studying agriculture and related fields. 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.

STAT 2200—Introductory Statistical Methods (1). Designed to upgrade the curriculum of Statistics 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.

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 MATH 1300, 1320, 1400 or 1500.

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 MATH 1100, 1120, 1160, or 1180.

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 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 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: 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 STAT 4830. No credit toward a graduate degree in statistics. Prerequisites: 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: STAT 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

STAT 4250—Quality Control (3). Statistical control charts, economic design of control charts, acceptance sampling, pareto chart, and other graphical procedures, Deming philosophy, Taguchi methods. Prerequisites: 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. Prerequisites: STAT 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

STAT 4350—Operations Research (3). Study of mathematical and statistical models employed in operations research. Prerequisites: 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: STAT 3500, 7070, 4710/7710, 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. Prerequisites: STAT 3500, 7070, 4710/7710, 4760/7760, or instructor's consent.

STAT 4510—Regression and Correlation Analysis (3). Measurement of relationships among variables including multiple regression, partial correlation, and some nonparametric methods. Prerequisites: Prerequisites: 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: 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. Prerequisites: STAT 4530/7530 or instructor's consent.

STAT 4710—Introduction to Mathematical Statistics (3). (same as Mathematics 4315). Introduction to theory of probability and statistics using concepts and methods of calculus. Prerequisites: MATH 2300 or instructor's consent. No credit for MATH 4315.

STAT 4750—Introduction to Probability Theory (3). (same as Mathematics 4320). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems. Prerequisites: MATH 2300 or instructor's consent.

STAT 4760—Statistical Inference (3). (same as Mathematics 4520). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses. Prerequisite: 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: 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. Prerequisites: 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: 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. Prerequisites: STAT 4710/7710 or 4760/7760 or instructor's consent.

STAT 4890—Statistical Computing and Simulation (3). Computing known statistical formulae using statistical software. Graphs in three dimensions. Computing new formulae and simulating operating characteristics using higher languages. Prerequisites: 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 (2). Special work for Honors candidates in statistics.

Department of Theatre

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FACULTY

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 D. A. Crespy
RESIDENT INSTRUCTION ASSISTANT PROFESSOR
 J. A. Drtina
ADJUNCT ASSOCIATE PROFESSOR K. S. Packard,
 R. D. Packard
PROFESSOR EMERITUS W. B. Durham

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.....	16
THEATR 1320: Basic Scenic Construction Lab OR	
THEATR 1340: Basic Costume Construction Lab	3
THEATR 1700: Introduction to Theatre History	3
THEATR 1800: Principles of Script Analysis	3
THEATR 2300: Production Workshop	1
THEATR 3300: Technical Theatre Practicum	1
THEATR 3700: World Dramatic Literature	3
THEATR 4990: Theatre Capstone	2

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	3
Performance classes chosen from	15
THEATR 1250: World Theatre Workshop (3)	
THEATR 1360: Stage Makeup (1)	
THEATR 1420: Stage Movement for the Actor (2)	
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: Theatre of the Oppressed (3)	
THEATR 4460: Musical Theatre Performance (3)	
THEATR 4600: Advanced Directing (3)	
Design/technical classes	3

Emphasis in Design/Technical Theatre

Design/technical classes chosen from.....	15
THEATR 1360: Stage Makeup (1)	
THEATR 2320: Beginning Patternmaking (3)	
THEATR 2330: Stage Management (1)	
THEATR 2360: Stagecraft (3)	
THEATR 2510: Introduction to Theatre Design (3)	
THEATR 3310: Costume Crafts	
THEATR 3320: Advanced Pattern making (3)	
THEATR 3340: Scene Painting (2)	
THEATR 3530: Computer Graphics in Theatre Design (3)	
THEATR 3550: Sound Design (3)	
THEATR 3560: Scene Design (3)	
THEATR 4530: Stage Lighting Design (3)	
THEATR 4570: Theatrical Costume Design (3)	
THEATR 4730: Theatre Architecture (3)	
Performance classes chosen from	5-6
THEATR 1250: World Theatre Workshop	
THEATR 1420: Stage Movement for the Actor	
THEATR 3200: Performance of Literature	
THEATR 3230: Vocal Performance Technique	
THEATR 3420: Acting I	
THEATR 3430: Acting II	
THEATR 3600: Theatrical Directing	
THEATR 4220: Acting III	
THEATR 4240: Theory and Practice of Theatre of the Oppressed	
THEATR 4460: Musical Theatre Performance	
THEATR 4600: Advanced Directing	

Emphasis in Writing for Performance

THEATR 2510: Introduction to Theatre Design	3
THEATR 2920: Beginning Playwriting	3
THEATR 3920: Intermediate Playwriting	3
THEATR 4920: Advanced Playwriting: Problems.....	3
One course chosen from.....	3
THEATRE 1150: African-American Cinema	
THEATR 1720: African-American Theatre History	
THEATR 2700: New American Theatre	
THEATR: 4240: Theatre of the Oppressed	
THEATR 4700: Studies in Theatre History	
THEATR 4720: American Musicals	
THEATR 4800: Studies in Dramatic Theory	
THEATR 4820: Studies in Dramatic Literature	
THEATR 4830: Studies in Dramatic Criticism	
Two courses chosen from.....	5-6
THEATR 1250: World Theatre Workshop	
THEATR 1420: Stage Movement for the Actor (2)	
THEATR 3200: Performance of Literature	
THEATR 3230: Vocal Performance Technique	
THEATR 3420: Acting I	
THEATR 3430: Acting II	
THEATR 3600: Theatrical Directing	
THEATR 4200: Adaption of Literature for the Stage	
THEATR 4220: Acting III	
THEATR 4460: Musical Theatre Performance	
THEATR 4600: Advanced Directing	

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 adviser for approval.

Departmental Honors

To graduate with honors in theatre, a student must earn a minimum overall MU GPA of 3.0 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 core courses and an emphasis area.

Minor core requirements 9

THEATR 1320: Basic Scenic Construction Lab OR	
THEATR 1340: Basic Costume Construction Lab	.....3
THEATR 1800: Principles of Script Analysis	.....3
THEATR 2510: Introduction to Theatre Design OR	
THEATR 4570: Theatrical Costume Design	.....3

Emphasis Area

Choose from performance, design/technical theatre or writing for performance.

Emphasis in Performance

THEATR 1420: Stage Movement for the Actor	.....2
THEATR 2410: Performance Workshop	.....1
THEATR 3420: Acting I	.....3
THEATR 3430: Acting II OR	
THEATR 3600: Theatrical Directing	.....3

Emphasis in Design/Technical Theatre

THEATR 2360: Stagecraft OR	
THEATR 2510: Introduction to Theatre Design OR	
THEATR 4570: Theatrical Costume Design	.....3
THEATR 2300: Production Workshop	.....1
two additional design/tech classes	.....6

Emphasis in Writing for Performance

THEATR 2920: Beginning Playwriting	.....3
THEATR 3920: Intermediate Playwriting	.....3
THEATR 4920: Advanced Playwriting: Problems	.....3

Sample Eight-Semester Program

Bachelor of Arts degree with a major in Theatre (Performance Emphasis)

See also Technical Theatre and Writing for Performance emphasis areas. See the *Undergraduate Catalog* for prerequisites.

Fall I

ENGLSH 1000	..... 3
Behavioral science	..... 3
Foreign language I	..... 5
THEATR 1320: Beg.	
Scenic Construction Lab OR THEATR 1340: Beg.	
Costume Construction Lab	..... 3
THEATR 1700: Introduction to Theatre History	..... 3
Total	..... 17

Fall II

Humanities *	..... 3
Biological/physical/math science †	..... 3
Social science	..... 3
THEATR 2300: University Theatre Workshop	..... 1
Theatre design/tech elective	..... 3
Total	..... 13

Fall III

Humanities	..... 6
Behavioral science ††	..... 3
Theatre performance electives	..... 6
THEATR 4570: Theatrical Costume Design	..... 3
Total	..... 18

Fall IV

Biological/physical/math science	..... 3
Theatre performance elective	..... 6
THEATR 4900: Capstone	..... 2
General electives	..... 9
Total	..... 20

Winter I

MATH 1110	..... 3
Am. government or history	. 3
Foreign language II	..... 5
THEATR 1800: Script Analysis*	..... 3
Total	..... 14

Winter II

Foreign language III	..... 3
Biological/physical/math science	..... 4-5
General elective	..... 3
Theatre performance electives	..... 6
Total	..... 16-17

Winter III

Social science ††	..... 3
General electives	..... 6
THEATR 3300: Technical Theatre Practicum	..... 1
Course in related field	..... 3
Total	..... 13

Winter IV

Humanities ††	..... 3
THEATR 3700: World Dramatic Literature	..... 3
Courses in related field	..... 6
Total	..... 12

* Writing Intensive

† Math Reasoning Proficiency

†† Course numbered 1000 or above

DEPARTMENT OF THEATRE COURSES

THEATR 1004—Topics in Theatre (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.

THEATR 1150—African-American Cinema (3). (same as Black Studies 1150). Study of the impact of cinema and the entertainment industry on the social perceptions of African-Americans and on African-American culture.

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 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.

THEATR 1420—Stage Movement for the Actor (2). Basic work in the techniques that comprise movement training for the actor.

THEATR 1700—Introduction to Theatre History (3). Survey of major periods emphasizing the produced play in its historical context.

THEATR 1720—African-American Theatre History (3). (same as Black Studies 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

THEATR 1800—Principles of Script Analysis (3). Methodologies of script analysis for theatrical purposes. Extensive writing will be required.

THEATR 2005—Topics in Theatre (cr.arr.). 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 2300—Production Workshop (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 2320—Beginning Patternmaking (3). (same as Textiles and Apparel Management 2210). A beginning course in the methods of pattern drafting. Methods explored include flat patterning, draping, and theatrical patterning techniques. Prerequisite: THEATR 1340 and instructor's consent. Graded on A/F 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: 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 2700—New American Theatre (3). Survey of drama of the most recent decade as it documents contemporary mores and amplifies cultural themes. Prerequisite: THEATR 1800.

THEATR 2920—Beginning Playwriting (3). (same as English 2110). 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 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 3570 and Communication 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—Technical Theatre Practicum (1). Credit earned in a technical project in support of a University Theatre production. May be repeated to total of three hours. Prerequisite: THEATR 1320. Graded on a 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—Advanced Patternmaking (3). (same as Textiles and Apparel Management 4100). Use of computer aided design technology to perform patternmaking techniques for apparel production. Prerequisite: THEATR 2320, and basic computer course or instructor's consent. Graded on A/F basis only.

THEATR 3330—Advanced Costume Construction (3). Learn advanced techniques in theatrical costuming through lecture, demonstration and practical application. Prerequisite: 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: THEATR 1800.

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. Does not meet humanities general education requirements.

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: 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: 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: 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: THEATR 1800 and instructor's consent.

THEATR 3700—World Dramatic Literature (3). (same as English 3170). Survey of world drama from Greeks to present, focusing on structure, theory and performance. Prerequisite: THEATR 1700 and 1800.

THEATR 3920—Intermediate Playwriting (3). (same as English 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: THEATR 2920 or ENGLSH 2560.

THEATR 3930—Screenwriting for Television and Film (3). (same as Film Studies 3930). Fundamentals of storytelling utilizing tools and structure used by television and film. Prerequisite: 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 4200—Adaptation of Literature for the Stage (3). (same as English 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 4220—Acting III (3). Period acting styles. Special projects in interpretation, rehearsal, creation of roles. Prerequisites: THEATR 1800 and 3420 or 3430.

THEATR 4240—Theory and Practice of Theatre of the Oppressed (3). (same as Peace Studies 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). (same as Music-Ensemble 4460). 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: THEATR 1320 or 1340.

THEATR 4600—Advanced Directing (3). Advanced principles of theatrical directing; emphasizes stylistic variations. May be repeated once. Prerequisite: 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-General 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 4560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques. Prerequisite: THEATR 3920 or ENGLISH 3560.

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.

College of Business

College of Business

DEGREES OFFERED

Combined Bachelor of Science and Masters in Accountancy (BSAcc/MAcc)

Bachelor of Science with a major in Business Administration (BSBA) with emphasis areas in

Economics

Finance and Banking

International Business

Management

Marketing

Real Estate

Minor in Business

ADMINISTRATION

Bruce J. Walker, Dean

Kenneth R. Evans, Associate Dean

Mary Beth Marrs, Assistant Dean

Thomas P. Howard, Director, School of Accountancy

Dan French, Chair, Finance Department

Allen Bluedorn, Chair, Management Department

S. (Ratti) Ratneshwar, Chair, Marketing Department

Contact Information

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(573) 882-7073

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Academic Advising Contact

Undergraduate Advising Office

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The 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 College of Business (composed of the departments of Finance, Management and Marketing). The college offers an undergraduate degree in business, 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 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.

Transfer Students

Students in good standing in another school or college at MU must submit a Transfer of Division form to the 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 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 adviser in the 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. 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 admission requirements and unrestricted elective courses. The 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 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.

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.)

Students whose native language is not English must present a TOEFL of at least 550 (paper based) or 213 (computer-based).

Admission to the Business Administration Program

Capacity Limitations

Admission into the upper-level Bachelor of Science in Business Administration (BSBA) degree program is highly competitive, because enrollment is limited. Each of the individual emphasis areas (Economics, Finance and Banking, International Business, Management, Marketing or Real Estate) has its own capacity limitation. A minimum UM cumulative grade of record of 2.6 is required to be eligible to apply for upper level. However, this is not a guarantee of admission to upper level due to the competitive nature of the program.

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 but no more than 60 credits (effective fall 2004). The following courses must be among the credits completed or in process at the time of application:

- *ACCTCY 2036: Accounting I
- *ACCTCY 2037: Accounting II
- ECONOM 1014 or 1024: Principles/ Fundamentals of Micro-economics
- ECONOM 1015: Fundamentals of Macroeconomics
- ENGLSH 1000: Exposition and Argumentation
- MANGMT 1010: Contemporary Business Practices
- MATH 1300: Finite Mathematics
- MATH 1320: Elements of Calculus
- MATH 1100: College Algebra
- STAT 2500: Introduction to Probability and Statistics

* Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.

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 (effective fall 2004).

Students must be admitted to an upper level BSBA emphasis by the semester after they have earned their 60th credit hour. Students not admitted to an upper BSBA emphasis by that time will not be eligible to re-enroll in the College of Business.

Students who complete 60 credits without gaining admission to an upper-level BSBA emphasis area will not be eligible to re-enroll in the College of Business.

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. To apply for admission to the BSAcc/MAcc degree program, a student must have completed or be in the process of completing a minimum of 54 credits but no more than 75 hours. The following are program prerequisites:

- ACCTCY 2036: Accounting I ACCTCY 2037: Accounting II
- ACCTCY 2136H: Honors Accounting I and ACCTCY 2137H: Honors Accounting II
- ECONOM 1014 or 1024
- ECONOM 1015
- ENGLSH 1000: Exposition and Argumentation
- MATH 1100: College Algebra
- MATH 1300: Finite Mathematics MATH 1320: Elements of Calculus
- MANGMT 1010: Contemporary Business Practices
- STAT 2500: Introduction to Probability and Statistics

In addition, accountancy students must maintain good academic standing and be eligible to continue. This requires that they meet the following requirements:

- 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:
ECONOM 1014 or 1024
ECONOM 1015
ENGLSH 1000
MATH 1300
MATH 1320
STAT 2500

Admission decisions will be made at the end of the winter semester for *fall 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 200 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 ranking of a combination of cumulative GPA of record and average GPA for the set of pre-accountancy courses until the enrollment for that year is reached.

Students not admissible to a degree program in the School of Accountancy may meet School of Business admission requirements and transfer into a business administration emphasis area, depending on available space.

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 132 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.
- Students must demonstrate computer and information management proficiency by examination or by degree work completed.
- 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 re-

ceive a Bachelor of Science in Business Administration degree upon completion of all requirements for the degree, provided the courses completed include at least 24 credits taken on the MU campus.

Capstone

Students must complete MANGMT4970: Strategic Management to meet the capstone requirement.

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. To be eligible for Latin Honors, a student must complete the last 50 undergraduate credits within the UM System. 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*.

Degree with Honors

The College of Business honors program is a highly selective academic experience that provides the student with increased challenges and innovative learning experiences. The program emphasizes special curricula, independent research, leadership opportunities and individual student/faculty interaction. These students may participate in both the College of Business honors program and the campus Honors College. A degree with honors is dependent on course availability and is not guaranteed.

Admission and Retention in the College of Business Honors Program

First-semester freshmen who graduated in the top 10 percent of their high school class and earned a composite score of at least 29 on the ACT (or an equivalent SAT score) are automatically eligible for admission to the Honors College and the honors program of the College of Business.

In addition, the following students may apply for admission to the Honors College and participate in the honors program of the College of Business:

- Currently enrolled students who have an MU cumulative GPA of 3.5 and at least 30 credits completed
- Transfer students who have an overall cumulative GPA of 3.5 and at least 30 credits completed

A student must maintain a 3.0 overall GPA to remain in the College of Business honors program.

Graduation Requirements for the College of Business Honors Program

To graduate with honors from the College of Business, a student must meet the following requirements:

- Admission to the Honors College
- 3.3 overall GPA or higher at the time of graduation
- 20 completed honors credits, including at least 9 in the College of Business, of which 3 must be in the student's emphasis area
- 3 credits in the College of Business from 3000-level courses

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 College of Business accepts CLEP subject examinations, departmental exams and Advanced Placement (College Board) credit. More information may be obtained from academic advisers in the 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 winter term, with permission of the associate dean.

Independent Study

Contact the Center for Distance and Independent Study for a listing of courses that may be taken by correspondence. Students must receive approval from their academic adviser prior to registering for correspondence courses.

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 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 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

A minimum 2.0 GPA for all courses attempted must be met for each of the following categories to remain in good standing with the College of Business:

- For students admitted to the upper level program, all courses offered by the College of Business (including all MU accountancy and business courses regardless of whether the courses are completed before or after admission to a degree program in the College of Business)
- All courses attempted in the UM system.

Probation

See the Academic Standing section in the front of this catalog.

- A student who has been admitted to the upper level whose cumulative UM System GPA is 1–15 quality points below 2.0 is placed on probation.
- A student whose cumulative GPA for courses offered by the College of Business is 1–15 quality points below 2.0 is placed on probation. This includes all MU accountancy and business administration courses regardless of whether the courses are completed before or after admission to the College of Business.

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 advisory for assistance.

(Courses offered by the college are those with the curricular designations of ACCTCY, 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 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 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 College of Business if one or more of the following occurs:

- The fall or winter term GPA falls below 1.0.
- The UM System cumulative GPA is 15.01 quality points or more below 2.0.
- For a student who has been admitted to upper level, the cumulative GPA for courses offered by the College of Business is 15.01 quality points or more 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. A student whose second successive term is a summer session is normally allowed another semester to remove probationary status, unless that student becomes subject to the second or third provision listed above.

A student who has been ineligible to enroll for a period of one year may be readmitted only on the approval of the associate dean of the college. As a condition of readmission, the associate 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 College of Business has no restrictions on a student enrolling in another institution simultaneously.

Time Limit on Completion

A student must complete requirements for an undergraduate degree program in the College of Business within 10 years of his or her initial enrollment as a first-time freshman in order to graduate under program requirements in effect at the time of initial enrollment.

School of Accountancy

Thomas P. Howard, Joseph A. Silvosio Distinguished Chair and Director, School of Accountancy
Loren Nikolai, Ernst & Young Distinguished Professor and Director, 150-credit and Master of Accountancy Programs

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FACULTY

PROFESSOR V. Arunachalam, J. R. Francis, T. P. Howard,
I. K. Khurana, L. A. Nikolai

ASSOCIATE PROFESSOR E. G. Mauldin, J. Prather-Kinsey,
K. W. Shaw

ASSISTANT PROFESSOR M. R. Pereira, P. R. Wheeler

ADJUNCT ASSOCIATE PROFESSOR
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The accountancy program at the University of Missouri-Columbia 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	12
Required Core Courses.....	27
Required Accountancy Courses.....	21
Professional Electives.....	6
Senior Capstone.....	3
Graduate Level Coursework*	30
Total	minimum 150

*Can include certain Law School courses at the graduate level.

Students also need to fulfill an International Studies Component (6 hours) to be selected with your adviser. These classes can be taken at the undergraduate or 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,	
PHIL 1100: Introduction to Ethics, or	
PHIL 1200: Introduction to Logic (fulfills humanistic studies requirement)	3
COMM 1200: Introduction to Speech Communication	3
6 hours of Psychology or 6 hours of Sociology.....	6
International Component (See your academic advisor about completion of this requirement.)	

Business and professional core

*ACCTCY 2036: Accounting I	3
*ACCTCY 2037: Accounting II.....	3
ECONOM 1014 or 1024: Principles/Fundamentals of Microeconomics	3
ECONOM 1015: Fundamentals of Macroeconomics.....	3
ENGLISH 1000: Exposition and Argumentation	3
MANGMT 1010: Contemporary Business Practices	1
MATH 1100: College Algebra.....	3
MATH 1300: Finite Mathematics.....	3
MATH 1320: Elements of Calculus.....	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.

Required Core Courses

ACCTCY 2258: Computer-Based Data Systems.....	3
CS 1040: Introduction to Problem-Solving and Programming OR	
CS 1050: Algorithm Design and Programming I.....	3
ECONOM 3229: Money and Banking.....	3
ECONOM 3251: Theory of the Firm OR	
ECONOM 4351: Intermediate Price Theory	3
FINANC 3000: Corporate Finance	3
MANGMT 3000: Fundamentals 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

Required Accountancy Courses

ACCTCTY 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/Managerial Accounting.....	3
ACCTCY: 4353: Introduction to Taxation.....	3
ACCTCY: 4365: Governmental Accounting and Budgeting OR ACCTCY: 4384: Auditing Theory and Practice I.....	3
Accountancy Elective.....	3

Professional Electives

Six 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
Graduate Level Coursework.....	30

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 18 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 graduate-level course descriptions.

Sample Ten-Semester Program

Bachelor of Science Accountancy

Check the *Undergraduate Catalog* for course prerequisites.

Fall I

MATH 1300 or 1320*.....	3
State Requirement.....	3
PSYCH 1000 or SOCIOLOGY 1000.....	3
PHIL 1000, 1100, or 1200.....	3
Non-Business Elective.....	2
MANGMT 1010.....	1
Total.....	15

Fall II

STAT 2500.....	3
ACCTCY 2036 or 2136H.....	3
ECONOM 1015.....	3
Physical/Biological Science.....	3
CS 1040 or 1050 (1040 recommended).....	3
Total.....	15

Winter I

MATH 1300 or 1320*.....	3
ENGLSH 1000.....	3
ECONOM 1014.....	3
Physical/Biological Science.....	3
Additional Psychology or Sociology.....	3
Total.....	15

Winter II

STAT 3500.....	3
ACCTCY 2037 or 2137H.....	3
ACCTCY 2258.....	3
COMMUN 1200.....	3
Physical/Biological Science.....	3
Total.....	15

Fall III

Humanities Elective.....	3
ACCTCY 3326 (FS only).....	3
ACCTCY 3328.....	3
MANGMT 3000.....	3
ECONOM 3229.....	3
Total.....	15

Fall IV

Professional Elective.....	3
ECONOM 3251 or 4351.....	3
MANGMT 3540.....	3
ACCTCY 4353.....	3
Non-Business Elective.....	3
Total.....	15

Fall V

ACCTCY 7384.....	3
Accountancy Elective.....	3
Business Elective.....	3
Business Elective.....	3
Accountancy Elective.....	3
Total.....	15

Winter III

FINANC 3000.....	3
ACCTCY 3346 (WS only).....	3
MRKTNG 3000.....	3
ACCTCY 3347.....	3
Non-Business Elective.....	3
Total.....	15

Winter IV

Humanities Elective.....	3
MANGMT 4970.....	3
ACCTCY 4365.....	3
Accountancy Elective or Internship.....	3
Professional Elective.....	3
Total.....	15

Winter V

ACCTCY 8450.....	3
MANGMT 7010.....	3
Accountancy Elective.....	3
Accountancy Elective.....	3
Business Elective.....	3
Total.....	15

*Both Math 1300 and 1320 must be taken. A grade of C- is required in Math 1100 (counts in place of non-business elective), Math 1300 or 1320 and Stat 2500.

Econ 1051H satisfies both Econ 1014 or 1024 and 1015 requirement.

One humanity or science must be 2000-level or above.

For the behavioral science component, students must complete a two-course sequence in either psychology or sociology.

Professional electives can be six hours of non-business electives (2000+ courses) or six hours of business electives (3000+ courses) or three hours of each approved by academic advisor.

Electives must be approved by advisor so that international studies requirements are met.

Some students get an opportunity to do a winter internship during the 8th semester. Please see academic advisor to discuss courses that can be taken with a winter internship.

ACCOUNTANCY COURSES

ACCTCY 2010—Introduction to Accounting (3). Introduction to accounting for non-business majors. Emphasis on introduction students to business operations, as well as preparing and using management information and financial accounting information for business decisions (does not count as either 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 ACCTCY 2026 and 2036.

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 ACCTCY 2027 and 2037. Prerequisite: ACCTCY 2026.

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: 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 2136H. Prerequisite: C or better 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: 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: 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: ACCTCY 2258.

ACCTCY 3346—Financial Accounting Theory and Practice II (3). Continuation of Accountancy 3326, with special emphasis on income recognition and accounting for liabilities and ownership equity. Prerequisite: 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: ACCTCY 2037 or 2137GH and 2258.

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 foundations of the U.S. federal income tax systems. Covers the taxation of the major U.S. tax entities (including individuals, corporations, and conduit entities) but focuses on topics affecting taxpayers' business and investment decisions. Prerequisite: 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: 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: ACCTCY 3326.

ACCTCY 4373—Taxation of Business Entities (3). Federal income taxation of corporations and shareholders, partnerships, and S corporations. Prerequisite: ACCTCY 4353.

ACCTCY 4384—Auditing Theory and Practice I (3). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits. Prerequisites: 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.

School of Business

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FACULTY

FINANCE:

PROFESSOR S. Ferris, D. French, J. Howe, D. West
ASSOCIATE PROFESSOR P. Brockman
ASSISTANT PROFESSOR C. McDonald, S. Mortal,
D. White, S. Yan
ADJUNCT ASSISTANT PROFESSOR J. Stansfield

MANAGEMENT:

PROFESSOR A. C. Bluedorn, T. Dougherty, A. G. Jago,
A. Stam, D. Turban, J. Wall
ASSOCIATE PROFESSOR C. Franz, D. Greening,
D. Moesel
ASSISTANT PROFESSOR T. Chiles, C. Robert, Y. Zhuang
ADJUNCT ASSISTANT PROFESSOR B. S. Downey,
M. B. Marrs, G. D. Martin, J. Swenson

MARKETING:

PROFESSOR P. Bloch, K. Evans, M. Mantrala,
S. R. Ratneshwar, M. Richins, B. Walker
ASSOCIATE PROFESSOR S. Gopalakrishna, M. Houston,
L. Sheer, S. Zou
ASSISTANT PROFESSOR S. Commuri
ADJUNCT ASSISTANT PROFESSOR J. Poor

RESIDENT INSTRUCTION ASSOCIATE PROFESSOR

G. J. Scott

Organizationally, the School of Business includes several departments, which are described below.

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 Courses

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 economics emphasis to any other BSBA emphasis program.

Major Program Requirements - Business Administration

Students in the College of Business are in either the lower level (undeclared) or the upper level (admitted to an emphasis area). Students entering the 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 Specific Courses 30

*Required Emphasis Courses	
*Additional Emphasis courses	
*Emphasis Support Courses	
Senior Capstone	3
Total.....	minimum 120
Upper Level Admission Courses.....	28
*ACCTCY 2036: Accounting I.....	3
*ACCTCY 2037: Accounting II	3
*ECONOM 1014 or 1024: Principles/Fundamentals of Microeconomics	3
*ECONOM 1015: Fundamentals 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 1320: Elements of Calculus	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 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.

Emphasis Areas

General Education Requirement.....	21
Upper Level Administration Course	28
Required Courses.....	21

Required core courses.....21

ACCTCY 2258: Computer-Based Data Systems OR CS1040: Introduction to Problem Solving and Programming	OR
CS 1050: Algorithm Design and Programming I	3
ECONOM 3229: Money and Banking	3
FINANC 3000: Corporation Finance	3
MANGMT 3000: Fundamentals of Management	3
MANGMT 3540: Introduction to Business Law	3
MRKTNG 3000: Principles of Marketing	3
STAT 3500: Introduction to Probability and Statistics.....	3

Required economics courses6

ECONOM 4351: Intermediate Price Theory	3
ECONOM 4353: Intermediate Income Analysis	3
Economics majors in College of Business must obtain a grade of C (2.0) or better in ECONOM 1014, 1015, 3229, 4351 and 4353.	

Students may retake courses to meet this requirement.

Additional Economic Courses 9-12

Courses selected from the following:

ECONOM 3002: Topics	
ECONOM 3224: Introduction to International Economics	
ECONOM 3256: Economics of Public Policy: Antitrust	
ECONOM 3261: Economic Transformation in Eastern Europe and the Former Soviet Union	
ECONOM 4995: Economics Proseminar	
ECONOM 4311: Employment and Wages	
ECONOM 4312: Special Topics in Labor Markets	
ECONOM 4315: Public Economics	
ECONOM 4316: State and Local Finance	
ECONOM 4320: Economic Doctrines	

ECONOM 4322: Economics of Regulation	
ECONOM 4325: The International Monetary System	
ECONOM 4326: Economics of International Trade	
ECONOM 4329: Banking and Money Markets	
ECONOM 4335: Economics for Decision-making	
ECONOM 4340: Economic Theory of Games	
ECONOM 4345: Economics of Education	
ECONOM 4355: Structure of Industry	
ECONOM 4360: Economic Development	
ECONOM 4361: Comparative Economic Systems	
ECONOM 4362: Welfare Economics	
ECONOM 4368: Economic Fluctuations	
ECONOM 4370: Introduction to Quantitative Economics	
ECONOM 4371: Applied Econometrics	
ECONOM 4384: Structural Change in Economic History	
ECONOM 4970: Senior Seminar in Economics	

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:

ACCY: any 3000 or 4000 level class	
COMMUN 1200: Introduction to Speech Communication	
ECON: any 4000 level class not used as an Econ elective	
ENGLSH 2030: Professional Writing	
FINANC: any 3000 or 4000 level class	
MANGMT: any 3000 or 4000 level class	
MRKTG: any 3000 or 4000 level class	
PSYCH: any 3000 or 4000 level class	
SOCIO: any 3000 or 4000 level class	
STAT: any 3000 or 4000 level class	

Capstone course - senior year (on campus)3

Minimum grade of C- required	
MANGMT 4970: Strategic Management	

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 BSBS 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 Requirements38

Upper Level Admission Courses.....28

Required Core Courses21

ACCTCY 2258: Computer-Based Data Systems OR CS1040: Introduction to Problem Solving and Programming OR	
CS 1050: Algorithm Design and Programming I	3
ECONOM 3229: Money and Banking	3
FINANC 3000: Corporate Finance	3
MANGMT 3000: Fundamentals of Management	3
MANGMT 3540: Introduction to Business Law	3
MRKTNG 3000: Principles of Marketing	3
STAT 3500: Introduction to Probability & Statistics	3
FINANC 4010: Financial Management	3
FINANC 4020: Investments	3
FINANC 4030: Financial Intermediaries and Markets	3
ECONOM 3251: Theory of the Firm	
ECONOM 4351: Intermediate Price Theory	3
ACCTCY 4356: Financial Accounting Concepts OR	

MANGMT 4010: Operations Management	3
Additional Finance & Banking courses	6
FINANC 4110: Financial Management Policy	
FINANC 4120: Security Analysis	
FINANC 4130: Management of Financial Institutions	
FINANC 4201: Topics in Finance (with academic adviser consent)	
FINANC 4220: Portfolio Management	
FINANC 4320: Financial Futures and Options	
FINANC 4520: Real Estate Finance	
FINANC 4720: International Finance	
Emphasis Support Courses	6
Courses to be selected from:	
ACCY: any 3000 or 4000 level class	
COMMUN 1200: Introduction to Speech Communication	
CS 1050: Algorithm Design and Programming I (if not used as a "Required Core" class)	
CS 2050: Algorithm Design and Programming II	
ECON: any 4000 level class not used as an Econ elective	
ENGLSH 2030: Professional Writing	
FINANC: any 3000 or 4000 level class	
MANGMT: any 3000 or 4000 level class	
MRKTG: any 3000 or 4000 level class	
Capstone course - senior year (on campus)	3
Minimum grade of C- required.	
MANGMT 4970: Strategic Management	
Total.....	120

Emphasis in International Business

International business is a joint degree program offered by the College of Arts and Science and the 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 a minimum of 132 credits.

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 College of Business.

Social Sciences	6
GEOG 1100: Regions and Nations of the World I OR	
GEOG 1200: Regions and Nations of the World II	3
POL SC 1400: International Relations OR	
POL SC 2700: Comparative Political Systems.....	3
State Requirement	3
Behavioral Sciences.....	6
ANTHRO 2030: Cultural Anthropology	3
Choose one additional course from Anthropology (except 2050, 2051, or 2052), Psychology, or Sociology	3
Humanities.....	12
Civilization course in language studied	3
Literature course in language studied	3
Global Core Humanity from the following.....	3
AR HA 1110: History of Western Art I	
AR HA 1120: History of Western Art II	
ENGLSH 1150: Introduction to World Literatures	
MUSIC 1313: Introduction to World Music	
PHIL 2100: Philosophy: East and West	
PHIL 2410: Philosophies of War and Peace	
REL ST 2110: Major World religions	
WGST 1334: Women, Race, and Class	
GN HON 2117H: The Emerging Canons of the Americas	

Additional Humanity

Biological & Physical Sciences..... 6-7

One course must include a lab

Foreign Language 18-19

All in the same language

Area Support9

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.....28

Required Business Core Courses.....21

ACCTCY 2258: Computer-Based Data Systems OR

CS 1040: Introduction to Problem Solving and Programming OR

CS 1050: Algorithm Design and Programming I.....3

ECONOM 3229: Money and banking OR

ECON 3251: Theory of the Firm

FINANC 3000: Corporate Finance

MANGMT 3000: Fundamentals of management

MANGMT 3540: Introduction to Business Law

MRKTNG 3000: Principles of Marketing

STAT 3500: Introduction to Probability and Statistics II.....3

Business Area.....15

To be selected with Business advisor. Nine hours must be at the 3000 level or higher in the student's business emphasis area. The remaining six hours can be from economics, finance, management, marketing, or political science.

Electives 2-3

Capstone course - senior year (on campus)3

Minimum grade of C- required

MANGMT 4970: Strategic Management

Total.....132

Global Core

International Business students also need to fulfill 18 hours of Global Core requirements. Courses taken to meet Global Core requirements also fulfill degree requirements listed above. See your advisor for questions concerning the Global Core requirement

Required Global Core Courses.....12

The following required Global Core courses fulfill other degree requirements:

GEOG 1100 or GEOG 1200 (3 hrs)

POL SC 1400 or POL SC 2700 (3 hrs)

ANTHRO 2030 (3 hrs)

Global Core Humanity (3 hrs)

Additional Global Core selected from:6

AR HA 1110: History of Western Art I

AR HA 1120: History of Western Art II

BIO SC 1060: Basic Environmental Studies

ENGLSH 1150: Introduction to World Literatures

FS 1020: World Food and You

GEOG 1100 (lab): Principles of Geology with Laboratory

GEOG 1200 (lab): Environmental Geology with Laboratory

MUSIC 1313: Introduction to World Music

PHIL 2100: Philosophy: East and West
 PHIL 2410: Philosophies of War and Peace
 REL ST 2110: Major World Religions
 SOCIOL 1000: Introduction to Sociology
 SOCIOL 2200: Social Inequalities
 WGST 1334: Women, Race, and Class
 GN HON 2117H: The Emerging Canons of the Americas

Additional Global Core classes can be used to fulfill Behavioral Science, Humanity, and Biological/Physical science requirements.

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 Requirements38
Upper Level Admission Courses28
Required Core Courses21

ACCTCY 2258: Computer-Based Data Systems OR
 CS 1040: Introduction to Problem Solving and Programming OR
 CS 1050: Algorithm Design and Programming I3
 ECONOM 3229: Money and Banking OR
 ECON 3251: Theory of the Firm3
 FINANC 3000: Corporation Finance3
 MANGMT 3000: Fundamentals of Management3
 MANGMT 3540: Introduction to Business Law3
 MRKTNG 3000: Principles of Marketing3
 STAT 3500: Introduction to Probability and Statistics II3

Required Management Courses9

MANGMT 4010: Operations Management3
 MANGMT 4020: Human Resource Management3
 MANGMT 4030: Organizational Behavior3

Additional Management Courses9

Choose three courses from the following:

MANGMT 4050: Management of Service Operations
 MANGMT 4060: Project Management Fundamentals
 MANGMT 4110: Total Quality Management
 MANGMT 4120: Human Resource Management Administration Law
 MANGMT 4130: Advanced Organizational Behavior
 MANGMT 4201: Topics in Management
 MANGMT 4210: Management Science
 MANGMT 4220: Compensation Theory and Practice
 MANGMT 4310: Production Systems Analysis
 MANGMT 4320: Selected Problems in Human Resource Management
 MANGMT 4330: Organizational Theory
 MANGMT 4420: Collective Bargaining
 MANGMT 4450: introduction to Electronic Commerce
 MANGMT 4460: Electronic Commerce Security
 MANGMT 4620: Web Development Fundamentals
 MANGMT 4480: Business Data Communications and Networking
 MANGMT 4540: Legal Aspects of Business Organization and Operation
 MANGMT 4560: The Law of commerce Credit Transactions
 MANGMT 4650: Entrepreneurship: Theory and Practice
 MANGMT 4750: Entrepreneurial Innovation Management:

Enterprise Conception
 MANGMT 4760: Entrepreneurial Innovation Management: Enterprise Design
 MANGMT 4770: Entrepreneurial Innovation Management Enterprise Operation

Emphasis Support courses12
Courses approved by the student's management adviser selected from:

ACCY 2258 Computer-Based Data Systems (if not used as a "Required Core" course)
 ACCY courses (3000 or 4000 level)
 ANTHRO 3700 Cultures of Europe
 COMM 1200 Speech Communication
 COMM 3575 Business & Professional Commun.
 COMM 4476 Organizational Communication
 CS 1050 Algorithm Design & Programming I (if not used as a "Required Core" course)
 CS 2050 Algorithm Design & Programming II
 CS 2110 Production Language
 CS 2210 Introduction to Digital Systems
 CS 3310 Systems Analysis I
 CS 4310 Systems Analysis II
 ECON 3251 Theory of the Firm (if not used as a "Required Core" course)
 ECON 4311 Labor Market Employment/Wages
 ENG 2030 Professional Writing
 Finance courses (3000 or 4000 level)
 GEOG 2710 Economic Geography
 HIST 4420 American Urban History
 Management courses (3000 or 4000 level)
 PHIL 2400 Ethics and Professions
 PHIL 2420 Ethical Issues in Business
 PHIL 4500 Theories of Ethics
 POL SCI 2700 Comparative Political Systems
 POL SCI 4420 Politics of International Economic Relations
 POL SCI 4540 American Foreign Policy
 POL SCI 4600 Latin American Governments
 POL SCI 4610 Western European Political Systems
 POL SCI 4720 Third World Politics
 PSYCH 2310 Social Psychology
 PSYCH 3110 Theories of Learning
 PSYCH 3120 Human Learning
 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
 SOC 3320 Sociology of Sex Roles
 SOC 3440 Social Psychology
 SOC 3520 Collective Behavior
 SOC 3700 Organizations & Institutions
 SOC 3710 Occupations & Professions
 SOC 4315 Social Demography
 STAT 4250 Quality Control
 STAT 4310 Sampling Techniques

Capstone Course - senior year (on campus)3

Minimum grade of C- required
 MANGMT 4970: Strategic Management

Total120

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 marketing consulting services.

General Education Requirements38

Upper Level Admission Courses28

Required Core Courses21

ACCTCY 2258: Computer-Based Data Systems OR
CS 1040: Introduction to Problem solving and Programming OR

CS 1050: Algorithm Design and Programming I

ECONOM 3229: Money and Banking OR

ECON 3251: Theory of the Firm3

FINANC 3000: Corporation Finance3

MANGMT 3000: Fundamentals of Management3

MANGMT 3540: Introduction to Business Law3

MRKTNG 3000: Principles of Marketing3

STAT 3500: Introduction to Probability and Statistics II3

Required Marketing Courses6

MRKTNG 4000: Marketing Management3

MRKTNG 4050: Marketing Research3

Additional Marketing Courses12

Choose from the following

MRKTNG 4201: Marketing Topics

MRKTNG 4220: Consumer Behavior

MRKTNG 4250: Retail Marketing

MRKTNG 4350: Distribution Management

MRKTNG 4380: Purchasing

MRKTNG 4420: Sales Management

MRKTNG 4450: Marketing Channels

MRKTNG 4550: Integrated Market Commerce

MRKTNG 4650: E-marketing

MRKTNG 4720: Global Marketing

MRKTNG 4750: Marketing, Society, and Government

MRKTNG 4880: Contemporary Issues in Marketing

MRKTNG 4940: Marketing Practicum

Emphasis Support Courses12

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:

Courses numbered 3000+ in:

Agricultural Economics

Anthropology

Communication

Computer Science

Economics

Journalism

Mathematics

Psychology

Rural Sociology

Sociology

Statistics

Courses numbered 4000+ in:

Accountancy

Finance

Management

Marketing

Courses numbered 3000+ taken to fulfill requirements for an official minor or a dual major.

The following additional courses:

ANTHRO 2030: Cultural Anthropology

COMMUN 1200: Introduction to Speech Communication

CS 1050: Algorithm Design and Programming I

ENGLSH 2030: Professional Writing

E DN 1600: Fundamentals of Environmental Design

FRENCH 3160: Advanced Composition and Conversation

FRENCH 3280: Commercial French

GEOG 2210: Geography of Europe

GEOG 2270: Geography of Asia

GEOG 2710: Economic Geography

GEOG 2720: Urban Geography

GEOG 3140: Mexico, Central America and the Caribbean

GEOG 2340: South America

GEOG 3450: Geography of Africa South of the Sahara

GEOG 3280: Geography of South Asia

GEOG 3290: Geography of Russia and Newly

Independent States

GERMAN 3130: Advanced German Reading

GERMAN 3160: Conversation and Composition 2

GERMAN 3180: Business German

GERMAN 4160: Conversation and Composition 3

HRM 3253: Hotel and Restaurant Human Resources

Management

ITAL 3160: Advanced Italian Composition

JAPNSE 2330: World of Japanese Business

JAPNSE 3160: Intermediate Composition and

Conversation

MANGMT 4540: Legal Aspects of Business

Organization

PHIL 2600: Rational Decisions

PHIL 2700: Mathematical Logic

PHIL 2420: Ethical Issues in Business

PHIL 2420: Formal Logic

PHIL 4700: Aesthetics

POL SC 4420: Politics of International Economic

Relations

POL SC 4360: Politics of Regulatory Policy

POL SC 4600: Latin American Governments

POL SC 4610: Western European Political Systems

POL SC 4720: Third World Politics

POL SC 4620: Politics in India and South Asia

POL SC 4630: Contemporary Chinese Politics

PSYCH 2310: Social Psychology

RUSS 3130: Intermediate Russian Reading

RUSS 3160: Intermediate Conversation and Composition

RUSS 4160: Advanced Conversation

S A ST 3130: Advanced Hindi Reading 1

S A ST 3160: Advanced Hindi Reading 2

SPAN 3150: Advanced Conversation

SPAN 3280: Commercial Spanish

T A M 2300: Retail Finance and Merchandise Control

T A M 4990: Retail Marketing and Merchandising

Capstone course - senior year (on campus)3

Minimum grade of C- required

MANGMT 4970: Strategic Management

Total120

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.

General Education Requirements38

Upper Level Admissions Courses28

Required Core Courses21

ACCTCY 2258: Computer-Based Data Systems OR

1040: Introduction to Problem Solving and Programming

OR

CS 1050: Algorithm Design and Programming I	3	Emphasis support courses	6
ECONOM 3229: Money and Banking OR		College of Business or economics courses numbered 2000	
ECONOM 3251: Theory of the Firm.....	3	or higher and non-business courses selected and approved	
FINANC 3000: Corporate Finance	3	by the department	
MANGMT 3000: Fundamentals of Management	3	Capstone course - senior year (on campus)	3
MANGMT 3540: Introduction to Business Law	3	Minimum grade of C- required	
MRKTNG 3000: Principles of Marketing	3	MANGMT 4970: Strategic Management	
Real Estate		Total	120
STAT 3500: Introduction to Probability and Statistics II.....	3		
Required courses	18	Minor in Business	
FINANC 4010: Financial Management	3	The business minor has the same rigor and content as the	
FINANC 4020: Investments	3	fundamental courses taken by business students. It provides	
FINANC 4030: Financial Intermediaries and Markets	3	flexibility in undergraduate studies and better prepares students	
FINANC 4500: Principles of Real Estate	3	for jobs and for graduate school. The business minor includes	
FINANC 4510: Real Estate Appraisal	3	courses that are highly complementary. For most students, the	
FINANC 4520: Real Estate Finance and Investment	3	requirements for the business minor are far more valuable than	
Additional Real Estate Courses	6	a similar number of courses in one or two areas.	
ACCTCY 4353: Introduction to Taxation			
AG EC 4340: Rural Real Estate Appraisal			
ECONOM 3251: Theory of the Firm OR			
ECONOM 4351: Intermediate Price Theory		ACCTCY 1010: Introduction to Accounting and Business	
FINANC 3300: Personal Risk Management and Insurance		elective OR	
FINANC 4110: Financial Management Policy		ACCTCY 2036 and ACCTCY 2037	3-6
FINANC 4720: International Finance		ECONOM 1014: Microeconomics OR	
FINANC 4120: Security Analysis		ECONOM 1015: Macroeconomics.....	3
FINANC 4220: Portfolio Management		MANGMT 3000: Fundamentals of Management.....	3
FINANC 4320: Financial Futures and Options		FINANC 2000: Survey of Business Finance OR	
FINANC 4130: Management of Financial Institutions		FINANC 3000: Corporate Finance	3
E DN 4660: Housing Concepts and Issues		MRKTNG 3000: Principles of Marketing	3
MANGMT 4560: Law of Commercial Credit Transactions		Total	18
MRKTNG 4420: Sales Management			

Sample Eight-Semester Programs in Business Administration

The following outlines provide a sample four-year schedule for each emphasis.

Bachelor of Science in Business Administration Emphasis in Economics

Check the *Undergraduate Catalog* for course prerequisites.

Fall I	Winter I
MATH 1100	MATH 1300.....
3	3
State requirement	ECONOM 1014.....
3	3
Humanities	ENGLISH 1000
3	3
Science	Humanities
5	3
MANGMT 1010	Elective.....
1	3
Total	Total
15	15
Fall II	Winter II
MATH 1320	ACCTCY 2037.....
3	3
ECONOM 1015	STAT 2500.....
3	3
Humanities	Science
3	4
ACCTCY 2036	ECONOM 3229.....
3	3
Elective	Elective.....
3	2
Total	Total
15	15

Fall III	Winter III
MANGMT 3000	ECONOM 4353.....
3	3
FINANC 3000.....	Additional ECONOM
3	Courses
MRKTNG 3000	3
3	ACCTCY 2258
ECONOM 4351	3
3	or CS 1040/1050
STAT 3500	Emphasis Support.....
3	3
Total	Elective.....
15	3
Fall IV	Total
Additional ECONOM	15
Courses.....	
3	Winter IV
Additional ECONOM	Emphasis Support.....
Courses.....	3
3	Emphasis Support.....
MANGMT 3540	3
3	MANGMT 4970.....
Emphasis Support	3
3	Elective.....
ECONOM 4360	3
3	Total
Total	15

Bachelor of Science in Business Administration Emphasis in Finance and Banking

Check the *Undergraduate Catalog* for course prerequisites.

Fall I	Winter I
MATH 1100 or 1120 3	MATH 1300..... 3
State requirement 3	ECONOM 1014..... 3
Humanities 3	ENGLSH 1000 3
Science 5	Humanities 3
MANGMT 1010 1	Elective..... 3
Total 15	Total 15

Fall II	Winter II
MATH 1320 3	ACCTCY 2037 3
ECONOM 1015 3	STAT 2500..... 3
Humanities 3	Science 4
ACCTCY 2036 3	ECONOM 3229/3251 3
Elective 3	Elective..... 3
Total..... 15	Total 16

Fall III	Winter III
MANGMT 3000 3	FINANC 4010 3
FINANC 3000..... 3	FINANC 4020..... 3
MRKTNG 3000 3	ACCTCY 4356 3
MANGMT 3540 3	Professional elective..... 3
STAT 3500 3	Elective..... 3
Total 15	Total 15

Fall IV	Winter IV
FINANC 4030..... 3	Finance elective..... 3
ECONOM 3251/4351 3	Professional elective..... 3
MANGMT 4010 3	MANGMT 4970..... 3
Finance elective 3	Elective..... 3
ACCTCY/CS	Elective 3
2258/1050..... 3	Total 15
Total 15	

Fall III
MRKTNG 3000 3
GEOG 1100 or 1200 3
Foreign language..... 3
Foreign civilization 3
STAT 3500 3
Total 15

Fall IV
Humanities 3
Foreign language..... 3
Biological science 3
ANTHRO 2030..... 3
Business area..... 3
Total..... 15

Fall V
MANGMT 4970 3
Business area..... 3
Business area..... 3
A&S area support..... 3
Total..... 12

Winter III
FINANC 3000 3
POL SC 1400 or 2700 3
Elective..... 3
ECONOM 3229 or 3251 . 3
MANGMT 3000..... 3
Total 15

Winter IV
ACCTCY/CS
2258/1050..... 3
Business area 3
Business area 3
A&S area support 3
A&S area support 3
Total 15

Bachelor of Science in Business Administration Emphasis in Management

Check the *Undergraduate Catalog* for course prerequisites.

Fall I
MATH 1100 3
State requirement 3
Humanities 3
Science 5
MANGMT 1010 1
Total..... 15

Fall II
MATH 1320 3
ECONOM 1015 3
Humanities 3
ACCTCY 2036 3
Elective 3
Total..... 15

Fall III
MANGMT 3000 3
FINANC 3000..... 3
MRKTNG 3000 3
MANGMT 3540 3
STAT 3500 3
Total 15

Fall IV
MANGMT 4010 3
Additional MANGMT
course 3
Additional MANGMT
course 3
Additional MANGMT
course 3
Emphasis Support 3
Total 15

Winter I
MATH 1300..... 3
ECONOM 1014..... 3
ENGLSH 1000 3
Humanities 3
Elective..... 3
Total 15

Winter II
ACCTCY 2037 3
STAT 2500..... 3
Science 4
ECONOM 3229/3251 3
Elective..... 2
Total 15

Winter III
MANGMT 4020..... 3
MANGMT 4030..... 3
ACCTCY 2258 or..... 3
CS 1040/1050..... 3
Emphasis support 3
Elective..... 3
Total 15

Winter IV
Emphasis Support..... 3
Emphasis Support..... 3
MANGMT 4970..... 3
Elective..... 3
Elective..... 3
Total 15

Bachelor of Science in Business Administration Emphasis in International Business

Check the *Undergraduate Catalog* for course prerequisites.

Fall I	Winter I
MATH 1100 3	MATH 1300..... 3
State requirement 3	ECONOM 1015..... 3
ECONOM 1014 3	ENGLSH 1000 3
Foreign language 1 5	Foreign language 2 3
MANGMT 1010 1	Elective..... 3
Total..... 15	Total 14

Fall II	Winter II
MATH 1320 3	ACCTCY 2037 3
Foreign language..... 3	STAT 2500..... 3
Humanities 3	Physical science..... 4
ACCTCY 2036 3	Foreign language 3
Behavioral science 3	MANGMT 3540..... 3
Total 15	Total 16

Bachelor of Science in Business Administration Emphasis in Marketing

Check the *Undergraduate Catalog* for course prerequisites.

Fall I	Winter I
MATH 1100 3	MATH 1300..... 3
State requirement 3	ECONOM 1014..... 3
Humanities 3	ENGLISH 1000 3
Science 5	Humanities 3
MANGMT 1010 1	Elective..... 3
Total..... 15	Total 15
Fall II	Winter II
MATH 1320 3	ACCTCY 2037 3
ECONOM 1015 3	STAT 2500..... 3
Humanities 3	Science 4
ACCTCY 2036 3	ECONOM 3229/3251 3
Elective 3	Elective..... 2
Total 15	Total 15
Fall III	Winter III
MANGMT 3000 3	MRKTNG 4050..... 3
FINANC 3000..... 3	Additional Marketing 3
MRKTNG 3000 3	ACCTCY 2258 or
MANGMT 3540 3	1040/1050..... 3
STAT 3500 3	Emphasis Support..... 3
Total 15	Elective..... 3
	Total 15
Fall IV	Winter IV
MRKTNG 4050 3	Additional Marketing 3
Additional Marketing 3	Additional Marketing 3
Additional Marketing 3	MANGMT 4970..... 3
Additional Marketing 3	Elective..... 3
Additional Marketing 3	Elective..... 3
Total 15	Total 15

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, ACCTCY 2036 and 2037, STAT 2500, in addition to 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: FINANC 3000.

FINANC 4020—Investments (3).

Security valuation and analysis, formulation of personal and professional investment programs. Prerequisite: FINANC 3000.

FINANC 4020H—Investments (3).

Security valuation and analysis, formulation of personal and professional investment programs. Prerequisite: 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: FINANC 3000 and 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 FINANC 4010; Corequisites: ACCTCY 3300.

Bachelor of Science in Business Administration Emphasis in Real Estate

Check the *Undergraduate Catalog* for course prerequisites.

Fall I	Winter I
MATH 1100 3	MATH 1300..... 3
State Requirement 3	ECONOM 1014..... 3
Humanities 3	ENGLISH 1000 3
Science 5	Humanities 3
MANGMT 1010 1	Elective..... 3
Total..... 15	Total 15
Fall II	Winter II
MATH 1320 3	ACCTCY 2037 3
ECONOM 1015 3	STAT 2500..... 3
Humanities 3	Science 4
ACCTCY 2036 3	ECONOM 3229/3251 3
Elective 3	Elective..... 2
Total 15	Total 15
Fall III	Winter III
MANGMT 3000 3	FINANC 4010..... 3
FINANC 3000..... 3	FINANC 4020..... 3
MRKTNG 3000 3	ACCTCY 4356..... 3
MANGMT 3540 3	Emphasis Support..... 3
STAT 3500 3	Elective..... 3
Total 15	Total 15
Fall IV	Winter IV
FINANC 4030..... 3	FINANC 4510..... 3
FINANC 4500..... 3	FINANC 4520..... 3
Additional Real Estate ... 3	MANGMT 4970..... 3
Emphasis Support 3	Elective..... 3
ACCTCY 2258/CS	Elective..... 3
1040/1050 3	
Total..... 15	Total 15

FINANC 4120—Security Analysis (3).

Classifies and analyzes securities, markets, industries. Formulation of investment policy for institutions, aggressive personal investors. Prerequisites: 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: FINANC 4030 and senior standing.

FINANC 4185—Problems in Finance (cr.arr.).

Independent study, reports on selected topics.

FINANC 4201—Topics in Finance (3).

Selected topics in finance, insurance or real estate. Offered on an experimental basis.

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 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 4020 and senior standing.

FINANC 4500—Principles of Real Estate (3). Principle factors influencing land use, practices in real estate business. Prerequisites: FINANC 3000, 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: 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: FINANC 4500 and senior standing.

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: FINANC 4010, senior standing.

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. Prerequisites: FINANC 3000, College of Business students with a finance concentration or international business students with a finance emphasis, and instructor's consent.

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. Prerequisite: freshmen and sophomores only. Graded on A/F basis only.

MANGMT 3000—Fundamentals 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 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 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 4010—Operations Management (3). Managerial analysis of operating problems, with emphasis on planning and control systems. Prerequisites: MANGMT 3000.

MANGMT 4020—Human Resource Management (3). Manpower policies, procedures of business enterprise. Prerequisites: 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: 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: 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: 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: 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: MANGMT 4020 and senior standing.

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: MANGMT 4030.

MANGMT 4185—Problems in Management (cr.arr.). Undergraduate students may select topics for study and investigation. 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 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: STAT 3500 and ACCTCY 2258 or CECS 1050, junior standing.

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: 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: 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: 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: MANGMT 3000.

MANGMT 4420—Collective Bargaining (3). Content, negotiation, administration of collective labor agreements and settlement of disputes. Prerequisites: MANGMT 3000 and junior standing.

MANGMT 4450—Introduction to 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: ACCTCY 2258.

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: MANGMT 3000 and 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: MANGMT 3000 and ACCTCY 2258.

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: MANGMT 3540. Restricted to COB students.

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: 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: MANGMT 3000 and ACCTCY 2258.

MANGMT 4650—Entrepreneurship: Theory and Practice (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: MANGMT 3000.

MANGMT 4750—Entrepreneurial Innovation Management: Enterprise Conception (3). (same as Industrial Manufacturing Systems Engineering 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 4760). Expand on 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 4770—Entrepreneurial Innovation Management: Enterprise Operations (3). (same as Industrial Manufacturing Systems Management 4770). Perform the day-to-day operations for an enterprise conceived in MANGMT 4750 and designed in MANGMT 4760 by managing all business processes including finance, manufacturing, sales and delivery. Prerequisite: MANGMT 4660 and 4760; junior standing or instructor's consent.

MANGMT 4940—Professional Management Internship (3). Provides experience with management activities in business organizations (or, occasionally, in a governmental or not-forprofit 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: MANGMT 3000, MRKTNG 3000, FINANC

3000 and 100 credit hours earned. Open only to seniors admitted to a profession 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; ECONOM 1014, 1024 or 1051.

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; MRKTNG 3000. Graded on S/U basis only.

MRKTNG 3985—Problems in International Business (1-3). 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; 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. Prerequisites: MRKTNG 3000 and junior standing.

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. Prerequisites: MRKTNG 3000, 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. See Marketing website for course plan form and details. Prerequisite: instructor's consent, MRKTNG 3000, and junior standing.

MRKTNG 4201—Topics in Marketing (1-3). Selected marketing-related topics. Subjects may vary from across semesters. Prerequisites: 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. Prerequisites: MRKTNG 3000 and junior standing.

MRKTNG 4250—Retail Marketing (3). Strategies, policies, tactics, and procedures of marketing in a retailing environment. Prerequisite: MRKTNG 3000 and junior standing.

MRKTNG 4350—Business-to-Business Relationships (3). Strategies, tactics, and challenges involved in developing, organizing, and managing interfirm relationships in business/ industrial markets. Prerequisite: 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. Prerequisites: 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. Prerequisites: 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. Prerequisite: MRKTNG 3000 and junior standing.

MRKTNG 4501—Topics in Marketing Strategies (1-3). Selected topics related to marketing strategy. Subjects may vary across semesters. Prerequisites: 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. Prerequisite: MRKTNG 3000 and junior standing.

MRKTNG 4650—e-Marketing (1-3). Strategic and managerial challenges and issues related to use of the Internet and other electronic channels as marketing tools. Prerequisite: MRKTNG 3000 and junior standing.

MRKTNG 4720—Global Marketing (3). Strategic and managerial issues associated with international trade and international marketing. Prerequisites: MRKTNG 3000 and junior standing.

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. Prerequisite: 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. Prerequisites: MRKTNG 3000 and junior standing.

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; MRKTNG 3000 and junior standing.

**College
of
Education**

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 plan to complete a teacher development program. Emphases are listed in italics below.

- Bachelor of Science in Education (BS Ed) – with majors in
 - Early Childhood
 - Elementary Education with emphasis areas in
 - Elementary Education*
 - Middle School with emphasis in
 - Language Arts, Mathematics, Science, Social Studies*
 - Secondary Education with emphasis areas in
 - Art Education, Biology, Business Marketing Education, Chemistry, Earth Science, General Science, Language Arts, Mathematics Education, Music Education, Physics or Social Studies*
 - Special Education with emphasis in
 - Cross-Categorical Special Education*
- 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

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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 was reviewed in fall 2003 by the National Council for Accreditation of Teacher Education (NCATE).

All programs are fully accredited by the North Central Association of Secondary Schools and Colleges and NCATE. 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.

There are five majors offered with the Bachelor of Science degree:

- Early Childhood (certification for birth - grade 3)
- Elementary Education (certification for grades 1 - 6)
- Middle School (certification for grades 5 - 9)
- Secondary Education (certification for grades 9 - 12) with emphasis areas listed previously. The Art and Music Education Emphasis Areas after certification for grades K - 12.
- Special Education, Art and Music (certification for grades K - 12)

Title II Report

In 2004, the College of Education at the University of Missouri-Columbia (MU) submitted its annual Title II report to the state regarding the performance of the 2002-2003 program completers on the mandatory Praxis Tests. In 2002-2003, 100 percent of MU program completers passed the required Praxis Assessment for their certification area. The state average passing rate was 81-100 percent.

The total enrollment in the College of Education for 2002-2003 was 1060 and for 2003-2004 was 1181. The Missouri Department of Elementary and Secondary Education accredits all teacher certification programs at MU. These programs are sequenced into three phases and require field-based experiences in every semester. A full semester (16-week) student teaching internship is required. Clinical faculty with a 4:1 student/faculty ratio supervises this 640-hour experience. Full year internships are available for students with an emphasis in elementary education.

ADMISSIONS

Even for students meeting selective admission criteria, admission to some Teacher Development programs is dependent on capacity, resulting in the selection of the best-qualified applicants. In addition to factors such as test scores and grade point average, the faculty may exercise professional judgment in the selection of students through personal interviews.

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.

Admission of Freshmen

Undergraduate students may enter the College of Education as first-year students at MU. The Teacher Development Program is the primary department of all entering first-year students.

Preprofessional Information

Many of the Teacher Development Program emphasis areas contain preprofessional course work that must be completed with specific course grades prior to admission to Phase II of the program or the teaching internship (Phase III). Contact the advising services office for the specific course work required for the area of interest.

Exploratory Courses

Students wishing to explore the Teacher Development Program may enroll in TDP 1100 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.

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 progression.

Transfer Admission

The College of Education accepts transfer students consistent with the transfer/articulation policy of the Missouri Coordinating Board for 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.), but only courses from other University of Missouri institutions are calculated into the GPA.

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. Additional course work may be needed to satisfy prerequisites or degree requirements for Phase II and Phase III of the chosen program.

International Admissions

International students enrolled in the BS Ed program must have earned a score of 600 on the TOFEL exam. International students enrolled in the BES program must have a score of 550 on the TOEFL exam.

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 and completion of the CAAP exam.

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.

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.

Other

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 Teacher Development Program major and emphasis.

Professional Education Sample Program

Phase I 9

TDP 1100: Orientation	1
TDP 2000: Inquiry Into Learning I	4
TDP 2020: Inquiry Into Learning II	4

Phase II

Begins only in the fall semester of each year 19

Semester 1	
C & I 4560: Reading in Content Area	2
TDP 4530: Secondary ICP	3
TDP 4534: Secondary Field	1

Semester 2

TDP 4040: Inquiring Into Sch, Comm, and Soc. I	3
TDP 4540: Secondary ICP II	3
TDP 4544: Secondary II Field	1

Semester 3

TDP 4060: Inquiring Into Sch, Comm, & Soc. II	2
TDP 4550: Secondary ICP III	3
TDP 4554: Secondary III Field	1

Phase III

Completion of Phases I & II required for admittance	
TDP 4971: Teaching Internship and Capstone	15

ACADEMIC REGULATIONS

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 session 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 sessions 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 1.000 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.)

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	2.500
30 – 59 credits	2.600
60 credits and above	2.750

Satisfactory/Unsatisfactory Grades

In addition to University policies on S/U grading, the College of Education requires that University general education courses that are also required for teaching certification or for progression into Phase II and that require a 2.000 GPA may not be completed under the S/U grading system. In addition, professional education courses, excluding field experiences and orientation, may not be completed under the S/U grading system.

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
<i>magna cum laude</i>	3.750
<i>summa cum laude</i>	3.900

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.

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.)

STUDENT SERVICES

Advising

The College of Education maintains Advising Services located in 102 Hill Hall. Professional academic advisers staff these services. A student entering the college works with a professional adviser who assists in planning the degree program.

On progression to Phase II, a student is assigned a faculty adviser within the area of certification. It is the student's responsibility to meet with advisers 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 a full-year internship in Elementary Education, students must have all programmatic requirements met prior to the senior year curriculum. All other programs, students must name a programmatic requirement and meet prior to the internship semester.

Career and Program Services

The Career and Program Services office distributes information related to careers in education and library science. Students receive extensive assistance in securing positions as well as development of portfolios, resumes and interview skills. On-campus interviews, job fairs and credential services are offered each year to students and alumni.

SPECIAL SERVICES/PROGRAMS

Licensures

Completion of the BS Ed and any additional requirements for certification (currently completion of a portfolio and passing of the Praxis examination) 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 College of Education. Effective September 1, 2004, those seeking certification(s) in additional area(s) must submit an official passing score for the Praxis II specialty area examination for each area, as well as completing any additional programmatic requirements.

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 area content 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 area specialty test required by the State of Missouri
- An official copy of the student's transcripts with baccalaureate degree posted submitted to the Teacher Development office in 109 Hill Hall

Requirements for Additional Certificates

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 required for additional state certifications, contact Advising Services, 102 Hill Hall.

Major Program Requirements - BS Ed

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 Development course work)
- Computer and information proficiency (demonstrate competency on technology standards in Phase I, II, and III of the Teacher Development course work)
- POL SC 1100 or POL SC 1700 (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 Development 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 K-3)

Teacher Development Program 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 Teacher Development Program courses.

Phase I (Inquiry into Learning)

This phase provides students with an immersion into the discipline and culture of teaching and learning before focusing on a teaching specialty. It includes three courses for a total of 9 credits: TDP 1100, 2000 and 2020. Experiences in this phase incorporate the teacher's roles in facilitating learning at all levels of development, career exploration, general instructional strategies, human development, classroom and behavior management and educational measurement. The emphasis in Phase I is on oral and written communication. All students in the BS Ed degree program complete these courses regardless of major.

Phase II (Inquiry into Schools, Communities and Society)

This phase occurs over a three-semester sequence and focuses increasingly on a chosen teaching emphasis and on interdisciplinary teaching. 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.

Students focus on how problems of schools, family, community and society affect educators. 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 (on a 4.000 scale)
- Composite score of 22 on ACT or 1010 on the Re-centered SAT
- 235 on each subtest of the CBASE
- ENGLSH 1000 with a "C" range grade
- MATH 1100 or 1120 with a "C" range grade
- Satisfactory completion of TDP 1100: 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 TDP Office or the COE Academic Programs Office advisers)
- Possession of characteristics associated with effective performance in a professional role at the level(s) and in the major(s) selected
- Approved degree plan
- Demonstrated competence of Phase I mid-preparation benchmarks (as documented by Inquiry into Learning instructors)
- Successful completion of a written portfolio and oral mid-preparation portfolio presentation
- Additional requirements as approved by the faculty for areas with enrollment limitations

Phase III (Internship)

Phase III occurs during the last semester with student placement in a partner district for the entire semester, for approximately 15 credits.

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 credits
- 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 partner 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 Placement, 101 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. This phase offers support to the graduate during the first two years of teaching and includes follow-up evaluations.

TEACHER DEVELOPMENT PROGRAM

Deborah Carr, Director
College of Education
109 Hill Hall
(573) 882-0560

Teacher Development Program

ASSOCIATE DEAN D. Carr

Learning Teaching and Curriculum

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INSTRUCTOR R. Maiorino
ADJUNCT ASSISTANT PROFESSOR P. W. Jenkins
ASSISTANT PROFESSOR K. Unrath
PROFESSOR EMERITUS B. R. Stewart

Department of Special Education

PROFESSOR J. E. Leigh
ASSOCIATE PROFESSOR T. Lewis, R. McCathren,
M. Pullis, J. Stichter, M. Stormont
ASSISTANT PROFESSOR S. Huntze, E. Lembke
CLINICAL ASSOCIATE M. Cramer

The Teacher Development Program is the primary academic unit for all undergraduate programs leading to the BS Ed (teacher preparation) or Bachelor of Educational Studies (BES) in the College of Education.

The requirements for the Bachelor of Science in Education (Teacher Development Program) 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.)

Mathematics, statistics or computers6
STAT 1200: Introduction to Statistical Reasoning3
MATH 1360: Geometric Concepts for Teachers3
(These courses fulfill the mathematics reasoning proficiency requirement.)

Humanities.....12
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.)

Science (a lab is required in both biological and physical sciences).....4
PHYSICS 23303
Social behavioral3
One course in either Sociology, Rural Sociology or Anthropology3
Subject/concentration (before entering Phase II*)9
NUTR S 1034: Nutrition, Current Concepts and Controversies3
H D FS 2420: Early and Middle Childhood*3
H D FS 2300 or 4300: Multicultural Study of Children and Families or Black Families3

Phase II47–48

Inquiring into Schools, Communities and Society (ISCS)5
TDP 4040: Inquiring into Schools, Communities, and Society I3
TDP 4060: Inquiring into Schools, Communities, and Society II2

Field experience10
TDP 4124: Semester I: Emergent and Developing Literacy in Early Childhood Field Experience2
TDP 4134: Semester II (0–3): Teaching and Learning Math, Sci. & Soc. Studies w/Young Children Field Experience3
TDP 4170: Pre-Kindergarten Student Teaching or HDFS 35205

Inquiry into Curriculum and Pedagogy (ICP).....33

TDP 4090: Early Childhood Seminar I2
TDP 4140: Early Childhood Seminar III (FS only)3
TDP 4160: Motor Development in Young Children2
TDP 4130: Teaching & Learning Mathematics, Science and Social Studies with Young Children8
TDP 4110: Working with Infants and Toddlers3
TDP 4120: Emergent and Developing Literacy in Early Childhood5
TDP 4200: Young Children’s Emergent Language2
TDP 4210: Children’s Literature2
TDP 4240: Art for Children2
TDP 4250: Music for Children2
H D FS 4720: Child and Family Advocacy (WS only).....2

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.)

Mathematics or statistics 6
STAT 1200: Introduction to Statistical Reasoning 3
MATH 1360: Geometric Concepts for Teachers 3
(These courses may also fulfill University general education, including Math Reasoning Proficiency.)

Humanities..... 12
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.)

Science (Lab required in both Biological & Physical Sciences) 6
C&I 1310: Elements of Health Education..... 2

Teacher Development Program

PHYSCS 2330.....	4	TDP 4060: Inquiring into Schools, Communities, and Society II	2
Social behavioral	9	Inquiry into Curriculum and Pedagogy (all students) .	3–6
PSYCH 1000.....	3	TDP 4410: Teaching, Engaging and Assessing Middle-level students (TEAMS)	3
One course in economics.....	3	TDP 4420: Middle School/Adolescent Literacy (not required for English/language arts emphasis or options)	3
One course in geography.....	3	Inquiry into Curriculum and Pedagogy (emphasis)	3–9
Major core requirement		Mathematics	6
Some combination of University general education requirements and concentration area requirements must produce a total of 21 credits in one of the following categories:		TDP 4360: Introduction to Teaching Mathematics in Middle and Secondary Schools	3
• Social and behavior sciences		TDP 4370: Teaching and Modeling Middle School Mathematics	3
• Humanities studies and fine arts		English/language arts	9
• Biological and physical science/mathematics		TDP 4380: Middle School Language Arts I	3
• Mathematics		TDP 4390: Middle School Language Arts II	3
Phase II	39	TDP 4400: Middle School Language Arts III	3
Inquiring into Schools, Communities, and Society	5	Social studies	3
TDP 4040: Inquiring into Schools, Communities, and Society I	3	TDP 4330: Middle School Social Studies	
TDP 4060: Inquiring into Schools, Communities, and Society II	2	Science	3
Inquiry into Curriculum and Pedagogy with Field Experience	34	TDP 4340: Middle School Science	
TDP 4200: Young Children’s Emergent Language	2	Inquiry into Curriculum and Pedagogy (option).....	3–6
TDP 4210: Children’s Literature	2	Mathematics	3
TDP 4220: Emergent Literacy	3	TDP 4360: Introduction to Teaching Mathematics in Middle and Secondary Schools	
TDP 4230: Developmental Literacy	2	English/language arts	6
TDP 4240: Art for Children	2	TDP 4380: Middle School Language Arts I	3
TDP 4250: Music for Children	2	TDP 4390: Middle School Language Arts II	3
TDP 4260: Elementary Social Studies	3	Social studies	3
TDP 4270: Teaching Mathematics in Elementary Schools	4	TDP 4320: Middle School Social Studies	
TDP 4280: Teaching Science in Elementary Schools	3	Science	3
TDP 4290: Interdiscipline Teaching in Elementary Schools	3	TDP 4340: Middle School Science	
C&I 4090: P.E. Activities in the Elementary Schools.....	2	Agriculture	4
C&I 4085*: Problems in Curriculum and Instruction Field Exp.	2	AG ED 4310: Rationale and Structure of Agricultural Education Programs	3
TDP 4264: Elementary Social Studies Field Experience.....	2	AG ED 4311: Integrated Field Experience I (taken concurrently with AG ED 4310)	1
TDP 4274: Teaching Math in the Elem. School Field Exp. .	1	Total professional education requirement	44–47
TDP 4284: Teaching Science in the Elem. School Field Exp.	1		

*Taken each semester of the Junior year.

Major Program Requirements – Middle School (Grades 5 – 9)

Within the Middle School major, students must select one of the following. (Note that emphasis areas appear on transcripts, but options do not.)

- One core area of study (the emphasis field of study) from mathematics, science, social studies or English/language arts and one additional core area identified as an option.
- One core area of study (the emphasis field of study) from mathematics, science, social studies or English/language arts; and one option from agricultural, art K–9, business education, family and consumer sciences, speech and theater, or technology and industry education

Inquiring into Schools, Communities and Society (ISCS)	5
TDP 4040: Inquiring into Schools, Communities, and Society I	3

TDP 4060: Inquiring into Schools, Communities, and Society II	2
Inquiry into Curriculum and Pedagogy (all students) .	3–6
TDP 4410: Teaching, Engaging and Assessing Middle-level students (TEAMS)	3
TDP 4420: Middle School/Adolescent Literacy (not required for English/language arts emphasis or options)	3
Inquiry into Curriculum and Pedagogy (emphasis)	3–9
Mathematics	6
TDP 4360: Introduction to Teaching Mathematics in Middle and Secondary Schools	3
TDP 4370: Teaching and Modeling Middle School Mathematics	3
English/language arts	9
TDP 4380: Middle School Language Arts I	3
TDP 4390: Middle School Language Arts II	3
TDP 4400: Middle School Language Arts III	3
Social studies	3
TDP 4330: Middle School Social Studies	
Science	3
TDP 4340: Middle School Science	
Inquiry into Curriculum and Pedagogy (option).....	3–6
Mathematics	3
TDP 4360: Introduction to Teaching Mathematics in Middle and Secondary Schools	
English/language arts	6
TDP 4380: Middle School Language Arts I	3
TDP 4390: Middle School Language Arts II	3
Social studies	3
TDP 4320: Middle School Social Studies	
Science	3
TDP 4340: Middle School Science	
Agriculture	4
AG ED 4310: Rationale and Structure of Agricultural Education Programs	3
AG ED 4311: Integrated Field Experience I (taken concurrently with AG ED 4310)	1
Total professional education requirement	44–47
Emphasis Area Requirements	
In meeting the major area requirements, 3–9 credits in each area may also be used to meet University general education requirements.	
Emphasis in Mathematics	27
A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)	
MATH 1100 or 1120: College Algebra	3
MATH 1300: Finite Mathematics	3
MATH 1320: Elements of Calculus (special section for middle grade majors)	3
MATH 1360: Geometric Concepts	3
MATH 2320: Discrete Mathematics	3
MATH 2340: Algebraic Structures OR MATH 2120: Elementary Matrix Algebra w/ Applications	3
MATH 2500: Elementary Logic and Set Theory	3
MATH 2140: Geometric Axioms and Structures	3
STAT 4050: Connecting Statistics to Middle and Secondary Schools.....	3

Emphasis in Science 36

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)

CHEM 1310, 1320, 1330	8
PHYSICS 1210 and 1220	8
GEOL 1100 or 1200	4
ATM SC 1050	3
BIO SCI 1500 and BIO SCI 1060 or 3100 or NAT R 1060	8
Science electives	5

Emphasis in Social Studies 36

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GP required for graduation.)

American history	9
World history	9
POL SC 1100: American Government	3
Economics	3
Geography	3
PSYCH 1000: General Psychology	3
Non-Western history or Asian geography	3
Social science elective	3

Emphasis in Language Arts 27

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)

ENGLSH 2010: Intermediate Composition	3
ENGLSH 2100: Introduction to Literature	3
ENGLSH 3310: Survey of American Literature II	3
ENGLSH 4600: Structure of American Literature	3
ENGLSH 4610: History of English Language	3
English electives (at least one course from each category)	12
19th century literature/African American literature/ Folklore (ENGLSH 2400, 3420, 4420, 4120)	3
20th century literature/literature by and about women (ENGLSH 3180, 4180, 4181, 4780)	3
Synthesize literary study (genres, comparative lit., critical theory, major authors) (ENGLSH 4004, 4060, 4110, 4155, 4160)	3
Writing (ENGLSH 1510, 1530, 3010, 4510, 4530)	3

Option (Second Field) Area Requirements

In meeting the minor area requirements, 3–9 credits in each area may be met by courses also used to meet University general education requirements.

Mathematics Option 21

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)

MATH 1100: College Algebra	3
STAT 1200: Introductory Statistical Reasoning	3
MATH 1300: Finite Mathematics	3
MATH 1320: Elements of Calculus (special section for middle grade emphasis)	3
MATH 1360: Geometric Concepts	3
MATH 2340: Algebraic Structures	3
MATH 2140: Geometric Axioms and Structures	3

Science Option 21

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)

CHEM 1310 and 1320: General Chemistry	5
BIO SCI 1500: General Biology	5
GEOL 1100: Principles of Geology	4
PHYSICS 1210: College Physics	4
NAT R 1060 or BIO SCI 1060 or 3100	3

Social Studies Option 21

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)

American history	6
World history	6
Geography	3
POL SC 1100: American Government	3
Economics	3

English/Language Arts Option 21

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)

ENGLSH 2010: Intermediate Composition	3
ENGLSH 2100: Introduction to Literature	3
ENGLSH 3310: Survey of American Literature II	3
English electives (one course from each area).....	12
19th century literature/African American Literature/ Folklore: ENGLSH 2400, 3420, 4420, 4310, 4120, 4150, 4700, 4770	
20th century lit/lit by and about women: ENGLSH 4180, 4260, 4320, 4181, 4780, 4140	
Synthesize literary study (genres, comparative lit, critical theory, major authors): ENGLSH 4004, 4060, 4110, 4155, 4160	
Writing: ENGLSH 1510, 1530, 3010, 4940, 4510, 4560, 4530	

Alternative Option Areas Requirement**Agricultural Education Option..... 21**

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)

AG EC 1041: Applied Microeconomics	3
AN SCI 1065: Animal Science Lab Practicum	3
PL SCI 2110: Plant Growth & Culture	3
AG S M 1120: Agriculture/Industrial Materials and Processes	3
NAT R 1060: Ecology & Conservation of Living Resources	3
NAT R 2160: Contemporary Issues in Natural Resources..	3

(See College of Agriculture, Food and Natural Resources for additional information).

Art K-9 Option 24

ART 1020: Art Appreciation OR AR H A 1110: History of Western Art I OR AR H A 1120: History of Western Art II	3
ART 1030: Basic Design	3
ART 1050: Beginning Drawing.....	3
ART 2100: Beginning Ceramics	3
ART 2300: Beginning Fibers	3
ART 2500: Beginning Painting	3
ART 2800: Beginning Sculpture OR ART 1040:	

Basic 3D Design	3	Inquiring into Schools, Communities, and Society	5
ART 2700: Relief Printmaking OR ART 2710:		TDP 4040: Inquiring into Schools, Communities,	
Intaglio Printmaking	3	and Society I	3
		TDP 4060: Inquiring into Schools, Communities,	
		and Society II	2
Family and Consumer Sciences Education Option.....	22	Emphasis in Art Education	
<i>A content area GPA of at least 2.500 is required for Missouri</i>		Students who wish to teach art usually pursue the BS Ed degree.	
<i>Teacher Certification. (2.750 UM and overall GPA required</i>		BA and BFA candidates may acquire art teaching certification by	
<i>for graduation.)</i>		completing the art education requirements not already completed	
H D FS 2420: Early and Middle Child Development	3	in the BA or BFA programs.	
H D FS 1600: Intro to Family	3		
NS 1034: Nutrition, Current Concepts & Controversies	3		
C & F EC 2183: Personal and Family Finance	3		
C&I 3600: Preschool Field Experience	1		
Electives: select two areas	9	Phase II	14
E DN 1600: Fund of Environmental Design		Field experience	3
H D FS 1610: Close Relationships in Families		TDP 4734: Semester I: Overview of Art	
H D FS 2300: Multicultural		Education Field Experience	1
NS 1340: Nutrition & Fitness		TDP 4744: Semester II: Inquiry into Art Education:	
C&F EC 2185: Consumer in Our Society		Pre-school through Middle School Field Experience	1
T A M 2100: Textiles		TDP 4754: Semester III: Inquiry into Art Education:	
T A M 2500: Social Appearance in Time & Space		Secondary Field Experience	1
		Inquiry into Curriculum and Pedagogy	11
		TDP 4730: Overview of Art Education	3
		TDP 4740: Inquiry into Art Education: Pre-School	
		through Middle School	3
		TDP 4750: Inquiry into Art Education	3
		C&I 4560: Reading in Content Area	2
Speech and Theatre Option.....	21	Subject/Concentration	47-48
<i>A content area GPA of at least 2.500 is required for Missouri</i>		(9 credits may be counted in completing the general education	
<i>Teacher Certification. (2.750 UM and overall GPA required</i>		humanities requirement; 6 of the 12 must be at 2000 or above.	
<i>for graduation.)</i>		One 2000-level course must be designated Writing Intensive.)	
COMMUN 1200: Intro to Speech Comm	3	Art history	12
COMMUN 3572: Argument and Advocacy	3	ART 1020: Art Appreciation	3
THEATR 1400: Acting for Non Majors OR		AR H A 1110: History of Western Art* or AR H A 1120	3
THEATR 3420: Acting I	3	AR H A 2830: American Art and Architecture*	3
THEATR 1800: Script analysis	3	AR H A 3740: 19 th Century European Art* or AR H A 3750	
THEATR 3200: Performance of Literature	3	or AR H A 3760	3
Electives: select from the following courses	6	*or the equivalent approved by the faculty adviser	
THEATR 1200: Voice and Articulation		Studio	36
THEATR 1320: Beg Scenic Construction Lab		ART 1050: Drawing I.....	3
THEATR 1340: Beg Costume Construction Lab		ART 1030: Basic 2-D Design.....	3
THEATR 2300: University Theater Workshop		ART 1350: Artcraft Fundamentals or ART 2300.....	3
COMMUN 3561: Relational Comm		ART 2200: Intermediate Drawing	3
COMMUN 3575: Business and Professional Comm		ART 2510: Beginning Watercolor OR	
COMMUN 3576: Persuasive Speaking		ART 2500: Beginning Painting.....	3
		ART 2800: Beginning Sculpture OR	
		ART 1040: Basic 3-D Design	3
		ART 2100: Ceramics	3
		ART 2700: Relief Printmaking OR	
		ART 2730: Serigraphy OR	
		ART 2720: Lithography	3
		IS< 4361: Intro to Digital Media OR	
		ART 1400: Beginning Photoshop and	
		ART 2400: Advanced Photoshop	2-3
		Electives in studio art/art history	9
		Recommended courses include:	
		2000-level art history (3 credits maximum),	
		ART 2210, ART 2600, ART 3300, ART 3500,	
		ART 3510 or ART 3800	
Technology and Industry Education Option	21	Emphasis Area in Language Arts	
<i>A content area GPA of at least 2.500 is required for Missouri</i>		Phase II	14
<i>Teacher Certification. (2.750 UM and overall GPA required</i>		Field experience	3
<i>for graduation.)</i>		TDP 4484: Semester I: Teaching English/Language	
C&I-V 4550: Utility Software for Microcomputers OR		Arts I Field Experience	1
C&I-V 4710: Business Software Applications	2-3	TDP 4474: Semester II: Teaching English/Language	
ENGINR 1100: Design Graphics	3		
AG S M 1120: Agricultural/Industrial Materials and			
Processes	3		
Electives: select from the following courses.....	12-13		
AG S M 2320: Internal Combustion Power			
AG S M 1040: Physical Principles for Agricultural			
Applications			
AG S M 2360: Mobile Hydraulics			
AG S M 4140: Electricity Wiring and Equipment			
IS & LT 4310: Applications in Technology			
Major Program Requirements - Secondary			
Education			
(Grades 9 – 12)			
During Phase II, all Secondary Education majors complete the			
requirements listed below.			

Arts II Field Experience	1
TDP 4494: Semester III: Language Arts III Field Experience	1
Inquiry into Curriculum and Pedagogy	11
TDP 4480: Teaching English/Language Arts I	3
TDP 4470: Language Arts II	3
TDP 4490: Language Arts III	3
C&I 4560: Reading in Content Area	2

Subject/concentration	45
ENGLSH 2100: Introduction to Literature.....	3
ENGLSH 2010: Intermediate Composition	3
ENGLSH 3210: Survey of British Literature, Romanticism to Present	3
ENGLSH 3300: Survey of American Literature, 1607–1890.....	3
ENGLSH 3310: Survey of American Literature, 1890–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 English Language	3
ENGLSH 4650: Teaching English as a Second Language	3

Electives: select one course from each of the five areas (at least 6 3000-level credits) 15

British Literature (ENGLSH 4210, 4220, 4240, 4250, 4260)	3
African American/Ethnic Literature (ENGLSH 3420, 4420, 4210)	3
Literature by and about women (ENGLSH 4180, 4181, 4780)	3
Literary Synthesis (ENGLSH 4004, 4060, 4110, 4155, 4160)	3
Writing (ENGLSH 1510, 1530, 2030, 3010, 4510, 4530)	3

Emphasis in Mathematics

In addition to University general education requirements and the Phase I and Phase II requirements, students must also complete the following requirements.

Physical and biological science..... 9
Physical science must be PHYSCS 1210 or 2750

Phase II 14

Field experience	3
TDP 4574: Intro. Teaching Mathematics in Middle & Secondary School Field Experience	1
TDP 4584: Teaching Mathematics in Secondary Schools: Focus on Algebra Field Experience	1
TDP 4594: Teach. Math in Sec. Schools: Focus on Geometry/Probability/Stat. Field Experience. 1	

Inquiry into Curriculum and Pedagogy 11*

TDP 4570: Introduction to Teaching Mathematics in Middle and Secondary Schools	3
TDP 4580: Teaching Mathematics in the Secondary Schools: Focus on Algebra	3
TDP 4590: Teaching Mathematics in the Secondary Schools: Focus on Geometry/Stat	3
C&I 4560: Reading in Content Area	2

*Mathematics and mathematics pedagogy courses must be taken on a graded basis.

Subject/concentration 40

MATH 1500: Analytic Geometry and Calculus (fulfills math and Math Reasoning Proficiency requirement	
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as part of University general education requirements)	5
MATH 1700: Calculus II	5
MATH 2300: Calculus III	3
MATH 2320: Discrete Mathematical Structures	3
MATH 2140: Geometric Axioms and Structures	3
MATH 4140: Matrix Theory	3
MATH 4510: Higher Algebra.....	3
MATH 4350: Non-Euclidean Geometry	3
STAT 2550: Connecting Statistics to Middle and Secondary Schools.....	3

CS 1001 or 1040: Introduction to Problem Solving and Programming..... 3

Two elective courses at 3000-level or above..... 6

Recommended electives include:

MATH 4100: Differential Equations	
MATH 4300: Numerical Analysis	
MATH 4310: Numerical Linear Algebra	
MATH 4500: Applied Analysis	
MATH 4700: Advanced Calculus	
MATH 4580: Mathematical Modeling	
MATH 4560: Fractals and Chaos	
MATH 4330: Theory of Numbers	
MATH 4720: Introduction to Abstract Algebra	
MATH 4150: History of Mathematics	
MATH 4335: College Geometry	
MATH 4340: Projective Geometry	
MATH 4345: Foundations of Geometry	
MATH 4400: Introduction to Topology	
STAT 4750: Probability Theory	

Note: The mathematics and education faculty recommend that secondary mathematics majors take an elementary and/or middle grade mathematics methods course (TDP 4274 or TDP 4374) as an elective.

Emphasis in Music Education

Humanities/fine arts (may also fulfill University general education requirements) 6

MUSIC 1322: Music in the US	2
MUSIC 2307: History of Western Music I	2
MUSIC 2308: History of Western Music II	2

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 13

Field experience 3

TDP 4674: Semester I: Teaching Music I Field Experience	1
TDP 4684: Semester II: Teaching Music II Field Experience	1
TDP 4694: Semester III: Teaching Music III Field Experience	1

Inquiry into Curriculum and Pedagogy 10

TDP 4670: Teaching Music I	3
TDP 4680: Teaching Music II	2
TDP 4690: Teaching Music III	3
C&I 4560: Reading in Content Area	2

Subject/concentration

Instrumental	57
Vocal	55

A content area GPA of at least 2.500 is required for Missouri Teacher Certification. (2.750 UM and overall GPA required for graduation.)

Music theory	18
MUSIC 1220: Syntax Structure & Style I	2
MUSIC 1221: Syntax Structure & Style II	2
MUSIC 2220: Syntax Structure & Style III	2
MUSIC 2221: Syntax Structure & Style IV	2
MUSIC 3220: Syntax Structure & Style V	2
MUSIC 1230: Aural Training & Sight Singing I	2
MUSIC 1231: Aural Training & Sight Singing II	2
MUSIC 2230: Aural Training & Sight Singing III	2
MUSIC 2231: Aural Training & Sight Singing IV	2
Conducting and techniques.....	16-17
MUSIC 2631: Basic Conducting	2
<i>Instrumental tracks only</i>	
MUSIC 2634: Reh. Clinic Band Conducting.....	1
MUSIC 2634: Reh. Clinic Band Conducting.....	1
Instrumental Techniques: six courses, not including the course in the major instrument	
MUSIC 2648: Percussion	1
MUSIC 2640: Strings 1-Violin & Viola	1
MUSIC 2641: Strings 2-Cello & Bass	1
MUSIC 2637: Woodwinds 1-Single Reeds	1
MUSIC 2638: Woodwinds 2-Flute & Double Reeds	1
MUSIC 2645: Brass 1-High Brass	1
MUSIC 2646: Brass 2-Low Brass	1
MUSIC 4229 or MUSIC 4227: Band	2
Arranging or Orchestration	
MUSIC 3642: Seminar in String Techniques or equivalent (stringed instrument majors) OR MUSIC 3646: Marching Band Techniques (band instrument majors)	2
Vocal music: Choose from voice class, lessons, choir... 2	
<i>Vocal tracks only</i>	
MUSIC 2633: Reh. Clinic Choral	2
MUSIC 2633: Reh. Clinic Choral (must be repeated)	2
MUSIC 1612: Guitar Class	1
MUSIC 3670: Diction in Singing: Italian	1
MUSIC 3671: Diction in Singing: German	1
MUSIC 3672: Diction in Singing: French	1
MUSIC 4320: Choral Arranging	2
Instrumental Techniques (one course required from each of the following areas)	
MUSIC 2648: Percussion	1
MUSIC 2640 or 2641: Strings I or II	1
MUSIC 2637 or 2638 or 2645 or 2646: Woodwinds I or II, or Brass I or II	1
Instrumental and vocal tracks: all of the above (plan on an extra year)	
<i>Piano pedagogy or strings: see adviser</i>	
Studio instruction, piano, recital	15
<i>Studio Instruction:</i>	
Four semesters of MUSIC 2455 on major instrument	4
MUSIC 3455 (four semesters on major instrument).....	4
<i>Piano Proficiency: must enroll in piano class until proficiency completed</i>	
MUSIC 1610: Piano	1
MUSIC 1611: Piano	1
MUSIC 2610: Piano	1
MUSIC 2611: Piano (remedial, taken only if proficiency is not demonstrated with Music 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 MUSIC 1091 for a minimum of six semesters.

A student *may* choose an additional track in either instrumental and vocal music. See the Advising Services office in 102 Hill Hall for information.

Emphasis in General Science

This emphasis combines biology, chemistry, earth science and physics into one certificate with core classes common to all areas. The certificate allows a teacher to teach any of the beginning sciences. The track in the specific science is required for teaching advanced courses in that area. (Tracks are not listed on transcripts.)

Students may select tracks in biology, chemistry, earth science or physics. In addition to the University general education and the secondary professional requirements, students who intend to teach science must complete a core of courses in the sciences and related fields.

Phase II

Field experience

TDP 4634: Teaching Science in the Secondary School: Phil., Hist., Sci. Inq., Curr., Assm., & Tech. 1	1
Field Experience	1
TDP 4644: Teaching Science in the Secondary School: Phil., Hist., Sc. Inq., Curr., Assm., & Tech. 2	1
Field Experience	1
TDP 4654: Teaching Science in the Secondary School: Phil., Hist., Sc. Inq., Curr., Assm., & Tech. 3	1
Field Experience	1
Inquiry into Curriculum and Pedagogy	11
TDP 4630: Teaching Science in the Secondary School: Philosophy, History, Science Inquiry, Curriculum, Assessment, and Technology I	3
TDP 4640: Teaching Science in the Secondary School: Philosophy, History, Science, Inquiry, Curriculum, Assessment, and Technology II	3
TDP 4650: Teaching Science in the Secondary School: Philosophy, History, Science, Inquiry, Curriculum, Assessment, and Technology III	3
C&I 4560: Reading in Content Area	2

Required course work in each track

General Science — Biology

BIO SCI 1500: General Biology	5
BIO SCI 2200: General Genetics	4
BIO SCI 2300: Cell Biology	3
BIO SCI 3750: Microbiology or MICROB 3200: Intro to Medical Microbiology	4
BIO SCI 4600: Evolution	3
BIO SCI 1200, 3210, 4320, 4660 OR PL PTH 4500:	3-5
BIO SCI 3650: Ecology	5
MPP 3202 or BIO SCI 3700: Elements of Physiology	5
CHEM 1310, 1320, 1330: General Chemistry and Lab I, II & III	8
CHEM 2050: Organic Chemistry	5
GEOL 1100 Principles of geology w/Lab OR GEOL 1200 Environmental Geology w/Lab.....	4
ATM SC 1050: Meteorology	3
PHYSICS 1210 and 1220: University Physics I, II.....	8
ASTRON 1010: Astronomy	4
MATH 1500 or 1400: Analytic Geometry and Calculus I or Calculus for Social and Natural Sciences I	3-5

General Science — Chemistry75-77

CHEM 1310, 1320, 1330: General Chemistry I, II, III	8
CHEM 2100, 2120: Organic Chemistry I, II.....	8
CHEM 3200: Quantitative Analysis	4
CHEM 3300: Physical Chemistry	3
CHEM 4280: Environmental Chemistry, OR	
CHEM 4600: Introduction to Radiochemistry w/Lab OR	
BIO SCI 4100: Limnology	3
BIOCHM 3630: General Biochemistry.....	3
BIO SCI 1200, 3210 OR 4320: Botany	3-5
BIO SCI 1010 & 1020 OR 1500: Introduction to	
Biological Systems	5
BIO SCI 2200: General Genetics	4
BIO SCI 3650: Ecology	5
ATM SC 1050: Meteorology	3
GEOL 1100 OR 1200: Principles/Environmental Geology..	4
PHYSICS 1210 & 1220: University Physics I, II	8
ASTRON 1010: Astronomy	4
MATH 1500 & 1700: Analytic Geometry and Calculus I	
& Calculus II	10

General Science — Earth Science72-76

GEOL 1100: Principles of Geology	4
GEOL 1200: Environmental Geology	4
GEOL 2200: Oceanography	3
GEOL 2350: Historical Geology	3
GEOL 3200: Rocks & Minerals	3
GEOL 3110 and 3115: Geology of Missouri (with lab)	4
ATM SC 1050: Meteorology	3
BIO SCI 1010 and 1020 OR 1500: Introduction to	
Biological Systems	5
BIO SCI 2200: General Genetics	4
BIO SCI 4600: Evolution	3
BIO SCI 3650: Ecology	5
BIO SCI 1200, 3210 OR 4320: Botany	3-5
CHEM 1310, 1320, 1330: General Chemistry I, II, III.....	8
CHEM 2050: Organic Chemistry	5
PHYSICS 1210 and 1220: University Physics I, II.....	8
ASTRON 1010: Astronomy	4
MATH 1500 OR 1400: Analytic Geometry and Calculus I	
or Calculus for Social and Natural Sciences I	3-5

General Science — Physics65-68

PHYSICS 2750: University Physics I	5
PHYSICS 2760: University Physics II	5
PHYSICS 3150: Intro. Modern Physics	3
PHYSICS 2800: Undergrd. Smr. in Physics	1-3
PHYSICS 4080: Major Themes in Classical Mechanics	3
PHYSICS 4110: Light and Modern Optics	4
PHYSICS 4500*: Computational Biological Physics	3
PHYSICS 3010*: Intro. Modern Astrophysics	3
PHYSICS 4310*: Phys. in Cell and Developmental	
Biology	3
PHYSICS 4190*: Physics and Chemistry of Materials	3
CHEM 1310: General Chemistry I	2
CHEM 1320: General Chemistry II	3
BIO SCI 1010: GEN PRNCPL & CONCEPT.....	3
BIO SCI 1020: General Biology Lab.....	2
An Earth Science	3-4
MATH 1500: ANALYTIC GEOM & CALCULS I	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III	3
MATH 4100: Differential Equations.....	3
NU ENG 4303: Radiation Safety	3

*Select 3 of these 4 elective courses.

A student may choose a track in one specific science (single subject) and therefore would choose one specific science (biology, chemistry, physics or earth science) and complete a single subject program. See the Advising Services office in 102 Hill Hall for information about this emphasis.

Emphasis in Social Studies**Phase II 14****Field experience 3**

TDP 4534: Secondary Social Studies I Field Experience ...	1
TDP 4544: Secondary Social Studies II Field Experience..	1
TDP 4554: Secondary Social Studies III Field Experience ..	1

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TDP 4530: ICP Secondary Social Studies I	3
TDP 4540: ICP Secondary Social Studies II	3
TDP 4550: ICP Secondary Social Studies III	3
C&I 4560: Reading in Content Area	2

Subject/Concentration 54**American History (3 credits counted in general****education)..... 12**

HIST 1100: American History to 1865 and	3
HIST 1200: American History since 1865	3
American history electives	6

World History (3 credits counted in general education)..... 12

HIST 1500: Foundations of Western Civilization OR	
HIST 1510: History of Modern Europe	3
One course in non-Western civilization (India, China,	
Japan, Africa [excluding South African History])	3
World history electives	6

Political Science..... 6

POL SC 1100: American Government (counted in	
general education)	3
POL SC 1400 or 2700	3

Economics (3 credits counted in general education)..... 6

ECONOM 1014 or 1024: Principles/Fund. of	
Microeconomics	3
ECONOM 1015: Principles of Macroeconomics	3

Geography 9

GEOG 1100: Regions & Nations of Geography I	3
GEOG 1200: Regions & Nations of Geography II	3
One advanced geography course (numbered 2000 or	
higher)	3

Behavioral sciences 6

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
SPC ED 4325: Language Development of	
Exceptional Students	3

Phase II 15**Inquiring into Schools, Communities, and Society 5**

TDP 4040: Inquiring into Schools, Communities, and	
Society I	3
TDP 4060: Inquiring into Schools, Communities, and	
Society II	2

Field experience 10

SPC ED 4940: Cross-categorical Field Experience	3
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TDP 4224: Emergent Literacy Field Experience I.....	2
SPC ED 4941: Cross-categorical Field Experience II Field Experience II	1
TDP 4424: Adolescent Literacy Field Experience III	1
SPC ED 4940: Field Experience	(as required)
Inquiry into Curriculum and Pedagogy	34
SPC ED 4375: Introduction to Cross-Categorical	3
SPC ED 4380: Methods of Teaching Cross-Categorical	4
TDP 4220: Emergent Literacy.....	3
SPC ED 4320: Assessment and Evaluation in Special Education	3
SPC ED 4310: Behavior Management for Exceptional Students	3
SPC ED 4330: Family, Community and Profess. Consultation in Sp.Ed.	3
SPC ED 4390: Methods in Vocational Education of the Disabled/Disadv.	3
SPC ED 4370: Assessment & Instruction of Literacy in Special Ed.	3
TDP 4420: Adolescent Literacy	3
TDP 4270: Teaching of Mathematics in Elementary School	4
C&I 4810: Diagnosis & Remediation of Learning Problems in Math	2
Phase III	15
TDP 4971: Teaching internship w/Capstone Seminar.....	15
Electives	8

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 adviser in the department.

In addition to University requirements, such as University general education and graduation requirements, students must complete the following degree requirements.

- Oral communication proficiency: COMMUN 1200 or equivalent course with a GPA of 2.000 or better
- Computer and information proficiency
- POL SC 1100 or POL SC 1700 (course may also be used as part of the behavioral and social science portion of University general education requirements)
- HIST 1100, 1100H, 1200 or 1200H (course may also be used as part of the behavioral and social science portion of University general education requirements)
- World/international and multicultural 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 from a list of 50 in the advising office.
- 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)
- 22 on ACT or 1010 on the Re-centered SAT
- ENGLSH 1000 with a GPA of 2.000 or better
- MATH 1100/1120 with a GPA of 2.000 or better
- Completion of at least 45 credits
- A score of 235 or higher on each section of the CBASE
- 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 School 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.

Sample Eight-Semester Programs College of Education

Bachelor of Science in Education with a major in Secondary Education and an emphasis in Art Education

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I

MATH 1120	3
BIO SC 1010.....	3
BIO SC 1020.....	2
ART 1020.....	3
TDP 1100	1
HIST 1100.....	3
Total.....	15

Winter I

ENGLSH 1000	3
GEOL 1100	4
ART 1030	3
POL SC 1100.....	3
AR H A 1110	3
Total	16

Fall II

ART 1350.....	3
AR H A 2830.....	3
STAT 1200	3
Elective	3
TDP 2000	4
Total.....	16

Winter II

AR H A 3740	3
PSYCH 1000	3
ART 1050	3
ART 2100	3
TDP 2020	4
Total	16

Fall III	
ART 2200.....	3
ART 1400.....	1
ART 2400.....	1
ART 3300.....	3
C&I 4560.....	2
TDP 4730.....	3
TDP 4754.....	1
Total.....	14

Fall IV	
ART 3800.....	3
ART 2720.....	3
TDP 4060.....	2
TDP 4750.....	3
TDP 4754.....	3
Total.....	14

Winter III	
ART 2510.....	3
ART 2600.....	3
ART 2800.....	3
TDP 4040.....	3
TDP 4740.....	3
TDP 4744.....	1
Total.....	16

Winter IV	
TDP 4971.....	15
Total.....	15

Bachelor of Science in Education with a major in Early Childhood Education

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I	
MATH 1120.....	3
BIO SC 1010.....	3
BIO SC 1020.....	2
ART 1020.....	3
TDP 1100.....	1
HIST 1100.....	3
Total.....	15

Fall II	
STAT 1200.....	3
CL HUM 1060.....	3
ENGLISH 2100.....	3
MATH 1360.....	3
TDP 2000.....	4
Total.....	16

Fall III	
TDP 4090.....	2
TDP 4110.....	3
TDP 4120.....	5
TDP 4124.....	2
TDP 4200.....	2
TDP 4210.....	2
Total.....	16

Fall IV	
TDP 4060.....	2
TDP 4240.....	2
TDP 4250.....	2
TDP 4160.....	2
TDP 4170 / HDFS 3520..	5
Total.....	13

Winter I	
ENGLISH 1000.....	3
PHYSICS 2330.....	4
PHIL 1000.....	3
POL SC 1100.....	3
PSYCH 1000.....	3
Total.....	16

Winter II	
HDFS 2420.....	3
NUTR S 1034.....	3
SOCIOLOG 1000.....	3
HDFS 2300.....	3
TDP 2020.....	4
Total.....	16

Winter III	
HDFS 4720.....	2
TDP 4040.....	3
TDP 4130.....	8
TDP 4134.....	3
Total.....	16

Winter IV	
TDP 4971.....	15
Total.....	15

Bachelor of Science in Education with a major in Elementary Education

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I	
MATH 1110.....	3
ENGLISH 1000.....	3
TDP 1100.....	1
BIO SC 1010.....	3
AR H A 2830.....	3
Total.....	13

Fall II	
MATH 1360.....	3
TDP 2000.....	4
PHYSICS 2330.....	4
ENGLISH 2300.....	3
Total.....	14

Fall III	
TDP 4260.....	3
C&I 4090.....	2
C&I 4085.....	3*
TDP 4240.....	2
TDP 4264.....	2
TDP 4250.....	2
Total.....	14

*Includes a one credit hour field experience

Fall IV	
Literacy Coursework.....	7
TDP 4971.....	4
TDP 4060.....	1
Total.....	12

Winter I	
HIST 1100.....	3
BIO SC 1020.....	2
POL SC 1000.....	3
PSYCH 1000.....	3
STAT 1200.....	2
MUSIC 1618.....	3
Total.....	16

Winter II	
TDP 2020.....	4
C&I 1310.....	2
ECON 1014.....	3
GEOG 1100.....	3
ART 1400.....	1
Total.....	13

Winter III	
C&I 4085.....	4*
TDP 4040.....	3
TDP 4280.....	3
TDP 4270.....	4
TDP 4274.....	1
TDP 4284.....	1
Total.....	16

*Includes a one credit hour field experience

Winter IV	
TDP 4971.....	11
TDP 4060.....	1
Total.....	12

Bachelor of Science in Education with a major in Secondary Education with an emphasis in Language Arts

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I	
ENGLISH 1000.....	3
BIO SC 1010.....	3
BIO SC 1020.....	2
MATH 1120.....	3
PSYCH 1000.....	3
TDP 1100.....	1
Total.....	15

Winter I	
ENGLISH 2100.....	3
CHEM 1310.....	3
ENGLISH 2010.....	3
POL SC 1100.....	3
REL ST 2110.....	3
Total.....	15

Fall II	
CL HUM 1060	3
ENGLISH 3210.....	3
ENGLISH 3420.....	3
HIST 1100.....	3
TDP 2000.....	4
Total.....	16

Fall III	
C&I-V 4560	2
TDP 4480.....	3
TDP 4484.....	1
ENGLISH 3310.....	3
ENGLISH 4004.....	3
ENGLISH 4600.....	3
Total.....	15

Fall IV	
TDP 4650.....	3
TDP 4060.....	2
TDP 4490.....	3
TDP 4494.....	1
ENGLISH 4180.....	3
ENGLISH 1510.....	3
Total.....	15

Bachelor of Science in Education with a major in Secondary Education and an emphasis in Math Education

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several **summer courses to complete the program in four years.**

Fall I	
ENGLISH 1000.....	3
BIO SC 1010.....	3
POL SC 1020.....	3
MATH 1500.....	5
TDP 1100.....	1
Total.....	15

Fall II	
CL HUM 1060	3
MATH 2300	3
PSYCH 1000.....	3
MATH 2320	3
TDP 2000	4
Total.....	16

Fall III	
C&I-V 4560	2
TDP 4570.....	3
TDP 4574.....	1
MATH 4140	3
Elective	3
C&I-V 1310	2
Total	14

Winter II	
ENGLISH 3300.....	3
STAT 1200.....	3
THEATR 1340.....	3
TDP 2020.....	4
ENGLISH 4320.....	3
Total	16

Winter III	
ENGLISH 4150.....	3
TDP 4040	3
TDP 4470	3
TDP 4474	1
ENGLISH 4240.....	3
ENGLISH 4610.....	3
Total	16

Winter IV	
TDP 4971	15
Total	15

Winter I	
ENGLISH 2100.....	3
PHYSICS 1210	4
MATH 1700.....	5
HIST 1100	3
Total	15

Winter II	
MATH 2140.....	3
STAT 2550.....	3
THEATR 1340.....	3
C S 1040.....	3
TDP 2020	4
Total	16

Winter III	
STAT 4750.....	3
TDP 4040	3
TDP 4580	3
TDP 4584	1
MATH 4100.....	3
Elective.....	3
Total	16

Fall IV	
TDP 4060.....	2
TDP 4590.....	3
TDP 4594.....	1
MATH 4350.....	3
MATH 4510.....	3
Elective	3
Total.....	15

Bachelor of Science in Education with a major in Middle School English

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I	
ENGLISH 1000.....	3
BIO SC 1010.....	3
BIO SC 1020.....	2
MATH 1010	3
PSYCH 1000.....	3
TDP 1100	1
Total.....	15

Fall II	
CL HUM 1060	3
ENGLISH 2010.....	3
Minor cont.....	3
HIST 1100.....	3
TDP 2000	4
Total.....	16

Fall III	
ENGLISH 4600.....	3
ENGLISH 2400.....	3
Minor cont.....	3
ENGLISH 1510.....	3
TDP 4380.....	3
TDP 4384.....	1
Total.....	16

Fall IV	
TDP 4060.....	2
TDP 4400	3
TDP 4404	1
TDP 4410	3
Minor meth.....	3
Minor field	1
ENGLISH 4404.....	3
Total.....	16

Winter IV	
TDP 4971	15
Total	15

Winter I	
ENGLISH 2100.....	3
GEOL 1100	4
C&I-V 1310.....	2
POL SC 1100.....	3
MUSIC 1311	3
Total	15

Winter II	
PHIL 1000	3
STAT 1200.....	3
ENGLISH 3310.....	3
Minor cont.....	3
TDP 2020	4
Total	16

Winter III	
ENGLISH 4610.....	3
TDP 4040	3
TDP 4390	3
TDP 4394	1
ENGLISH 3180.....	3
Minor meth.....	3
Minor field.....	1
Total	17

Winter IV	
TDP 4971	15
Total	15

Bachelor of Science in Education with a major in Secondary Education and an emphasis in Music Education (Instrumental Track)

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I	Winter I
MUSIC 1841 2	MUSIC 1841 2
MUSIC 2455 2	MUSIC 2455 2
PIANO 1610 1	PIANO 1611 1
MUSIC 1220 2	MUSIC 1221 2
MUSIC 1230 2	MUSIC 1231 2
TDP 1000 1	MUSIC 1091 0
ENGLISH 1000 3	MUSIC 2648 1
POL SC 1100 3	MATH 1010 3
MUSIC 1091 0	MUSIC 1322 3
Total..... 17	Total 16

Summer I
BIO SC 1110 and 1020 ..5
Total..... 5

Fall II
MUSIC 4229 2
MUSIC 2640 1
MUSIC 2455 2
PIANO 2610 1
MUSIC 2220 2
MUSIC 2230 2
HIST 1100 3
MUSIC 2307 2
TDP 2000 4
MUSIC 1091 0
MUSIC 1841 1
Total..... 20

Summer II
PSYCH 1000 3
Total 3

Fall III
MUSIC 2637 1
MUSIC 1091 0
MUSIC 1841 1
TDP 4670 & 4674 4
C&I-V 4560 2
MUSIC 3455 2
MUSIC 3220 1
MUSIC 2634 1
MUSIC 2645 1
GEOL 1100 4
Total..... 17

Fall IV
TDP 4060 2
TDP 4690 & 4694 4
MUSIC 1841 1
MUSIC 3455 2
MUSIC 2640 1
MUSIC 2308 2
Humanities Elective 3
Total..... 15

Winter II
MUSIC 3642 2
MUSIC 2641 1
MUSIC 1841 1
MUSIC 2455 2
TDP 2020 4
MUSIC 2221 2
PIANO 2611 1
MUSIC 2231 2
MUSIC 2631 2
MUSIC 1091 0
Total 17

Winter III
Vocal elective 2
MUSIC 2638 1
MUSIC 1841 1
TDP 4680 & 4684 3
TDP 4040 3
MUSIC 3455 2
MUSIC 2634 1
MUSIC 1091 0
MUSIC 2646 1
MUSIC 3642 OR 3646.... 2
Total 16

Winter IV
TDP 4971 15
MUSIC 3455 2
Total 17

Bachelor of Science in Education with a major in Secondary Education and an emphasis in Science Education (Biology Track)

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I	Winter I
ENGLISH 1000 3	ENGLISH 2100 3
BIO SCI 1500 5	BIO SCI 2200 4
MATH 1010 3	CHEM 1320 3
CHEM 1310 3	POL SC 1100 3
TDP 1000 1	CL HUM 1060 3
Total..... 15	Total 16

Fall II
BIO SCI 4600 3
CHEM 1330 3
MATH 1500 3
HIST 1100 3
TDP 2000 4
Total..... 16

Fall III
BIO SCI 2300 3
PSYCH 1000 3
C&IV 4560 2
TDP 4630 3
TDP 4634 2
Humanities Elective 3
Total..... 16

Fall IV
BIO SCI 3700 5
CHEM 2050 5
TDP 4060 2
TDP 4650 3
TDP 4654 1
Total..... 16

Winter II
BIO SCI 3750 3
PHYSICS 1210 4
GEOL 1100 4
TDP 2020 4
Total 15

Winter III
BIO SCI 3210 4
BIO SCI 3650 5
TDP 4040 3
TDP 4640 3
TDP 4644 1
Total 16

Winter IV
TDP 4971 15
Total 15

Bachelor of Science in Education with a major in Middle School Education with an emphasis in Social Studies Education

This program lists several semesters that include a higher number of credit credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I

ENGLSH 1000.....	3
BIO SCI 1010	3
BIO SCI 1020	2
MATH 1010	3
PSYCH 1000.....	3
TDP 1100	1
Total.....	15

Fall II

CL HUM 1060	3
ECONOM 1024	3
C&I-V1310	2
HIST 1200.....	3
ED 2000	4
GEOG 1100.....	3
Total.....	18

Fall III

HIST 2440.....	3
POL SC 1400	3
HIST 1800.....	3
C&I-V 4560	2
TDP 4530	3
TDP 4534	1
Total.....	15

Fall IV

HIST 1410.....	3
GEOG 2610	3
ANTHRO 1060.....	3
TDP 4060	2
TDP 4550	2
TDP 4554	1
Total	14

Winter I

ENGLSH 2100	3
PHYSICS 1210	4
HIST 1100	3
POL SC 1100.....	3
MUSIC 1311	3
Total	16

Winter II

HIST 1100	3
ECONOM 1015.....	3
HIST 2530	3
SOCIOL 1000.....	3
TDP 2020	4
Total	16

Winter III

GEOG 1200.....	3
TDP 4040	3
TDP 4540	4
TDP 4544	1
HIST 2530	3
Total	14

Winter IV

TDP 4971	15
Total	15

Bachelor of Arts in Education with a major in Special Education

This program lists several semesters that include a higher number of credits than is desirable. The department recommends that students plan to complete some credits during high school or plan to take several summer courses to complete the program in four years.

Fall I

ENGLSH 1000.....	3
BIO SCI 1010	3
BIO SCI 1020	2
MATH 1110	3
PSYCH 1000.....	3
TDP 1000	1
Total.....	15

Fall II

CL HUM 1060	3
SPC ED 4300	3
MATH 1360	3
HIST 1100.....	3
TDP 2000	4
Total.....	16

Fall III

SPC ED 4375	3
SPC ED 4320	3
SPC ED 4940	3
TDP 4220	3
SPC ED 4224	2
SPC ED 4310	3
Total.....	17

Summer (must be at MU)

C&I-V 4810	3
SPC ED 4390	3
Total.....	6

Fall IV

TDP 4060	2
SPC ED 4330	3
TDP 4420	3
TDP 4424	1
Elective	3
Total.....	12

Winter I

ENGLSH 2100	3
GEOG 1100	4
C&I-V 1310.....	3
POL SC 1100.....	3
MUSIC 1311	3
Total	16

Winter II

SPC ED 4325	3
STAT 1200.....	3
THEATR 1340.....	3
Elective.....	3
TDP 2020	4
Total	16

Winter III

SPC ED 4380	4
SPC ED 4384	3
TDP 4040	3
SPC ED 4270	4
SPC ED 4274	1
SPC ED 4370	3
Total	18

Winter IV

TDP 4971	15
Total	15

CURRICULUM AND INSTRUCTION COURSES

C & I 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.

C & I 1300—First Aid (2). Study of the theory and practice of first aid procedures. Certification available.

C & I 1310—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.

C & I 1320—Scuba Theory (3). The curriculum of the class includes bio-physics, hydrostatic pressures, physiology, funda-

mentals 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.

C & I 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.

C & I 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.

C & I 3620—Aiding: Primary Grades (1-2). Instructionally related activities in primary grades. Student works 30 hours with supervi-

sion for each credit. Graded on an S/U basis only. Prerequisite: instructor’s consent.

C & I 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.

C & I 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.

C & I 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.

C & I 4085—Problems in Curriculum and Instruction (1-3). Studies professional programs and issues in health or physical education. Prerequisite: instructor's consent.

C & I 4090—Physical Education Activities for the Elementary School (2). Theory organization of programs, and activities in content areas; fundamental movement skills, rhythmic, self-testing activities, sport related skills and games. Prerequisite: junior and professional standing.

C & I 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.

C & I 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.

C & I 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.

C & I 4540—Teaching of Reading (3). Materials, methods used in teaching reading in elementary grades. Prerequisites: E&CPSY 2400 and professional standing.

C & I 4560—Teaching Reading in the Content Areas (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: E&CPSY 2400.

C & I 4570—Organization of Public School Art (2). Purposes, practices of art experiences in elementary and secondary schools. Designed for teachers, supervisors, administrators.

C & I 4580—Social Studies in the Elementary School (3). Problems in preparation, teaching of units with suitable materials, techniques. Prerequisites: E&CPSY 2400, professional standing.

C & I 4587—Seminar in Curriculum and Instruction (1-3).

C & I 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.

C & I 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.

C & I 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.

C & I 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.

C & I 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: E&CPSY 2400.

C & I 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: C & I 1310 or equivalent.

C & I 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.

C & I 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.

C & I 4960—Special Readings in Curriculum and Instruction (1-3). Directed study of literature and research reports in education.

CURRICULUM AND INSTRUCTIONAL VOCATIONAL COURSES

C&I-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.

C&I-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.

C&I-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.

C&I-V 1210—Introduction to Microcomputers (1). An overview of the hardware and software components of a microcomputer system.

C&I-V 2050—Merchandising (3). Develop basic competencies essential to successful merchandising. Studies skills essential in merchandising, and analysis of merchandising functions and activities.

C&I-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.

C&I-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.

C&I-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.

C&I-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.

C&I-V 3510—Human Relations in Organizations (3). Principles, theory, processes and problems of effective human relations in marketing organizations. w.

C&I-V 4085—Problems in Curriculum and Instruction-PAVTE (cr.arr.). Study of professional programs and issues or technical problems related to the field of practical arts and vocational education.

C&I-V 4387—Seminar in Practical Arts and Vocational Technology Education (1-3). Seminar experiences for students within one of the PAVTE program areas. Prerequisite: instructor's consent.

C&I-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.

C&I-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: C&I-V 1210 or equivalent.

C&I-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.

C&I-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.

C&I-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: C&I-V 4550 or equivalent.

C&I-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: C&I-V 4550/7550 or equivalent.

C&I-V 4750—Occupational Analysis (2). Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

C&I-V 4770—Methods in Vocational Education for the Disabled & Disadvantaged (3). (same as Special Education 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.

C&I-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: E&CPSY 2400 and junior standing.

C&I-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: C&I-V 1210 and 4550.

C&I-V 4801—Topics in Practical Arts and Vocational Technology Education (cr.arr.).

C&I-V 4810—Technology and Industry Education Methods (2-3). 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.

C&I-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: E&CPSY 2400.

C&I-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: C&I-V 4780 and 4830.

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 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. cor.

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: E&CPSY 1010 or instructor's consent.

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: E&CPSY 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: PSYCH 1000.

ESC PS 2500—Child Development (3). The psychological, intellectual, social, and physical development of children. Prerequisites: PSYCH 1000.

ESC PS 2600—Adolescent Development (2). The psychological, intellectual, social and physical development of adolescents. Prerequisite: 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 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 3100). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed. Prerequisite: 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: 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: PSYCH 1000.

ESC PS 4087—Seminar in Educational, School, and Counseling Psychology (1-3). Prerequisite: instructor's consent.

ESC PS 4100—Foundations of Educational Psychology (3). A survey course covering

learning, development, and measurement. Prerequisites: PSYCH 1000.

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: E&CPSY 4100.

ESC PS 4120—Foundations of Counseling Psychology (3). Survey of contemporary theories underlying both individual and group practice in counseling. Introduction to professional and ethical issues in counseling psychology. Prerequisites: 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: E&CPSY 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: 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 Educational Statistics (3). Introduces statistical techniques employed in education, including descriptive statistics, correlation, simple regression and hypothesis testing. Prerequisite: college algebra or equivalent.

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: PSYCH 1000.

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: E&CPSY 4120 or 4180 or instructor's consent.

ESC PS 4200—Career Resources in Business and Industry (2-4). Personnel practices, occupational requirements, and career opportunities and resources in business and industry. Applications are emphasized through on-site visits and use of business-industry-labor personnel. Graded on S/U basis only. Prerequisites: E&CPSY 7250 or instructor's consent.

ESC PS 4210—Theory and Practice in Career Psychology (3). Methods and programs for facilitating the career development of individuals over the life span. Organization and development of activities and programs for all ages emphasized. Prerequisite: E&CPSY 7250.

ESC PS 4220—Measurement of Cognitive Abilities (3). Analysis of the function of psy-

chological testing and a critical examination of various achievement, aptitude, and intelligence assessment instruments.

ESC PS 4940—Human Services Practicum (1-6). 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.

EDUCATION HONORS COURSES

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.

EDUCATION, LEADERSHIP AND POLICY ANALYSIS

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. Only the Ambassadors section can be repeated up to eight times.

INFORMATION SCIENCE AND LEARNING TECHNOLOGY COURSES

IS< 1110—Library Research (1). Designed to improve student use of the library's facilities and materials in any subject; instruction in use of card catalog, indexes, bibliographies, government publications, microforms, etc.

IS< 1150—Telecommunication Basics (3). Hands-on approach to using a wide variety of telecommunication tools. Special emphasis on finding, using, and evaluating internet-based resources.

IS< 4085—Problems in Information Science and Learning Technologies (cr.arr.). Independent, directed study on a topic in the field of information science and learning technologies. Prerequisite: departmental consent.

IS< 4301—Introduction to Information Technology (3). The nature of information and information transfer in the institutional setting; covers the culture of information in society, standards for information processing and transfer, and networking in communications perspectives of information providing agencies.

IS< 4305—Foundations of Library and Information Science (1). The course introduces students to the background, contexts, organizations, and key issues and terms related to library and information science and the information professions.

IS< 4310—Seminar in Information Science and Learning Technologies (1-3). Discussion and critical study of current developments in the field of information science and learning technologies.

IS< 4312—Principles of Cataloging and Classification (3). Elementary cataloging of library materials using Dewey Decimal Classification and Library of Congress classification with emphasis upon subject headings, also looking at other existing classification schemes presently being used and other bibliographic organization.

IS< 4313—Managing Collections and Access (3). Selection of materials for libraries and information agencies, policies for collection management, freedom and diversity of information, access to information and evaluation of collections and access.

IS< 4314—Reference Sources and Services (3). General reference sources with emphasis on print sources, principles, developments and trends in reference services and reference service organization.

IS< 4315—Management of Information Agencies (3). Concepts of management applied to libraries and information systems; management tools, programming, models and simulation in an environment of an information producing or disseminating agency.

IS< 4350—Special Readings in Information Science and Learning Technologies (cr.arr.). Prerequisites: departmental consent.

IS< 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< 4361—Introduction to Digital Media (3). Hands-on approach to multimedia production techniques. Develops understanding of image software, video software, and scanners, digital cameras, digital video cameras, graphics tablets. Graded on A/F basis only.

IS< 4362—Digital Media Planning and Design (3). Introduces multimedia production, emphasizing instructional design/learning theories. Overview of developing and evaluating multimedia products. Examines the visual design process including developing a formal design specification of an interactive, multimedia product. Graded on A/F basis only.

IS< 4363—Digital Video Production (2). Explores communication through digital video. Introduces alpha and beta testing. Course is

production-based, covering technical skills required for video editing software. Engage in multimedia processes of designing, producing and evaluating. Graded on A/F basis only.

IS< 4364—Digital Media Authoring Systems (3). Teaches skill 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< 4365—Digital Media: Computer Graphics (2). This course covers a variety of advanced graphic techniques and methods. Graphics theory is examined, including principles of visuals as communication and instructional tools in various media. Students engage in projects and comparative analysis of graphic effectiveness in a chosen medium.

IS< 4368—Technology Across the Curriculum (3). The purpose of adding this course is to meet the needs of non-majors in IS & LT who need or desire a course related to technology integration in K-12 schools. Existing courses in our program assume that students enter with a higher level of knowledge regarding technology and learning theory than non-majors have. The addition of this course will allow non-majors to work together in a course that is specifically designed for them.

IS< 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: ISLT 4360 or instructor's consent.

IS< 4380—Practicum in School Libraries (2-3). Provides practical experience in a school library under the direction of a qualified school librarian. Prerequisites: departmental consent;

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 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: SPC ED 4300.

SPC ED 4315—Instructional Methods and Technology for Exceptional Students (3). Study of direct instructional models as applied to academic and functional skills. Examination of instructional materials, media, technology applied to instruction of exceptional students. Prerequisite: 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: 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: SPC ED 4300.

SPCED 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: SPC ED 4300.

SPC ED 4335—Assessment of Functional Skills of Students w/Severe Disabilities (3). Trains prospective teachers in standardized and criterion-referenced methods of assessment in various curriculum areas for moderately and severely handicapped students. Opportunities to apply various assessment techniques. Prerequisites: SPC ED 4300 and 4395.

SPC ED 4340—Curriculum for Persons With Severe Disabilities (3). Study of development and implementation of functional, age-appropriate, community-referenced curriculum for persons with severe handicaps. Curriculum goals and instructional strategies in community access, domestic, vocational, recreation skills. Prerequisites: SPC ED 4300 and 4395.

SPC ED 4345—Mngng. Hlth. Rel. Prb. & Techn. f/Disabled Child. in Therp. Rec. (3). Provides prospective therapeutic recreators, teachers and rehabilitation personnel with information regarding managing health problems of the disabled child. Details regarding medical devising and/or technology are emphasized.

SPC ED 4350—Augmentative Communication for Persons With Severe Disabilities (3). Aided and unaided augmentative communication systems and nonspeech systems; techniques of teaching functional communication programs. Prerequisites: SPC ED 4300 and 4395.

SPC ED 4370—Literacy Assessment & Instruction for Students with Special Needs (3). Addresses specific literacy needs of special needs students with a focus on assessment and instruction for special needs students in regular classrooms. Pre co-requisite: SPC ED 4300, Literacy Methods.

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, SPC ED 4375, 4940.

SPC ED 4390—Methods in Vocational Education for the Disabled & Disadvantaged (2-3). (same as Curriculum and Instruction-Vocational 4770). Study of legislation, inter-agency 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: SPC ED 4300.

SPC ED 4395—Introduction to Severely Handicapped (3). Study of historical events, legislation, casual factors, identification, and programs related to persons with severe handicaps. Emphasis on education and related services enabling these individuals to participate in integrated settings. Prerequisite: 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 (3). Involvement in meaningful field-based activities that extend and/or apply content information from Special Education 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 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.

TEACHER DEVELOPMENT COURSES

TDP 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.

TDP 2000—Inquiry Into Learning I (4). 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 I of the Teacher Development Program.

TDP 2020—Inquiry into Learning II (4). This course is designed to extend and build on material covered in TDP 2000. The focus is on learning theory, student diversity, multicultural issues, instructional strategies, assessment and learning in the content areas. Prerequisites: TDP 2000 and ENGLSH 1000, and admittance to College of education.

TDP 4040—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. Prerequisites: TDP 2020 and completion of Phase I or enrollment in a graduate level program in the College of Education.

TDP 4060—Inquiring into Schools, Community and Society II (2). The second semester on schooling in American Society focuses on problem-posing and critical reflection about how the issues of politics, school organizations, ethics, justice, access and equity affect the building of community within a school and its classrooms. TDP 4060 must be taken the semester prior to internship. Prerequisite: TPD 4040/7070.

TDP 4090—Early Childhood Seminar I (2). Consideration of major historical influences on early current childhood curriculum and assessment practices, with emphasis on the role of the family. Prerequisite: admittance to Phase II required.

TDP 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.

TDP 4120—Emergent and Developing Literacy in Early Childhood (5). Strategies for assessing and supporting young children's literacy development. Must take concurrently with TDP 4200, 4210 and K-3 field experience. Prerequisite: admittance to College of Education required.

TDP 4124—Emergent & Developing Literacy Early Childhood Field Experience (2). This field experience supports the TDP 4120 component of Phase II. Field experience expectations are delineated in the TDP 4120 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4130—Teaching & Learning Math, Sci. & 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.

TDP 4134—Teach & Learn Math, Sci & Soc Studies w/Young Children Fld Exp (3). This field experience supports the TDP 4130 component of Phase II. Field experience expectations are delineated in the TDP 4130 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4140—Early Childhood Seminar III (3). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including individualizing curriculum, working with special needs children, and working with diverse families. Prerequisites: completion of Early Childhood Seminar III; admittance to Phase II required.

TDP 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 UTD ECE Motor/Art/Music block. Prerequisite: TDP 4120/7120, 4124/7124, 4200/7200, 4210/7210 and admittance to College of Education required.

TDP 4170—Pre-Kindergarten Student Teaching (5). 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.

TDP 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 TDP 4120, 4210, and K-3 field experience. Prerequisite: admittance to Phase II; admittance to College of Education required.

TDP 4210—Children’s Literature (2). For Early Childhood and Elementary Education majors. Surveys the field of children’s literature. Must be taken with TDP 4120, 4200, and K-3 field experience. Prerequisite: admittance to Phase II; admittance to College of Education required.

TDP 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.

TDP 4224—Emergent Literacy Field Experience (2). This field experience supports the TDP 4220 component of Phase II. Field experience expectations are delineated in the TDP 4220 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4230—Developmental Literacy (2). Instructional methods, diagnostic procedures, and materials appropriate for learners in elementary grades 4-6. Prerequisite: TDP 4200/7200, 4210/7210 AND 4220/7220.

TDP 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.

TDP 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 1608, 1612, 1618 or competency test; admittance to College of Education required.

TDP 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, Term: Winter of junior year or Fall of Senior year; admittance to College of Education required.

TDP 4264—Elementary Social Studies Field Experience (2). This field experience supports the TDP 4260 component of Phase II. Field experience expectations are delineated in the TDP 4260 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4270—Teaching Mathematics in El-

ementary Schools (4). Study of elementary mathematics content and curriculum, instructional techniques and materials, organizational strategies, discipline integration techniques and assessment methods and practices for teaching mathematics in the elementary school. Prerequisites: MATH 1120, STAT 1200 and MATH 1360; admittance to College of Education required.

TDP 4274—Teaching Mathematics in Elementary School Field Experience (1). This field experience supports the TDP 4270 component of Phase II. Field experience expectations are delineated in the TDP 4270 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4280—Teaching Science in Elementary Schools (3). Concepts, materials, methods in the elementary school program. Prerequisite: Phase I, Fall and Winter; admittance to College of Education required.

TDP 4284—Teaching Science in Elementary Schools Field Experience (1). This field experience supports the TDP 4280 component of Phase II. Field experience expectations are delineated in the TDP 4280 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4290—Interdisciplinary Teaching in Elementary Schools (3). Exploration of interdisciplinary models for teaching elementary school content. Topics of discussion and study will include: effective grouping strategies, action research, inclusion differentiation and teaming strategies, performance assessment, problem solving and critical thinking as a theme of instruction in all subjects, interdisciplinary student parent conferencing strategies. Prerequisite: admittance to College of Education required.

TDP 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.

TDP 4324—Middle School Social Studies Field I (1). This field experience supports the TDP 4320 component of Phase II. Field experience expectations are delineated in the TDP 4320 course syllabi. Phase II admittance required. Graded on S/U basis only.

TDP 4330—Middle School Social Studies II (3). Address issues related to assessment and the purposes/ development of assessment for all levels of middle school social studies form classroom to national assessment. Assessment will be used to reflect upon curriculum/ instruction, making revision, and set goals. Prerequisite: admittance to the College of Education is required.

TDP 4334—Middle School Social Studies Field Experience II (1). This field experience supports the TDP 4330 component of Phase II. Field experience expectations are delineated in the TDP 4330 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4340—Middle School Science I (3). Concepts, materials, methods in middle

school program. Prerequisite: Phase I admittance; admittance to the College of Education required.

TDP 4344—Middle School Science Field I (1). This field experience supports the TDP 4340 component of Phase II. Field experience expectations are delineated in the TDP 4340 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4350—Middle School Science II (3). Concepts, materials, methods in the middle school program. Prerequisite: Phase I; admittance to College of Education required.

TDP 4354—Middle School Science Field Experience (1). This field experience supports the TDP 4350 component of Phase II. Field experience expectations are delineated in the TDP 4350 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4360—Intro. Teaching Mathematics in Middle & 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, MATH 1360; admittance to College of Education required.

TDP 4364—Intro. Teaching Math in Middle & Secondary Sch. Field Experience (1). This field experience supports the TDP 4360 component of Phase II. Field experience expectations are delineated in the TDP 4360 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 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: TDP 4360/7360 and at least 18 hours of required mathematics; admittance to College of Education required.

TDP 4374—Teaching and Modeling Middle School Mathematics Field Experience (1). This field experience supports the TDP 4370 component of Phase II. Field experience expectations are delineated in the TDP 4370 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4380—Middle School Language Arts I (3). Integrates an understanding of literacy (highlighting reading) with content area demands, literature and other media texts, oracy and mediacy, evaluation and inquiry within a context of diversity. Prerequisite: admittance to College of Education required.

TDP 4384—Middle School Language Arts I Field Experience (1). This field experience supports the TDP 4380 component of Phase II. Field experience expectations are delineated in the TDP 4380 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4390—Middle School Language Arts II (3). Knowledge of learning, instruction

and management from Phase I will be applied specifically to the middle school language arts classroom and art of teaching literacy (highlighting writing), literature, oracy and mediacy will be examined. Prerequisite: admittance to College of Education required.

TDP 4394—Middle School Language Arts II Field Experience (1). This field experience supports the TDP 4390 component of Phase II. Field experience expectations are delineated in the TDP 4390 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4400—Extending Mid. Sch. Lang. Arts: Mediacy, Oracy Speech & Theater (3). Focuses on a sequential and comprehensive study of the language arts/speech/theatre teacher as an integral member of a middle school team. Emphasizes integrated curriculum and the connections with literature, oracy, mediacy, speech, and theater. Prerequisites: TDP 4380/7380 and 4390/7390; admittance to the College of Education required.

TDP 4404—Middle School Language Arts III Field Experience (1). This field experience supports the TDP 4400 component of Phase II. Field experience expectations are delineated in the TDP 4400 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 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.

TDP 4414—Teaching, Engaging & Assessing Mid-Level Students Field Experience (1). This field experience supports the TDP 4410 component of Phase II. Field experience expectations are delineated in the TDP 4410 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 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.

TDP 4424—Middle School Literacy Field Experience (1). This field experience supports the TDP 4420 component of Phase II. Field experience expectations are delineated in the TDP 4420 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4470—Teaching 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 Young Adult Literature and critical thinking. The secondary focus is on the teaching of writing. Prerequisite: TDP 4470/7470; admittance to College of Education required.

TDP 4474—Teaching English/Language Arts II Field Experience (1). This field experience supports the TDP 4470 component of Phase II. Field experience expectations are delineated in the TDP 4470 course syllabi.

Phase II admittance required. Graded on a S/U basis only.

TDP 4480—Teaching 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 the teaching of writing and critical thinking. The secondary focus is on Young Adult Literature and its teaching. Prerequisite: professional standing in the College of Education; admittance to College of Education required.

TDP 4484—Teaching English/Language Arts I Field Experience (1). This field experience supports the TDP 4480 component of Phase II. Field experience expectations are delineated in the TDP 4480 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4490—Language Arts III (3). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, focusing on the teaching of American culture and critical thinking, through the study of print, electronic media, and a variety of cultural artifacts. Prerequisites: TDP 4470/7470 and 4480/7480; admittance to College of Education required.

TDP 4494—Language Arts III Field Experience (1). This field experience supports the TDP 4490 component of Phase II. Field experience expectations are delineated in the TDP 4490 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4530—Secondary Social Studies I (2). 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, Term: Fall of Junior year; admittance to College of Education required.

TDP 4534—Secondary Social Studies I Field Experience (1). This field experience supports the TDP 4530 component of Phase II. Field experience expectations are delineated in the TDP 4530 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4540—Secondary Social Studies II (4). 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 classroom. Prerequisites: acceptance into Phase II, Term: Winter of junior year; admittance to College of Education required.

TDP 4544—Secondary Social Studies II Field Experience (1). This field experience supports the TDP 4540 component of Phase II. Field experience expectations are delineated in the TDP 4540 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4550—Secondary Social Studies III (2). 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, Term: Fall of senior year; admittance to College of Education required.

TDP 4554—Secondary Social Studies III Field Experience (1). This field experience supports the TDP 4550 component of Phase II. Field experience expectations are delineated in the TDP 4550 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4570—Intro. Teaching Mathematics in Middle & 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, MATH 2300.

TDP 4574—Intro. Teaching Math in Middle & Secondary Sch. Field Experience (1). Field experience supporting the TDP 4570 component of Phase II. Field experience expectations are delineated in the TDP 4570 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4580—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: TDP 4570/7570; admittance to College of Education required.

TDP 4584—Teaching Math in Secondary Schools: Algebra Field Experience (1). This field experience supports the TDP 4580 component of Phase II. Field experience expectations are delineated in the TDP 4580 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4590—Teach. Math in Sec. Schools: Focus on Geometry, Probability & Stat. (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: TDP 4570/7570; admittance to College of Education required.

TDP 4594—Teach Math in Sec Sch: Focus on Geometry/Probability/Stat Fld Exp (1). This field experience supports the TDP 4590 component of Phase II. Field experience expectations are delineated in the TDP 4590 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4630—Teach. Sci. Second. Sch.: Phil., Hist., Sci. Inq., Curr., Assm., & Tech 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.

TDP 4634—Teach Sci Second Sch: Phil, Hist, Sci Inq, Curr, Assm & Tech I (1). This field

experience supports the TDP 4630 component of Phase II. Field experience expectations are delineated in the TDP 4630 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4640—Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr.,Assm., & Tech 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.

TDP 4644—Teach Sci Sec Sch: Phil, Hist, Sci Inq, Curr, Assm & Tech II Fld (1). This field experience supports the TDP 4640 component of Phase II. Field experience expectations are delineated in the TDP 4640 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4650—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.

TDP 4654—Teach Sci Second Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld (1). This field experience supports the TDP 4650 component of Phase II. Field experience expectations are delineated in the TDP 4650 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 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.

TDP 4674—Teaching Music I Field Experience (1). This field experience supports the TDP 4670 component of Phase II. Field experience expectations are delineated in the TDP 4670 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4680—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: TDP 4670/7670; admittance to College of Education required.

TDP 4684—Teaching Music II Field Experience (1). This field experience supports the TDP 4680 component of Phase II. Field experience expectations are delineated in the TDP 4680 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4690—Teaching Music III (3). A study of various strategies for the successful teaching of Middle and high school music programs. Prerequisite: TDP 4680/7680; admittance to College of Education required.

TDP 4694—Teaching Music III Field Experience (1). This field experience supports the TDP

4690 component of Phase II. Field experience expectations are delineated in the TDP 4690 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 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.

TDP 4734—Overview of Art Education Field Experience (1). This field experience supports the TDP 4730 component of Phase II. Field experience expectations are delineated in the TDP 4730 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 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.

TDP 4744—Inquiry into Art Education: Pre-School Thru Middle School Fld Exp (1). This field experience supports the TDP 4740 component of Phase II. Field experience expectations are delineated in the TDP 4740 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 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.

TDP 4754—Inquiry into Art Education: Secondary Field Experience (1). This field experience supports the TDP 4750 component of Phase II. Field experience expectations are delineated in the TDP 4750 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4810—Inquiring into Foreign Language Curriculum and Pedagogy I (3). This course introduces developing teachers to issues related to foreign language instruction. It focuses on language development, individual learning styles, instruction strategies, classroom behavior and management, professional development and in-field experiences. The course lays the foundation of foreign language pedagogy and curriculum development. Prerequisite: admittance to College of Education required.

TDP 4814—Inquiring into Foreign Language Curriculum and Pedagogy Field Exp (1). This field experience supports the TDP 4810 component of Phase II. Field experience expectations are delineated in the TDP 4810 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4820—Inquiring into Foreign Language Curriculum and Pedagogy II (3). This second course explores in greater depth issues related to foreign language instruction. It focuses on second language acquisition theories and research; learners; individual needs and

styles; techniques and activities for the FL classroom; diversity and inclusion, resources and authentic materials; and in-field experiences. Prerequisite: admittance to College of Education required.

TDP 4824—Inquiring into Foreign Language Curriculum & Pedagogy II Fld Exp (1). This field experience supports the TDP 4824 component of Phase II. Field experience expectations are delineated in the TDP 4824 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4830—Inquiring into Foreign Language Curriculum and Pedagogy III (3). This course enables developing teachers to achieve a more advanced level of competency in the field of foreign language education. It provides them with ample opportunities to put into practice ideas and techniques learned in the first two courses, and to sharpen their decision-making abilities. It focuses on the application of various methodologies to the teaching and assessment of foreign languages. In-field experiences are also included. Prerequisite: admittance to College of Education required.

TDP 4834—Inquiry into Foreign Language Curriculum and Pedagogy III Fld Exp (1). This field experience supports the TDP 4830 component of Phase II. Field experience expectations are delineated in the TDP 4830 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4870—Curriculum Design for Career and Technical Education (3). Curricular development process, knowledge of core areas and competencies of business and marketing education programs. Selection of instruction material. Prerequisite: admittance to College of Education required.

TDP 4874—Curriculum Construction in Business & Marketing Educ Prog Fld Exp (1). This field experience supports the TDP 4870 component of Phase II. Field experience expectations are delineated in the TDP 4870 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 4880—Teaching of Business and Marketing Education Subjects (3). This course concentrates on the recent trends in methods, techniques, materials of instruction, media, measurement, and school-community relations in the teaching of business and marketing subjects. Prerequisite: admittance to College of Education required.

TDP 4884—Teaching Business & Marketing Education Subjects Field Experience (1). This field experience supports the TDP 4880 component of Phase II. Field experience expectations are delineated in the TDP 4880 course syllabi. Phase II admittance required. Graded on a S/U basis only.

TDP 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 Winter for 10-16 credit hours. Admittance to College of Education required. Prerequisites: TDP 4060/7060 and admittance into Phase III.

College of Engineering

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)*
Bachelor of Science in Electrical Engineering (BS EE)
Bachelor of Science in Industrial Engineering (BS IE)
Bachelor of Science in Mechanical Engineering (BS ME)

*For the Bachelor of Arts in Computer Science (BA) refer to the College of Arts and Sciences.

Minor

Computer Science

See the *Graduate Catalog* for information on MS degrees with majors in mechanical and aerospace engineering, nuclear engineering, biological engineering, chemical engineering, civil engineering, computer engineering, computer science, electrical engineering and industrial 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 and nuclear engineering.

ADMINISTRATION

James E. Thompson, Dean
Christa Weisbrook, Assistant Dean
W1025 Engineering Building East
(573) 882 4375
thompsonje@missouri.edu

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 in the nation 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. 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 22 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 2003 were ACT-Composite 27.6, ACT-Math 28.1 and ACT-English 26.6.

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 adviser.

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 with a last-term GPA of 2.0 or higher
- Cumulative GPA of 2.0 or higher
- A grade of C or better in MATH 1500: Calculus I

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 few semesters. Those choosing the latter route are assigned to special faculty advisers. Undeclared students should discuss course selection with the academic adviser 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 FIG (Freshman Interest Group) which is housed in Mark Twain Residence Hall. Faculty-scholar lunches are held in the Mark Twain Dining Hall 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. The dean holds two sessions with the scholars each semester.

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 advisers for an engineering FIG and participating in the engineering freshman mentoring program or on the formula and solar car teams. Students chosen for peer adviser 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 winter semester.

Students who have ACT math and composite scores of 33 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 1.

Mizzou Engineering Dean's Scholars Program
W1025EBE
University of Missouri-Columbia
Columbia, MO 65211
(573) 882-2474

Grade Point Average

The GPA of record for engineering is calculated using grades earned in courses offered by one of the four campuses of the UM System (Columbia, Rolla, Kansas City and St. Louis). The exception is any grade replaced on an MU course under the grade replacement or academic renewal policies. This grade point average is noted as "UM GPA" on a student's transcript.

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. Contact the dean's office for the most recent list of articulation agreements.

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 or departure while on probation is admitted to the College of Engineering only after the application has been approved by the college. After filing an application, such applicant must also write a letter to the academic appeals committee requesting admission. Contact the engineering dean's office at (573) 882-4375 for more information.

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://www.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 adviser
- Independent study or undergraduate research with a senior faculty member whose specialty interests the honors candidate
- \$1000/semester awarded for semesters during which the student is registered for 3 credits of honors research (4995)

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 or 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:
 - a. When in good academic standing, the student has a term GPA less than 2.0 but equal to or greater than 1.0.
 - b. The student transfers into the College of Engineering without meeting the minimum standards set by the college for admission in good academic standing.
3. A student on academic probation has not more than two semesters to remove himself or herself from probation.
 - a. 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 Center for Distance and Independent Study count as part of these 12 credits. Part-time students must enroll in at least as many credits each semester as stipulated in the college rules governing part-time enrollment.
 - b. A student will be removed from probation at the end of that term when the term and cumulative GPA are 2.0 or higher, provided the student completed 12 or more hours applicable toward the degree.
 - c. A student will be continued on probation for one semester if at the end of the first semester on probation, the student has failed to remove himself or herself from probation and has a term GPA greater than or equal to 2.0.
4. A student will be dismissed from the University if the student:
 - a. Receives a term GPA of less than 1.0.
 - b. Receives a term GPA of less than 2.0 while on probation.
 - c. Fails to remove himself or herself from probation by the end of the second semester after being placed on probation.
5. Readmission:
 - 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 (ineligible to enroll) 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.
 - Letters of appeal may be addressed to: Dr. Christa Weisbrook, Chair, Engineering Academic Appeals Committee, College of Engineering, University of Missouri-Columbia, Columbia, MO 65211. A personal visit with the director of undergraduate studies of the student's department and adviser 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 reasons for expecting better in the future.
 - 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.
6. 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.
- Students who opt for S/U grading during their last 60 credits are not eligible for Latin Honors.
- 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 adviser who assists the student in reaching academic and professional goals. Students are encouraged to meet with their advisers as often as needed.

Access in Engineering

The Access in Engineering Program (A/E) supports increased graduation rates among students from underrepresented groups in the College of Engineering. A student-supported program, A/E is designed to create a user-friendly environment for all students pursuing an engineering degree at the University of Missouri-Columbia. This effort includes models for successful outreach, recruitment, early research experience, counseling, undergraduate retention, academic enrichment, mentoring and orientation to graduate study. All students are welcome to take

part in the academic support measures the program provides.

The program provides a support network with other students to ensure success in the college through group study programs and involvement in A/E. Some academic opportunities include tutoring, mentoring, supplemental instruction, cooperative work experience and internships. A/E 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 classes.

Learning Communities

The college co-sponsors 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. The Men of Engineering (MOE) offers the same opportunities for male students in engineering. Each community has its own computer lab, peer tutors, study groups and quiet hours.

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.

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 Engineer-in-Training (EIT) status as a first step toward registration.

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.

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: ENGR 1100 and instructor's consent. May be repeated for credit. 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: MATH 1500 and PHYSCS 2750 concurrently.

ENGINR 1500—Computer Programming (3). Introduction to the use of digital computers. Provides the student with a basic understanding of computers and the ability to solve programming problems. Co-requisite: MATH 1500.

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, AC power and three-phase, transformers. Prerequisite: MATH 4100 and PHYSCS 2760 concurrent. For Non-Majors.

ENGINR 2200—Intermediate Strength of Materials (3). Elements of mechanics of elastic materials. Prerequisite: ENGINR 1200.

ENGINR 2300—Engineering Thermodynamics (3). (same as Mechanical and Aerospace Engineering 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes. Prerequisites: PHYSCS 2750.

ENGINR 4085—Problems in Engineering (0-6). Special design, experimental or analytical problems in engineering. May be repeated to 6 hours.

Department of Biological Engineering

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FACULTY

PROFESSOR R. Bajpai, F. H. Hsieh, J. Tan
ASSOCIATE PROFESSOR S. C. Borgelt,
 K. D. Gillis, A. L. Thompson
ASSISTANT PROFESSOR X. Fan, S. A. Grant, L. Gu,
 M. A. Haidekker, J. C. M. Lee, J. Viator, G. Yao

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 premedicine)
- 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 Accreditation Board for Engineering and Technology. The biological engineering curriculum was developed to meet the mission, objectives and outcomes described below.

Mission and Objectives

The department's mission is to prepare biological engineering graduates for productive engineering careers characterized by continual professional growth. The undergraduate program leads to a Bachelor of Science degree with a major in Biological Engineering, producing graduates who demonstrate the following abilities:

1. Show proficiency in engineering analysis and design (outcomes a, b, c, d, e)
2. Interact effectively with life science professionals (outcomes a, b, c, d, e, g)

3. Integrate biological and engineering sciences for the design and development of 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, m)

Graduates of the biological engineering program meet the following outcomes:

- a. Ability to apply knowledge of mathematics, science and engineering
- b. Ability to design and conduct experiments, as well as to analyze and interpret data
- c. Ability to design a system, component or process to meet desired needs
- d. Ability to function on multi-disciplinary teams
- e. Ability to identify, formulate and solve engineering problems
- f. Understanding of professional and ethical responsibility
- g. Ability to communicate effectively
- h. Understanding of the impact of 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
- k. Ability to use the techniques, skills and modern engineering tools necessary for engineering practice
- l. Ability to integrate engineering and biological sciences and to develop systems and processes for improved health, bio-resource utilization and environmental protection
- m. Ability to be successful in the advanced study in engineering, medicine or veterinary medicine

Exploratory Course

Students who want to learn more about the field should take BIO 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 adviser. 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

Math and Statistics	19
MATH 1500: Analytical 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
Basic sciences	34
PHYSICS 2750: University Physics I	5
PHYSICS 2760: University Physics II	5
CHEM 1310: General Chemistry I	2
CHEM 1320: General Chemistry 2 w/lab	3
CHEM 2050: Intro Organic Chem w/lab OR	

CHEM 2100: Organic Chemistry I	3-5
BIOCHM 3630: General Biochemistry	3
BIO SCI 1500: Intro to Biological Systems	5
Biology and related science (two upper-level courses, 2000 or above)	

Premedical and preveterinary students should take:

CHEM 1330, 2100 and 2120, BIOCHM 4270 and 4272
Cell biology, genetics, and a physiology course

Engineering topics--general	17
CS 1040: Intro to Programming	3
ENGINR 1100: Engineering Graphics Fundmntl	2
ENGINR 1200: Stats & Elem Strngh Matr	3
ENGINR 2200: Intermed Strngth of Matr	3
CV ENG 3700: Fluid Mechanics	3
Thermodynamics (from approved list)	3

Engineering topics--major

BIO EN 1000: Introduction to Biological Engineering	1
BIO EN 2000: Professional Development in Engineering...	1
BIO EN 2180: Engineering Analysis of Bioprocesses.....	3
BIO EN 3180: Heat and Mass Transfer in Biological Systems	3
BIO EN 4380: Applied Electronic Instrumentation	4
BIO EN 4980: Biological Engineering Design	3

Technical electives

18-21
Select upper-level courses (3000 or above), at least 9 credits
from biological engineering courses

Electives to complete a minimum total of 126 credits

Sample Eight-Semester Program

Biological Engineering

See the *Undergraduate Catalog* for prerequisites.

Fall I

BIO EN 1000	1
MATH 1500	5
CHEM 1320	3
CS 1040.....	3
SBS or HSFA**	3
Total.....	15

Fall II

BIO EN 2000	1
MATH 2300	3
PHYSICS 2750	5
CHEM 2050	5
SBS or HSFA***	3
Total.....	17

Fall III

BIO EN 2180	3
ENGINR 2200	3
Tech elective	3
Bio elective	3
SBS or HSFA***	3
Total.....	15

Fall IV

BIO EN 4980	3
CV ENG 3700.....	3
Bio elective	3
Tech elective	3
Tech elective	3
Total.....	15

Winter I

ENGLSH 1000*	3
MATH 1700.....	5
BIO SCI 1500.....	5
ENGINR 1100.....	2
Total	15

Winter II

ENGINR 1200.....	3
MATH 4100.....	3
PHYSICS 2760.....	5
Statistics	3
SBS or HSFA***	3
Total	17

Winter III

BIO EN 3180.....	3
ENGINR 2300.....	3
Tech elective.....	3
BIOCHM 3630.....	3
SBS or HSFA***	3
Total	15

Winter IV

BIO EN 4380.....	4
Tech elective.....	3
Tech elective.....	3
Tech elective.....	3
SBS or HSFA***	3
Total	16

*-Denotes General Education Requirements

**SBS = Social/Behavioral Science; HSFA = Humanistic Studies/Fine Arts

BIOLOGICAL ENGINEERING COURSES

BIO 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.

BIO EN 2000—Professional Development in Engineering (1). A review of professional opportunities, registration, ethics, and societies. Prerequisite: sophomore standing.

BIO EN 2180—Engineering Analysis of Bioprocesses (3). Fundamentals and application of biological engineering. Prerequisites: BIO SC 1500.

BIO EN 3001—Topics in Biological Engineering (3). Current and new technical developments in biological engineering. Prerequisite: instructor's consent.

BIO 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. Prerequisite: ENGR 2300 and MATH 4100.

BIO EN 3170—Biomaterials (3). Biomaterials used for medical applications. An understanding of structure-property relationship between materials implanted into the body and the surrounding tissues. Biocompatibility testing and degradation of implanted materials will be addressed. Prerequisite: BIO EN 2180. Co-requisite: PHYSICS 2760 and ENGR 2200.

BIO EN 3180—Heat and Mass Transfer in Biological Systems (3). Application of transport phenomena to biological systems. Theory and examples of heat transfer and mass transfer. Prerequisites: BIO EN 2180

and Thermodynamics course.

BIO EN 4001—Topics in Biological Engineering (3). Current and new technical developments in biological engineering. Prerequisite: instructor's consent.

BIO EN 4070—Bioelectricity (3). The equivalent circuit of cell membranes. How ion channels are gated and studied including the electronic design of patch-clamp amplifiers. The role ion channels play in physiology. Prerequisites: PHYSICS 2760 and BIO EN 3180.

BIO EN 4085—Problems in Biological Engineering (1-5). Supervised independent study at the undergraduate level. Prerequisite: instructor's consent.

BIO EN 4150—Soil and Water Conservation Engineering (3). Analysis of run-off and erosion from urban and agricultural lands. Design and layout of erosion control structures. Prerequisites: CV ENG/MAE 3200 or MAE

3400 or BIO EN 2810.

BIO EN 4160—Food Process Engineering I (3). Study of transport phenomena and unit operations in food processing systems. Emphasis on rheology of food heating and cooling processes and thermodynamics of food freezing. Prerequisite: BIO EN 2180 or instructor's consent.

BIO EN 4170—Biomaterials Interfaces of Implantable Devices (3). Topics include biosensors, VADS (ventricular assist devices) and drug delivery systems, self-organization of biomembranes and supramolecular systems, bioactive materials, molecular basis for surface recognition and masking. Prerequisites: BIO EN 3170 or instructor's consent.

BIO EN 4250—Irrigation and Drainage Engineering (3). Soil, water, plant relationships. Water supplies and design of surface sprinkler and trickle irrigation systems. Surface and tile drainage. Prerequisites: CV ENG 3700 or MAE 3400 or BIO EN 2180.

BIO 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: BIO EN 4160 or instructor's consent.

BIO EN 4350—Watershed Modeling Using GIS (3).

BIO 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: PHYSCS 2760.

BIO EN 4480—Physics and Chemistry of Materials (3). (same as Physics 4190). Physics and Chemistry of Materials is a 3 credit hours 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/CHEM 1320 or equivalent/prior approval by instructor.

BIO EN 4550—Design of Livestock Waste Management Systems (3). Development and application of design criteria to the design of agricultural waste management facilities. Prerequisites: CHEM 1310 and CV ENG 3700 MAE 3400 or instructor's consent.

BIO EN 4570—Biomedical Imaging (3). Fundamental principles and application of noninvasive imaging modalities in medicine (X-rays, tomography, magnetic resonance, ultrasound); computer methods and algorithms for image processing, enhancement and analysis. Prerequisite: MATH 4100, or instructor's consent.

BIO 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: ENGR 2100 or BIO EN 4380 or instructor's consent.

BIO 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 adviser and presented in engineering report form. Prerequisite: adviser's consent.

BIO 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.

BIO EN 4990—Undergraduate Research in Biological Engineering (1-5). Supervised independent study at the undergraduate level. Prerequisite: instructor's consent.

BIO EN 4995—Undergraduate Honors Research in Biological Engineering (2-4). Open only to honor students in biological engineering. Independent investigation in biological engineering to be presented as a thesis. Prerequisite: advisor's consent.

Prerequisites: CHEM 1310 and CV ENG 3700 MAE 3400 or instructor's consent.

BIO EN 4570—Biomedical Imaging (3). Fundamental principles and application of noninvasive imaging modalities in medicine (X-rays, tomography, magnetic resonance, ultrasound); computer methods and algorithms for image processing, enhancement and analysis. Prerequisite: MATH 4100, or instructor's consent.

BIO 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: ENGR 2100 or BIO EN 4380 or instructor's consent.

BIO 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 adviser and presented in engineering report form. Prerequisite: adviser's consent.

BIO 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.

BIO EN 4990—Undergraduate Research in Biological Engineering (1-5). Supervised independent study at the undergraduate level. Prerequisite: instructor's consent.

BIO EN 4995—Undergraduate Honors Research in Biological Engineering (2-4). Open only to honor students in biological engineering. Independent investigation in biological engineering to be presented as a thesis. Prerequisite: advisor's consent.

Department of Chemical Engineering

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Chemical engineers have distinct impact on our daily lives. They deal with industrial and specialty chemicals, petrochemicals, biochemicals, polymers, plastics, pharmaceuticals, foods, feeds, beverages, metallurgical and building materials, and many household chemicals and products. They are also employed in the fields of semiconductors, aerospace, healthcare, environment, medicine, law, sales, management, research and development, and education.

The mission of MU Chemical Engineering Department is to provide students a broad education in chemical engineering science and practice to facilitate problem solving, critical thinking and preparedness to meet the current and future challenges of the profession. Consequently, the goal of the Chemical Engineering Department at the University of Missouri-Columbia is to provide an academic program whose graduates are:

- Well educated in the areas of mathematics, basic sciences and engineering
- Capable and confident in applying their problem-solving abilities and effectively communicating these results
- Able to satisfy the present and future requirements of the chemical engineering profession
- Committed to the pursuit of life-long learning, especially in the areas of science, engineering, business and management

Design and process work in industry requires the chemical engineer to have extensive knowledge in chemistry, thermodynamics, unit operations, kinetics and reactor analysis, and process control. The requisite skills for diverse employment of chemical engineers include knowledge of engineering science as well as general problem-solving ability. The flexibility of the chemical engineering degree provides a solid foundation for pursuing advanced studies in medicine, law, business or basic science such as biochemistry.

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)

The curriculum focuses on basic sciences and traditional engineering topics. In addition, students receive training in statics, circuits, statistics, communication skills, computer programming, computer utilization and economics. Team design projects are integrated into the curriculum. To allow additional training in non-traditional career possibilities, the program is flexible, with environmental, materials and biochemical emphasis areas.

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
PHYSICS 2750: University Physics I	5
PHYSICS 2760 University Physics II	5
CH ENG 1320: General Chemistry II	3
CH ENG 1330: General Chemistry III	3
CH ENG 2100: Organic Chemistry I	3
CH ENG 2120: Organic Chemistry II	5
CH ENG 3200: Quantitative Methods of Analysis	4
Approved elective	3
Approved statistics elective	3

Chemical engineering core

CH ENG 1000: Introduction to Chem Engr	2
CH ENG 3242: Chemical Process Measurement Lab	3
CH ENG 2226: Computer-aided Calculations in Chemical Engineering	3
CH ENG 2225: Mass and Energy Balance	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	3
CH ENG 4385: Chemical Engineering Design I	3
CH ENG 4370: Chemical Process Control	3
CH ENG 4980: Process Synthesis and Design	3
ENGINR 1200: Statics and Elementary Strength of Materials	3
ENGINR 2100: Circuit Theory I	3
Approved technical elective	3
Advanced chemistry elective	3
Approved chemical engineering elective	6

Emphasis in Biochemistry

BIO SCI 1500: General Biology	5
BIO SCI 2200: Genetics	4
BIO SCI 2300: Introduction to Cell Biology	4
BIOCHM 4270: Biochemistry	3
CH ENG 4315: Introduction to Biochemical Engineering ..	3
CH ENG 4314: Biochemical Engineering Operation	3
ENGINR 1200: Statics and Elementary Strength of Materials	3
ENGINR 2100: Circuit Theory I	3

Emphasis in Environment

ENGINR 1200: Statics and Elementary Strengths of Materials.....	3
ENGINR 2100: Circuit Theory I.....	3
CIV ENG 3200: Fundamentals of Environmental Engineering	3
CH ENG 4280: Environmental Chemistry	3
CH ENG 4311: Chemodynamics	3
CH ENG 4312: Air Pollution	3
LAW 5545: Environmental Law	3
CH ENG 4220: Hazardous Waste Management	3

Emphasis in Materials

ENGINR 1200: Statics and Elementary Strengths of Materials	3
ENGINR 2100: Circuit Theory I	3
M A E 3200: Engineering Materials	4
CH ENG 4317: Chemical Processing in Semiconductors Devices	3
CH ENG 4319: Introduction to Polymers Materials	3
Advanced chemistry elective	3
Approved materials elective	3
Approved materials elective	3

Sample Eight-Semester Programs

Bachelor of Science in Chemical EngineeringSee the *Undergraduate Catalog* for prerequisites.**Fall I**

MATH 1500: Analytic Geometry and Calculus I .	5
CH ENG 1320: General Chemistry 2 W/lab	3
ENGLSH 1000: Exposition and Argumentation	3
CH ENG 1000: Introduction to Chem Engr	2
Humanities-social science.....	3
Total.....	16

Fall II

MATH 2300: Calculus III.....	3
CHEM 2100: Organic Chemistry I.....	3
PHYSICS 2760: University Physics II.....	5

Winter I

MATH 1700: Calculus II .	5
CHEM 1330: General Chemistry 3 W/lab	3
PHYSICS 2750: University Physics I	5
Humanities-social science	3
Total	16

Winter II

MATH 4100: Differential Equations	3
CHEM 2120: Organic Chemistry 2 w/lab	5
CH ENG 2226: Computer- aided Calculations in	

CH ENG 2225: Mass and Energy Balance	3
Humanities-social science.....	3
Total.....	17

Fall III

CHEM 3200: Quantitative Methods of Analysis.....	4
CH ENG 3234: Principles of Chemical Engineering I.....	3
CH ENG 3261: Engineering Thermodynamics I	3
Humanities-social science.....	3
Approved technical elective	3
Total.....	16

Fall IV

CH ENG 3243: Chemical Engineering Laboratory I	3
CH ENG 4363: Chemical Reaction Engineering	3
CH ENG 4385: Chemical Engineering Design I.....	3
ENGINR 2100: Circuit Theory I.....	3
Approved chemical engineering elective	3
Total.....	15

Chemical Engineering	3
Approved elective.....	3
Approved statistics elective	3
Total	17

Winter III

CH ENG 3242: Chemical Process Analysis Management Lab.....	3
CH ENG 3235: Principles of Chemical Engineering II.....	3
CH ENG 3262: Chemical Chemical Engineering Thermodynamics II	3
Advanced chemistry elective	3
Humanities-social science	3
Total	15

Winter IV

CH ENG 4370: Chemical Process Control.....	3
CH ENG 4980: Process Synthesis and Design.....	3
ENGINR 1200: Statics and Elementary Strength of Materials	3
Approved chemical engineering elective.....	3
Humanities-social science	3
Total	15

Bachelor of Science in Chemical Engineering with an emphasis in BiochemicalSee the *Undergraduate Catalog* for prerequisites.**Fall I**

MATH 1500: Analytic Geometry and Calculus I	5
CHEM 1320: General Chemistry II	3
ENGLSH 1000: Exposition and Argumentation	3
CH ENG 1000: Introduction to Chemical Engineering....	3
Humanities-social science.....	3
Total.....	17

Fall II

MATH 2300: Calculus III	3
CHEM 2100: Organic Chemistry I.....	3
PHYSICS 2760: University Physics II.....	5

Winter I

MATH 1700: Calculus II	5
CHEM 1330: General Chemistry III	3
University Physics I	5
Humanities-social science	3
Total	16

Winter II

BIO SCI 1500: General Biology	5
MATH 4100: Differential Equations	3
CH ENG 2226: Computer-aided	

Sample Eight-Semester Programs (Cont.)

CH ENG 2225: Mass and Energy Balance 3
Humanities-social science..... 3
Total..... 17

Fall III

CH ENG 3200: Quantitative Methods of Analysis 4
BIO SCI 2200: Genetics..... 4

CH ENG 3234: Principles of Chemical Engineering I .. 3
CH ENG 3261: Chemical Engineering Thermodynamics I 3
Approved statistics elective 3
Total..... 17

Fall IV

BIOCHM 4270: Biochemistry 3
CH ENG 3243: Chemical Engineering Laboratory I 3
CH ENG 4315: Introduction to Biochemical Engineering 3
ENGINR 4363: Chemical Reaction Engineering 3
CH ENG 4385: Chemical Engineering Design I 3
Humanities-social science..... 3
Total..... 18

Calculations in Chemical Engineering 3
CHEM 2120: Organic Chemistry 2 w/lab 5
Total 16

Winter III

CH ENG 3242: Chemical Process Measurement Lab..... 3

CH ENG 3235: Principles of Chemical Engineering II..... 3
CH ENG 3262: Chemical Engineering Thermodynamics II 3
BIO SCI 2300: Introduction to Cell Biology 4
Humanities-social science 3
Total 16

Winter IV

CH ENG 4314: Biochemical Engineering Operation..... 3
CH ENG 4370: Chemical Process Control..... 3
CH ENG 4980: Process Synthesis and CH Design..... 3
ENGINR 1200: Statics and Elementary Strength of Materials 3
ENGINR 2100: Circuit Theory I..... 3
Humanities-Social Science 3
Total 18

Fall II

MATH 2300: Calculus III..... 3
CHEM 2100: Organic Chemistry I..... 3
PHYSCS 2760: University Physics II..... 5
CHEM E 2225: Mass and Energy Balance 3
Humanities-social science..... 3

Total..... 17

Fall III

CHEM 3200: Methods of Analysis 4
CH ENG 3234: Principles of Chemical Engineering I..... 3
CH ENG 3261: Chemical Engineering Thermodynamics I 3
CV ENG 3200: Fundamentals of Environmental Engineering 3
Humanities-social science..... 3
Total..... 16

Fall IV

CH ENG 3243: Chemical Engineering Laboratory I 3
CH ENG 4312: Air Pollution 3
CH ENG 4363: Reaction Engineering and Technology..... 3
CH ENG 4385: Chemical Engineering Design I..... 3
LAW 5545: Environmental Law..... 3
Total..... 15

Winter II

MATH 4100: Differential Equations 3
CHEM 2120: Organic Chemistry II..... 5
CHEM E 2226: Computer-aided Calculations in Chemical Engineering 3
Approved statistics elective 3
Humanities-social science 3
Total 17

Winter III

CHEM 4280: Quantitative Environmental Chemistry 3
CH ENG 3242: Chemical Process Measurements Lab 3
CH ENG 3235: Principles of Chemical Engineering II..... 3
CH ENG 3262: Chemical Engineering Thermodynamics II 3
CHEM E 4311: Chemodynamics 3
Total 15

Winter IV

ENGINR 2100: Circuit Theory I 3
CH ENG 4220: Hazardous Waste Management 3
CH ENG 4370: Chemical Process Control..... 3
CH ENG 4980: Process Synthesis and Design..... 3
Humanities-social science 3
Total 15

Bachelor of Science in Chemical Engineering with an emphasis in Environment

See the *Undergraduate Catalog* for prerequisites.

Fall I

MATH 1500: Analytic Geometry and Calculus I . 5
CHEM 1320: General Chemistry II 3
ENGLSH 1000: Exposition and Argumentation 3
CH ENG 1000: Introduction to

Chemical Engineering.... 2
Humanities-social science..... 3
Total..... 16

Winter I

MATH 1700: Calculus II 5
CHEM 1330: General Chemistry III 3
PHYSCS 2750: University Physics I 5
Humanities-social science 3
Total 16

Bachelor of Science in Chemical Engineering with an emphasis in Materials

See the *Undergraduate Catalog* for prerequisites.

Fall I

MATH 1500: Analytic Geometry and Calculus I 5
CHEM 1320: General Chemistry II 3
ENGLSH 1000: Exposition and Argumentation 3
CH ENG 1000: Introduction to

Winter I

MATH 1700: Calculus II 5
CHEM 1330: General Chemistry III 3
PHYSCS 2750: University Physics I 5
Humanities-social science 3
Total 16

Sample Eight-Semester Programs (Cont.)

Chemical Engineering....	2
Humanities-social science.....	3
Total.....	16

Fall II	
MATH 2300: Calculus III.....	3
CHEM 2100: Organic Chemistry I.....	3
PHYSCS 2760: University Physics II.....	5
CH ENG 2225: Mass and Energy Balance	3
Humanities-social science.....	3
Total.....	17

Winter II	
MATH 4100: Differential Equations	3
CHEM 2120: Organic Chemistry II.....	5
CH ENG 2226: Computer-aided Calculations in Chemical Engineering	3
ENGINR 1200: Statics and Elementary Strengths of Materials	3
Approved statistics elective	3
Total	17

Fall III	
CHEM 3200: Quantitative Methods of Analysis.....	4
CH ENG 3234: Principles of Chemical Engineering I.....	3
CH ENG 3261: Chemical Engineering Thermodynamics I.....	3
MAE 3200: Engineering Materials	4
Humanities-social science.....	3
Total.....	17

Fall IV	
CH ENG 3243: Chemical Engineering Laboratory I	3
CH ENG 4317: Chemical Processing in Semiconductors Devices..	3
CH ENG 4363: Chemical Reaction Engineering	3
CH ENG 4385: Chem Engineering Design I.....	3
ENGINR 2100: Circuit Theory I.....	3
Total.....	15

Winter III	
Advanced Chemistry Elective.....	3
CH ENG 3242: Chemical Process Measurements Lab.....	3
CH ENG 3235: Principles of Chemical Engineering II .	3
CH ENG 3262: Chemical Engineering Thermodynamics II	3
Approved materials elective	3
Humanities-social science	3
Total	18

Winter IV	
CH ENG 4319: Introduction to Polymers Materials.....	3
CH ENG 4370: Chemical Process Control.....	3
CH ENG 4980: Process Synthesis and Design.....	3
Approved materials elective	3
Humanities-social science	3
Total	15

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: MATH 1500, CHEM 1320, or concurrently.

CH ENG 1001—Experimental Course (cr.arr.). For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

CH ENG 2001—Advanced Experimental Course (cr.arr.). Content and number of credit hours to be listed in Schedule of Courses. Prerequisite: sophomore standing.

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: PHYSCS 2750, CHEM 2100, or concurrently.

CH ENG 2226—Computer-aided Calculations in Chemical Engineering (3). Survey of computational methods in chemical engineering; use of structured programming, spreadsheet, and software packages; numerical solutions of chemical engineering problems that involve roots of equations, simultaneous equations, curve fitting, integration and differentiation, differential equations. Prerequisite: MATH 4100 and CH ENG 2225, or concurrent.

CH ENG 3234—Principles of Chemical Engineering I (3). Fluid flow, heat transfer. Prerequisites: grade of C or better in CH ENG 2225.

CH ENG 3235—Principles of Chemical Engineering II (3). Mass transfer. Prerequisite: CH ENG 3234.

CH ENG 3242—Chemical Process Measurements (3). Laboratory study of physical and chemical measurements and some chemical engineering unit operations essential to chemical process industries. Prerequisites: junior standing, CH ENG 3234.

CH ENG 3243—Chemical Engineering Laboratory I (3). Laboratory study of some principal unit operations of chemical engineering. Prerequisite: CH ENG 3242 AND 3235 or concurrently.

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 CH ENG 2225.

CH ENG 3262—Chemical Engineering Thermodynamics II (3). Prerequisite: CH ENG 3261.

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 4220). Engineering principles involved in handling, collection transportation, processing and disposal of hazardous waste minimization, legislation on hazardous wastes and groundwater contamination. Prerequisite: junior standing.

CH ENG 4270—SQC and DOE for Chemical Engineering (3). Statistical tool box for chemical engineers: design of experiments that compare treatment means and explore the effects of process variables; various methods of data interpretation and empirical modeling; statistical quality control. Prerequisite: experience with Excel.

CH ENG 4306—Advanced Engineering Math (3). (same as Nuclear Engineering 4306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques. Prerequisite: 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: 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: CH ENG 3234 or instructor's consent.

CH ENG 4314—Biochemical Engineering Operation (3). Transport processes in bioreactors, agitation and aeration, scale-up, sterilization, liquid-solid separation, cell distegration, and other unit operations related to product recovery. Prerequisite: instructor's consent.

CH ENG 4315—Introduction to Biochemical Engineering (3). General introduction to biochemical engineering follows fundamentals of microbiology and biochemistry. Topics: fermentation, microbial population kinetics, bioproduct separation and purification, enzyme engineering techniques, biochemical reaction energetics. Prerequisites: CHEM 2120, MATH 2300 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. 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: CH ENG 3262 and CHEM 2120.

CH ENG 4320—Plasma Polymerization (3). Fundamental aspects of polymer formation in plasma state: gas ionization, reaction kinetics, plasma characteristics and operational parameters of plasma reactors. Properties of plasma-synthesized ultrathin films and their utilization also discussed. Prerequisites: CH ENG 4319 or instructor's consent.

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: CH ENG 3235, and MATH 4100/7100.

CH ENG 4336—Advanced Heat and Momentum Transfer (3). Advanced study of these transport phenomena. Prerequisites: CH ENG 3235 or instructor's consent.

CH ENG 4337—Advanced Mass Transfer (3). Advanced study of mass transfer. Prerequisite: CH ENG 4336 or instructor's consent.

CH ENG 4338—Analysis of Equilibrium Stage Processes (3). Advanced study of stage processes. Prerequisites: CH ENG 2226, 3235 and 3262.

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 2226, 3262, or instructor's consent.

CH ENG 4370—Modern Methods of Chemical Process Control (3). Process description using state space theory; introduction to digital control techniques; stability analysis. Prerequisites: CH ENG 4363.

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: CH ENG 2226, 3235, 3262, PHYSICS 2760, CHEM 2120.

CH ENG 4980—Process Synthesis and Design (3). Continuation of Chemical Engineering 385: application of chemical analysis and modeling to a capstone design project. Prerequisite: 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.

Department of Civil and Environmental Engineering

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M. Virkler, Assoc. Chair
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J. B. McGarraugh

Virtually all needed structures were designed and built by civil engineers. At MU, a civil engineering student can specialize in four basic areas:

- Structural engineering (reinforced concrete and steel)
- Environmental/water resources engineering (water supply, wastewater treatment, solid waste disposal, hazardous waste management, and surface and groundwater)
- Transportation engineering (highways, railways and mass-transit systems)
- Geotechnical engineering (foundations, slopes, dams, earthquakes, pavements, landfills, groundwater, non-destructive evaluation and risk analysis)

The Department of Civil and Environmental Engineering offers a Bachelor of Science with a major in Civil Engineering (BS CiE). The department also cooperates with the Department of Geology to administer a program that leads to dual degrees in civil engineering and geology.

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. Excellent shop facilities and technicians are available to fabricate and maintain the laboratory and research equipment.

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 three major constituencies: the undergraduate student working toward a BS CiE, the graduate student studying and conducting research leading to an MS or PhD, and the professional-in-practice seeking specialized education through advanced degrees, seminars, conferences and short courses.

The educational objectives of the Bachelor of Science with a major 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 with a major 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 students 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 fundamental 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 students will

2. Begin careers in civil engineering-related industries, especially construction and other careers not requiring professional licensure
3. Begin and complete graduate study in civil engineering at MU or other Carnegie doctoral extensive universities, and
4. Begin and complete graduate/professional study in other associated fields

The following list of outcomes describes what students are expected to know and to be able to do when they complete the program. At graduation, students will have:

- a. Ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics 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 (BS CiE)

Engineering topics start with basic computer and graphics courses and a freshman design experience. 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, hydraulics, hydrology, water resources, structural engineering and transportation/traffic engineering. 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, as well as all degree and college or school requirements.

Major core requirements

MATH 1500: Analytic Geometry and Calculus I.....	5
CHEM 1320: General Chemistry II.....	3
ENGINR 1100: Engineering Graphics.....	2
MATH 1700: Calculus II.....	5
PHYSICS 2750: University Physics I.....	5
MATH 2300: Calculus III.....	3
CS 1040: Intro to Problem Solving & Programming.....	3
ENGINR 1200: Statics and Elementary Strength of Materials.....	3
CV ENG 3200: Fundamentals of Environmental Engineering.....	4
MATH 4100: Differential Equations.....	3
PHYSICS 2760: University Physics II (5) OR CHEM 1330 and CHEM 2100 (6).....	5-6
ENGINR 2200: Intermediate Strength of Materials.....	3
CV ENG 3010: Civil Engineering Design II (WI).....	3
CV ENG 3300: Structural Analysis I.....	4
CV ENG 3700: Fluid Mechanics.....	3
CV ENG 3400: Fundamentals of Geotechnical Engineering.....	4
CV ENG 3600: Civil Engineering Materials.....	3
CV ENG 3702: Hydrology.....	4

CV ENG 3100: Fundamentals Transportation Systems Engineering.....	4
CV ENG 3312: Reinforced Concrete Design OR CV ENG 3313: Structural Steel Design.....	3
CV ENGR 4980: Civil Engineering Systems Design (WI).....	3
Civil engineering electives.....	15
Engineering topics elective - select two from: (a) ENGINR 2100 or BIO EN 4380 (b) ENGINR 2300 or CH ENG 3261 and (c) M A E 2600.....	6
Adviser-approved electives.....	6

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 adviser for details about this highly rewarding program that can include earning a salary for research performed under the guidance of a faculty member.

Sample Eight-Semester Program

Bachelor of Science in Civil Engineering

Check the *Undergraduate Catalog* for course prerequisites.

Fall I

MATH 1500.....	5
CHEM 1320.....	3
ENGINR 1100.....	2
S BS or HS FA**.....	3
Total.....	13

Fall II

MATH 2300.....	3
CS 1040.....	3
ENGINR 1200.....	3
CV ENG 3200.....	4
S BS or HS FA**.....	3
Total.....	16

Fall III

Math/basic sci.....	3
Engr topics elective.....	3
CV ENG 3300.....	4
CV ENG 3700.....	3
CV ENG 3400.....	4
Total.....	17

Fall IV

Engr topics elective.....	3
CV ENG electives.....	6
Adv app elective.....	3
S BS or HS FA**.....	3
Total.....	15

* Denotes General Education Requirements

** S BS = Social Behavior Science; HS FA = Humanities Studies/Fine Arts

Winter I

MATH 1700.....	5
PHYSICS 2750.....	5
ENGLSH 1000*.....	3
S BS or HS FA**.....	3
Total.....	16

Winter II

MATH 4100.....	3
PHYSICS 2760.....	5
ENGINR 2200.....	3
CV ENG 3010 (WI).....	3
S BS or HS FA**.....	3
Total.....	17

Winter III

CV ENG 3600.....	3
CV ENG 3702.....	4
CIV ENG 3100.....	4
CV ENG 3312 or 3313.....	3
S BS or HS FA**.....	3
Total.....	17

Winter IV

CV ENG 4980.....	3
CV ENG electives.....	9
Adv app elective.....	3
Total.....	15

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 1010—Civil Engineering Design I (3). Introduction to civil engineering including computer applications, the design process, design teams, surveying and site layout, communication skills, and academic ethics. Corequisite: ENGINR 1100.

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: ENGINR 1200.

CV ENG 2090—Engineering Measurements (3). Introduces methods of engineering surveys. Theory of errors. U.S. Public Land Surveys. Surveys computations by conventional and computer computations. Prerequisites: MATH 1500 and ENGINR 1100.

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. Corequisite: ENGINR 2200.

CV ENG 3100—Fundamentals of Transportation Systems Engineering (4). Covers fundamentals of transportation engineering including geometric design, traffic engineering, pavements, and planning. Co-requisite: PHYSCS 2750.

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: CHEM 1320 or equivalent.

CV ENG 3210—The Technology Environment Interface (3). Evaluation of interactions inherent in technology application to the natural world.

CV ENG 3220—Water and Wastewater Treatment Processes (3). Physical, chemical and biochemical processes for treating drinking water supplies, domestic and industrial wastewaters, including planning and design of such facilities. Prerequisites: junior standing and Chemistry 32 or equivalent.

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: 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: CV ENG 3300.

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: CV ENG 3300.

CV ENG 3319—Aerospace Structures (3). Analysis and design of aerospace structural components and structures. Prerequisites: ENGINR 2200 and MATH 4100.

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: ENGINR 2200.

CV ENG 3500—Building Construction (3). Survey of materials used in building construction. Introduction to blueprint reading, quantity take-offs, and cost estimation. Special attention to building details, especially the integration of different building components.

CV ENG 3600—Civil Engineering Materials (3). Introduces composition, structure, properties, behavior, and selection of civil engineering materials. Prerequisites: ENGR 2200 or instructor's consent.

CV ENG 3700—Fluid Mechanics (3). Statics and dynamics of fluids, principles of continuity, momentum and energy, pipe flow. Prerequisite: PHYSCS 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 streamflow. Fluid Mechanics lab with lab reports. Prerequisites: MATH 2300 and CV ENG 3200.

CV ENG 3710—Fluid Mechanics Laboratory (1). Applications and demonstration of basic principles of fluid mechanics by experiment. Prerequisite: CV ENG 3700.

CV ENG 3720—Applied Fluid Mechanics (2). Steady and unsteady flow in open channels and closed conduits, flow in multiple pipe systems, compound reservoir problems, gravity dam design, gradually varied flow. Prerequisite: CV ENG 3700.

CV ENG 4001—Topics in Civil Engineering (3). Study of current and new technical developments in civil engineering. Prerequisite: instructor's consent.

CV ENG 4002—Analysis of Civil Engineering Decisions (3). Formulates and analyzes probabilistic models of civil engineering systems and their environment. Elementary theory of decision making under uncertainty. Application to selected civil engineering problems. Prerequisite: senior standing.

CV ENG 4003—Optimization of Civil Engineering Systems (3). Automated design techniques such as linear, nonlinear, and dynamic programming; gradient and random searching. Civil engineering applications emphasized throughout. Prerequisite: senior standing.

CV ENG 4004—Engineering Administration (3). Cash flow analysis, financial analysis, managerial accounting and cost control, budgeting, organizational structure and behavior. Prerequisite: junior standing and MATH 1300 or 1500, or 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. Prerequisite: MATH 2300.

CV ENG 4007—Quality Management in Civil Engineering (3). Quantitative and qualitative quality planning and analysis concepts, including statistical tools and total quality management techniques, control, measurement and assessment. Prerequisite: senior standing. Graded on A/F basis only.

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: CV ENG 2090 and MATH 1500.

CV ENG 4082—Property Boundary Location (3). Principles of real property ownership, deeds, property boundary surveying, legal principles of original and retracement surveys Missouri statutes and regulations affecting surveying, GLO corner restoration and re-establishment. Prerequisites: ENGR 1500 and CV ENG 2090.

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: 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: 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: 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: ENGINR 2200.

CV ENG 4106—Intelligent Transportation Systems (3). This course is intended to be 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: CV ENG 3100.

CV ENG 4108—Bicycle and Pedestrian Transportation (3). This course discusses the planning, design and operation of bicycle and pedestrian facilities. Prerequisite: CV ENG 3100. Graded on A/F basis only.

CV ENG 4109—Urban Development and Planning (3). Introduction to planning processes; procedures and forces that shape urbanization. Prerequisite: senior standing.

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 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 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: 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 or 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. Prerequisite: ENGL 4420. Graded on A/F basis.

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 4280—Sanitary Engineering Chemistry (3). Applications of chemical theory and concepts of operations commonly employed in water and waste-water treatment to pollution from persistent chemicals and to specific control parameters. Prerequisites: senior standing or instructor's consent.

CV ENG 4290—Hazardous Waste and Aquatic Chemistry (3). Redox, carbonate chemistry, sorption topics. Innovative processes for hazardous waste treatment. Graded

on A/F basis only.

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: 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: 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: CV ENG 4300.

CV ENG 4320—Energy Methods in Mechanics (3). Design of building structures and bridges in steel and reinforced concrete using case studies. Prerequisites: CV ENG 3312 and 3313.

CV ENG 4330—Structural System Design (3). Design of structures using prefabricated elements. Economic considerations for system selection. Design and analysis of connection details. Case studies of modular structural systems. Prerequisite: CV ENG 4300.

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 STRUDL and NASTRAN programs to three dimensional structures. Prerequisite: senior standing; CV ENG 3300.

CV ENG 4404—Geotechnical Earthquake Engineering (3). This course will provide an introduction to topics relating to geotechnical aspects of earthquake engineering. Topics to be covered include; basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil liquefaction. Prerequisite: CV ENG 3400 or instructor's consent. Graded on A/F basis only.

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: 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: 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 4510—Construction Methods and Equipment (3). Selection and use of construction equipment, planning construction operations, equipment economics and operations analyses. Prerequisite: junior standing and MATH 1300 or 1500, or instructor's consent.

CV ENG 4600—Advanced Mechanics of Materials (3). (same as Mechanical and Aerospace Engineering 4600). Analysis of more complicated problems in stresses, strains. Prerequisite: ENGINR 2200.

CV ENG 4610—Experimental Stress Analysis (3). (same as Mechanical and Aerospace Engineering 4610). Photo elastic, electric strain gage, brittle lacquer methods of experimental stress analysis for static loads. Strain gage work includes strain rosettes. Prerequisite: ENGINR 2200.

CV ENG 4660—Vibration Analysis (3). (same as Mechanical and Aerospace Engineering 4660). Vibration theory with application to mechanical systems. Prerequisites: CV ENG 2080 and MATH 4100.

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: CV ENG 3700.

CV ENG 4702—Pipeline Engineering (3). Theoretical and practical aspects of pipeline engineering including pipeline transport of natural gas and various solids such as coal, sand and solid wastes. Prerequisites: CV ENG 3700 and MAE 3400.

CV ENG 4703—Applied Hydrology (3). Modern methods of applied hydrologic analysis and synthesis of hydrologic records. Prerequisites: CV ENG 3700 and 3702 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 (2-4). 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 Engineering - Undergraduate Honors (2-3). Independent project, supervised by the honors advisor, to be presented as a formal written report. Prerequisite: participation in the Civil Engineering Department Honors program.

Department of Computer Science

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H. Lu, Y. Shang, C. R. Shyu, J. Uhlmann

RESIDENT ASSISTANT PROFESSOR A. A. Hussam

RESIDENT INSTRUCTION INSTRUCTOR L. A. Stowe

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 includes a strong component of mathematics and sciences along with more theoretical courses in computer science. 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. A minor is 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, information management, and applications systems. Career opportunities include computer graphics, system design, databases, networking, intelligent systems, information technology, multimedia systems, entertainment industry, and operating systems programming.

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 at MU can earn a math minor.

The BS degree requires the completion of 120 credits. To graduate, a student must earn a 2.0 GPA or better in all courses that have an MU engineering prefix. A grade of C- or better is required in each course that is a prerequisite for a CS course that the student takes.

The Engineering Career Services Office, W1025 Engineering Building East, 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 2004. A student who started college before fall 2004 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

Computer science courses54

CS 1000: Introduction to Computer Science.....	3
CS 1050: Algorithm Analysis and Programming I	3
CS 2050: Algorithm Analysis and Programming II	3
CS 2110: Production Languages-C	3
CS 3270: Introduction to Digital Logic	3
CS 3280: Assembly Language and Computer Organization	3
CS 3310: Systems Analysis I	3
CS 3380: Database Applications and Information Systems	3
CS 4050: Design and Analysis of Algorithms I	3
CS 4320: Software Engineering I	3
CS 4520: Operating Systems I	3
CS 4850: Computer Networks I.....	3
CS 3970: Senior Capstone Design	3

CS courses chosen from the following list.....15

At least 9 must be numbered above 4000; one of the 4000-level courses must be CS 4410, 4430, or 4450.

CS 2110: Production Languages (3)	
CS 2830: Introduction to the Internet, WWW and Multimedia Systems (3)	
CS 3330: Object Oriented Programming (3)	
CS 3530: UNIX Operating System (3)	
CS 3940: Internship in Computer Science (3)	
CS 4001: Topics (1-3)	
CS 4270: Computer Architecture I (3)	
CS 4330: Object Oriented Design I (3)	
CS 4380: Database Management Systems I (3)	
CS 4410: Theory of Computation I (3)	
CS 4430: Compilers I (3)	
CS 4450: Principles of Programming Languages (3)	
CS 4610: Computer Graphics I (3)	
CS 4650: Image Processing (3)	
CS 4670: Digital Image Compression (3)	
CS 4750: Artificial Intelligence I (3)	
CS 4830: Science and Engineering of the World Wide Web (3)	

Related courses.....22

MATH 1500: Analytic Geometry and Calculus I	5
MATH 1700: Calculus II.....	5
MATH 2300: Calculus III	3
MATH 2320: Discrete Math	3
STAT 4315: Introduction to Mathematical Statistics	3
Technical elective	3
2000-level or above CS course or 4000-level Math course	

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 SCI 1010 and 1020 equal one science course).

Science sequences (choose one of the following four sequences)

Physics sequence (credit not given for both PHYSICS 1210 and 2750 or PHYSICS 1220 and 2760)

PHYSICS 2750: University Physics I (5)
PHYSICS 2760: University Physics II (5)

OR

PHYSICS 1210: College Physics I (4)

PHYSICS 1220: College Physics II (4)

Chemistry sequence

CHEM 1310: General Chemistry I (2)

CHEM 1320: General Chemistry II (3)

Biology sequence

BIO SCI 1010: General Biology I (3)

AND

BIO SCI 1020: General Biology Lab (2)

AND one of the following courses

BIO SCI 1200: General Botany (5)

BIOCHM 2110: The Living World: Molecular Scale (3)

ANTHRO 2050: Intro to Biological Anthropology with Lab (5) OR

ANTHRO 2051: Intro to Biological Anthropology (3) and

ANTHRO 2052: Biological Anthropology Lab (2)

BIO SCI 2600: Ornithology (4)

BIO SCI 2700: Ichthyology (4)

BIO SCI 3050: Genetics & Human Affairs (3)

BIOCHM 3630: General Biochemistry (3)

BIO SCI 3710: Intro to Entomology (3)

BIO SCI 3715: Insect Diversity (1)

BIO SCI 3210: Plant Taxonomy (4)

BIO SCI 3250: Parasitology (4)

BIO SCI 3260: Invertebrate Zoology (4)

Geology sequence

GEOL 1100: Principles of Geology (4)

OR

GEOL 1200: Environmental Geology (4)

AND one of the following courses

GEOL 2150: The Age of the Dinosaurs (3)

GEOL 2200: Oceanography (3)

GEOL 2300: Earth Systems & Global Change (3)

GEOL 2400: Surficial Earth Processes and Products w/lab (4)

GEOL 3110: Geology of Missouri (3) AND

GEOL 3115: Geology of Missouri Lab (1)

Upper-class geology course

Courses to complete 12 credits in science

ASTRON 1010: Intro to Astronomy I (4)

ASTRON 1020: Intro to Laboratory Astronomy (2)

CHEM 1100: Atoms and Molecules (3)

CHEM 1330: General Chemistry III (3)

CHEM 2050: Intro to Organic Chemistry (5)

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 adviser

Major Program Requirements - Bachelor of Arts in Computer Science (BA)

See the College of Arts and Science.

Sample Eight-Semester Program

Bachelor of Science with a major in Computer Science

Check the *Undergraduate Catalog* for course prerequisites.

Fall I

CS 1000..... 3

CS 1040..... 3

MATH 1500 3

Constitutional Elective*..... 3

Total..... 12

Winter I

CS 1050 3

MATH 1700..... 3

ENGLSH 1000* 3

Social/behavioral science* 3

Total 12

Fall II

CS 2110..... 3

CS 3310..... 3

MATH 2300 3

Science Sequence..... 3-5

COMMUN 1200* 3

Total..... 15-17

Winter II

CS 2210 3

CS 3380 3

MATH 2320..... 3

Science sequence..... 3-5

Humanities/fine art* 3

Total 15-17

Fall III

CS 2230..... 3

CS 4320..... 3

CS elective 3

STAT 4315 3

Non-science elective 3

Total..... 15

Winter III

CS 4050 3

CS 4850 3

Science elective 3-5

Social/behavioral science* 3

Non-science elective 3

Total 15-17

Fall IV

CS 3970..... 3

CS 4410 or 4430 or 4450... 3

CS elective 3

Humanities/fine arts* 3

General/elective 3

Total..... 15

Winter IV

CS 4520 3

CS elective..... 3

CS elective..... 3

Technical elective 3

Non-science elective 3

Total 15

*Denotes General Education Requirements

Minor in Computer Science

A minor in computer science is offered through the College of Engineering and also through the College of Arts and Science. 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.

CS 1050: Algorithm Design & Programming I..... 3

CS 2050: Algorithm Design & Programming II 3

CS 3270: Introduction to Digital Logic 3

Three additional department-approved CS courses with at least one numbered above 3000 9

COMPUTER SCIENCE COURSES

CS 1000—Introduction to Computer Science (3). Provides a Breadth-First introduction to the field of Computer Science. Topics include binary values and number systems, data representations, gates and circuits, problem solving and program design, low-level and high-level programming languages, abstract data types and algorithms, operating systems, file systems and directories, information systems, artificial intelligence. Simulation and other applications, networks, the world wide web, ethical issues and the impact of technology on society. Prerequisites: high school algebra.

CS 1001—Topics in Computer Science (cr.arr.). Topic and credit may vary from semester to semester. May be repeated upon consent of department.

CS 1010—Fund. Personal Computing: Hardware, Software, & Communication (3). Introduction to the fundamentals of computers, especially personal computers. Basics of computer hardware, computer software and computer communications are presented. Learners will gain an understanding of how these basic components form a system for problem solving.

CS 1020—Introduction to Computing (3). Introduction to word processing, spreadsheets, and database software. Taught in classrooms equipped with microcomputers. May not be taken for credit after a computer science course numbered above 1001 or Accountancy 2258 has been completed. Does not fulfill a mathematical sciences requirement for Arts and Science students.

CS 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 CS 1050.

CS 1050—Algorithm Design and Programming I (3). This course provides the student with experience in developing algorithms, designing, implementing and testing programs. It discusses the fundamental object-oriented programming concepts, and uses the Java language as an implementation vehicle. Prerequisites: previous programming experience and either Math 1100 or 1160.

CS 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.

CS 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: CS 1050.

CS 2110—Production Languages (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:

site: CS 2050.

CS 2210—Introduction to Digital Logic (3). (same as Electrical and Computer Engineering 2210). 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. Prerequisite: CS 1050.

CS 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: CS 2050.

CS 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.

CS 3210—Logic Design (4). (same as Electrical and Computer Engineering 3210). Digital electronics, chip level logic design, algorithmic state machines, microprocessor architecture and interfacing and digital system design methodology. Includes one hour laboratory. Prerequisite: CS 2210.

CS 3250—Digital Systems Laboratory (2). Laboratory experiments for digital systems design including combinational and sequential logic design, and microcontroller applications. Prerequisites: CS 2230. Graded on A/F basis only.

CS 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: CS 2050.

CS 3280—Assembly Language and Computer Organization (3). Introduces microcontroller-based systems, programming concepts, subroutines, bus control, input-output transfers, and interrupts. Prerequisite: CS 3270. Graded on A/F basis only.

CS 3310—Systems Analysis I (3). An introduction to the analysis and design of information systems. Presents an overview of information systems, emphasizes the fundamental concepts of a systems development life cycle, and offers experience with modeling tools and techniques used in systems analysis. Prerequisites: CS 2050.

CS 3330—Object Oriented Programming (3). This course focuses on teaching the student to master the necessary object-oriented programming concepts: abstraction, polymorphism, encapsulation, inheritance, interfaces, abstract classes. The Java language is used to illustrate the fundamental principles of object-oriented software design and implementation. Modern programming topics, including Graphical User Interface and event-driven programming, are also tackled. It is assumed the student has a basic knowledge of C syntax and programming. Prerequisite: CS 1050.

CS 3380—Database Applications and Information Systems (3). Covers fundamental top-

ics 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: CS 2050. Graded on A/F basis only.

CS 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: CS 2110.

CS 3940—Internship in Computer Science and Computer Engineering (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: CS 2050. Graded on a S/U basis only.

CS 4001—Topics in Computer Science (cr.arr.). Topic and credit may vary from semester to semester. May be repeated upon consent of department.

CS 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: CS 2050 and MATH 2320.

CS 4085—Problems in Computer Science (1-6). Independent investigation or project in Computer Science. Prerequisite: senior standing in Computer Science. May be repeated to 6 hours.

CS 4210—Microcomputer Architecture and Interfacing (4). (same as Electrical and Computer Engineering 4210/7210). Advanced microprocessor architecture and programming; special interface devices, such as memory controllers, disk controller, I/O processors, terminal controllers, communication interfaces and coprocessors. Prerequisite: CS 3210.

CS 4250—Design of Digital Subsystems (3). (same as Electrical and Computer Engineering 4250/7250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors. Prerequisite: CS 3210.

CS 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: CS 3270.

CS 4310—Systems Analysis II (3). Advanced theory and practice of systems analysis. Including data-flow analysis, structured and data-oriented methodologies, project management, measurement and estimation, peer reviews, quality assurance, and system acquisition. Team projects involving real clients provide guided experience. Prerequisite: CS 3310.

CS 4320—Software Engineering I (3). Overview of software life cycle processes. Practical and theoretical topics including systems analy-

sis and requirement specification, software design, implementation testing and maintenance. Enrollment limited to undergraduate students only. Prerequisite: CS 2050.

CS 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: CS 2050.

CS 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: CS 3380.

CS 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. Prerequisite: CS 3270 and MATH 2320.

CS 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 blockstructured languages, and run-time storage organization. Prerequisite: CS 3270 and MATH 2320.

CS 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. Prerequisite: CS 2050.

CS 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. Enrollment limited to undergraduate students only. Prerequisites: CS 2050 and 3270.

CS 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. Prerequisite: CS 2050 and either MATH 1500 or both MATH 1300 and 1320.

CS 4650—Image Processing (3). (same as Electrical and Computer Engineering 4850). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation. Prerequisites: CS 2050, STAT 4710 or instructor's consent.

CS 4670—Digital Image Compression (3).

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: CS 2050.

CS 4730—Building Intelligent Agents (3). Introduction to the design and development of intelligent agents, particularly emphasizing topics related to sensor-based control of mobile agents. Includes sensor characterization, mechanics of mobile robot control, reactive behaviors, and intelligent control architectures. Prerequisites: senior or graduate standing. CS 1050 or equivalent.

CS 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: junior standing and CS 2050, STAT 4710 or both MATH 1320 and STAT 2500.

CS 4810—Multimedia Engineering and Technology (3). (same as Electrical and Computer Engineering 4810). Survey of multimedia applications. Capture, coding, storage, transmission and software tools for developing productions involving text, graphics, images, animation, sound and video. Term Projects. Lecture and laboratory. 4 credits. Prerequisites: CS 3210 and 3830.

CS 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: CS 2830.

CS 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: CS 3270 and MATH 2320.

CS 4970—Senior Capstone Design I (3). (same as Electrical and Computer Engineering 4970). Group design projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposals. Oral and written reports. Not for graduate credit. Enrollment limited to undergraduate students only. Prerequisites: concurrent enrollment in a 4000-level design course, senior standing required.

CS 4980—Senior Capstone Design II (2). (same as Electrical and Computer Engineering 4980). Completion of CS 4970 design project. Design prototyping, testing, evaluation and preparation of documentation. Lectures on ethics, professionalism, safety, economic considerations. Oral and written reports. Not for graduate credit. Prerequisite: CS 4970.

CS 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.

CS 4995—Undergraduate Research in Com-

puter Science - Honors (0-6). Independent investigation to be presented as an undergraduate honors thesis. Prerequisite: honors student in Computer Science.

Department of Electrical Engineering and Computer Engineering

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FACULTY

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 C. Xiao
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PROFESSOR EMERITUS R. W. McLaren, B. W. Sherman,
 K. Unklesbay
ASSOCIATE PROFESSOR EMERITUS R. W. Leavene Jr

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-Columbia 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.

The Program Educational Objectives for electrical engineering are:

- Effectively use the principles and methods of electrical engineering, including mathematics and science, to analyze and design electrical systems
- Have confidence in technical capabilities and skills gained from an extensive laboratory experience including structured, to increasingly open-ended design
- Possess the ability to professionally work in teams, and communicate effectively
- Engage in professional activities that promote the electrical engineering profession and provide continuing learning
- Succeed in graduate study and research if pursued

The Program Educational Objectives for computer engineering are:

- Effectively use the principles and methods of computer engineering, including mathematics and science, to analyze and design computer systems
- Have confidence in technical capabilities and skills gained from an extensive laboratory experience including structured, to increasingly open-ended, design
- Possess the ability to professionally work in teams, and communicate effectively
- Engage in professional activities that promote the computer engineering profession and provide continuing learning
- Succeed in graduate study and research if pursued

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 requirements core

MATH 1500: Analytical Geometry and Calculus 1	5
MATH 1700: Calculus 2	5

MATH 2300: Calculus 3	3
MATH 4100: Differential Equations	3
STAT 4315: Intro to Math Statistics	3
PHYSICS 2750: University Physics I	5
PHYSICS 2760: University Physics II	5
CHEM 1320: General Chemistry II	3
ENGLSH 1000: Exposition and Argumentation	3
ENGINR 1100: Engineering Graphics OR COMMUN 1200: Intro to Pubic Speaking	2-3
ENGINR 1200, ENGINR 2300, OR IMSE 2710	3
ECON 1014, 1015, OR 1024	3
CS 1040 OR 1050	3
ECE 1000: Intro to ECE	1
ECE 2210: Intro to Digital Systems	3
ECE 2100: Circuit Theory I	3
ECE 3210: Logic Design	4
ECE 3810: Circuit Theory II	3
ECE 2110: Exp Elect Engr I	3
ECE 3830: Trans Analysis of Sig and Lin Sys	3
ECE 3510: Electromagnetic Fields	4
ECE 3410: Elect Cir and Sig I	4
ECE 3470: Power Engineering I	3
ECE 3610: Semiconductors and Devices	3
ECE 4310: Feedback Theory	3
ECE 3110: ECE Projects Lab	2
ECE 4970: Sr Capstone Design I	3
ECE 4980: Sr Capstone Design II	3
Electives	
Senior ECE lecture/lab	4
Senior ECE lecture/lab	4
Senior ECE elective	3
Senior ECE elective	3
Career elective	3
Free elective	3-4
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	
MATH 1500: Analytical Geometry and Calculus 1	5
MATH 1700: Calculus 2	5
MATH 2300: Calculus 3	3
MATH 2320: Discrete Math	3
MATH 4100: Differential Equations	3
STAT 4315: Intro to Math Statistics	3
PHYSICS 2750: University Physics I	5
PHYSICS 2760: University Physics II	5
CHEM 1320: General Chemistry II	3
ENGLSH 1000: Exposition and Argumentation	3
ENGINR 1200, ENGINR 2300, OR IMSE 2710	3
CS 1050: Algorithm and Program Design I	3
CS 2050: Algorithm and Program Design II	3
CS 4520: Operating Systems	3
CS 4320 OR 4330	3
CS 4850: Computer Networks	3
ECE 1000: Intro to ECE	1
ECE 2210: Intro to Digital Systems	3
ECE 2100: Circuit Theory I	3
ECE 3210: Logic Design	4
ECE 3810: Circuit Theory II	3
ECE 2110: Exp Elect Engr I	3
ECE 3830: Trans Analysis of Sig and Lin Sys	3
ECE 3510: Electromagnetic Fields	4
ECE 3410: Elect Cir and Sig I	4
ECE 3470: Power Engineering I	3
ECE 3610: Semiconductors and Devices	3
ECE 4310: Feedback Theory	3
ECE 3110: ECE Projects Lab	2
ECE 4250: VHDL and Prog Logic Devices	3
ECE 4270: MicroComp Arch and Interfacing	4
ECE 4970: Sr Capstone Design I	3
ECE 4980: Sr Capstone Design II	3
Electives	
ECE senior lecture/lab	4
ECE/CS technical elective	3
Free elective	0-1
ECE 4980: Sr Capstone Design II	3
Electives	
Engineering technical elective	3
ECE/CS technical elective	3
Free elective	4
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	
MATH 1500: Analytical Geometry and Calculus	5
MATH 1700: Calculus 2	5
MATH 2300: Calculus 3	3
MATH 2320: Discrete Math	3
MATH 4100: Differential Equations	3
STAT 4315: Intro to Math Statistics	3
PHYSICS 2750: University Physics I	5
PHYSICS 2760: University Physics II	5
CHEM 1320: General Chemistry II	3
ENGLSH 1000: Exposition and Argumentation	3
ENGINR 1100: Engineering Graphics OR COMMUN 1200: Intro to Pubic Speaking	2-3
ENGINR 1200, ENGINR 2300, OR IMSE 2710	3
ECONOM 1014, 1015, OR 1024	3
CS 1050: Algorithm and Program Design I	3
CS 2050: Algorithm and Program Design II	3
CS 4520: Operating Systems	3
CS 4320 OR 4330	3
CS 4850: Computer Networks	3
ECE 1000: Intro to ECE	1
ECE 2210: Intro to Digital Systems	3
ECE 2100: Circuit Theory I	3
ECE 3210: Logic Design	4
ECE 3810: Circuit Theory II	3
ECE 2110: Exp Elect Engr I	3
ECE 3830: Trans Analysis of Sig and Lin Sys	3
ECE 3510: Electromagnetic Fields	4
ECE 3410: Elect Cir and Sig I	4
ECE 3470: Power Engineering I	3
ECE 3610: Semiconductors and Devices	3
ECE 4310: Feedback Theory	3
ECE 3110: ECE Projects Lab	2
ECE 4250: VHDL and Prog Logic Devices	3
ECE 4270: MicroComp Arch and Interfacing	4
ECE 4970: Sr Capstone Design I	3
ECE 4980: Sr Capstone Design II	3

Sample Eight-Semester Programs

Bachelor of Science in Computer Engineering

See the *Undergraduate Catalog* for prerequisites.

Fall I	Winter I
MATH 1500..... 5	MATH 1700..... 5
CHEM 1320..... 3	ENGLSH 1000*..... 3
CS 1050..... 3	CS 2050..... 3
ECE 1000..... 1	ECE 2210..... 3
Constitution requirement*..... 3	Humanities or social science (H/SS)..... 3
Total..... 15	Total 17

Fall II	Winter II
MATH 2300..... 3	MATH 4100..... 3
PHYSICS 2750..... 5	PHYSICS 2760..... 5
ECE 3210..... 4	ECE 3810..... 3
ECE 2100..... 3	ECE 2110..... 3
	MATH 2320..... 3
Total..... 15	Total 17

Fall III	Winter III
ECE 3830..... 3	ECE 3110..... 2
ECE 3410..... 4	ECE 4250..... 3
STAT 4710..... 3	CS 4520..... 3
Humanities or social science (WI)..... 3	Humanities or social science..... 3
Elective..... 3	ENGINR 1200, 2300 or IMSE 2710..... 3
Total..... 16	Total 14

Fall IV	Winter IV
ECE 4270..... 4	ECE 4980..... 2
ECE 4970..... 3	CS 4850..... 3
ECE 3510..... 4	Engr tech elect..... 3
CS 4320..... 3	Tech elective..... 3
Humanities or social science..... 3	Humanities or social science..... 3
	Elective..... 3
Total..... 17	Total 17

Bachelor of Science in Electrical Engineering

See the *Undergraduate Catalog* for prerequisites.

Fall I	Winter I
MATH 1500..... 5	MATH 1700..... 5
CHEM 1320..... 3	ECE 2210..... 3
CS 1040 or 1050..... 3	ENGLSH 1000*..... 3
ECE 1000..... 1	ECON 1014, 1015, 1024..... 3
Const requirement*..... 3	ENGINR 1100 or COMMUN 1200..... 2-3
Total..... 15	Total 16-17

Fall II	Winter II
MATH 2300..... 3	MATH 4100..... 3
PHYSICS 2750..... 5	PHYSICS 2760..... 5
ECE 3210..... 4	ECE 3810..... 3
ECE 2100..... 3	ECE 2110..... 3
	H/SS**..... 3
Total..... 15	Total 17

Fall III
ECE 3830..... 3
ECE 3510..... 4
ECE 3410..... 4
H/SS (WI)**..... 3
Total..... 14

Fall IV
ECE 4970..... 3
ECE tech elective..... 3
ENGINR 1200, 2300 or IMSE 2710..... 3
ECE tech elective..... 3
ECE sr lec/lab..... 4
Total..... 16

Dual Degree: Electrical Engineering and Computer Engineering

See the *Undergraduate Catalog* for prerequisites.

Fall I
MATH 1500..... 5
CHEM 1320..... 3
CS 1050..... 3
ECE 1000..... 1
Const req*..... 3
Total..... 15

Fall II
MATH 2300..... 3
PHYSICS 2750..... 5
ECE 3210..... 4
ECE 2100..... 3
Total..... 15

Fall III
ECE 3830..... 3
ECE 3410..... 4
ECE 3510..... 4
CS 4520..... 3

Total..... 14

Fall IV
ECE 4310..... 3
ECE 3610..... 3
ECE 4250..... 3
CS 4320, 4330..... 3
H/SS**..... 3
Total..... 15

Fall V
ECE 4980..... 2
ECE Sr Lec/Lab..... 4
CS 4850..... 3
H/SS**..... 3
Elective..... 0-1
Total..... 12-13

Winter III
ECE 3470..... 3
ECE 3610..... 3
ECE 4310..... 3
ECE 3110..... 2
H/SS..... 3
STAT 4710..... 3
Total..... 17

Winter IV
ECE 4980..... 2
ECE tech elective..... 3
H/SS..... 3
Free elective..... 3-4
ECE sr lec/lab..... 4
Total..... 15-16

Winter I
MATH 1700..... 5
ENGLSH 1000*..... 3
CS 2050..... 3
ECE 2210..... 3
ENGINR 1100 or COMMUN..... 2-3
Total 16-17

Winter II
MATH 4100..... 3
PHYSICS 2760..... 5
ECE 3810..... 3
ECE 2110..... 3
MATH 2320..... 3
Total 17

Winter III
STAT 4710..... 3
ECE 4250..... 3
ECE 3110..... 2
ECE 3470..... 3
ECONOM 1014, 1015, 1024..... 3
H/SS-WI**..... 3
Total..... 17

Winter IV
ECE 4970..... 3
ECE 4270..... 4
ECE/CS Elct..... 3
ENGINR 1200, 2300 or IMSE 2710..... 3
H/SS**..... 3
Total..... 16

*Denotes General Education Requirements
**Humanities or Social Services

**ELECTRICAL AND
COMPUTER ENGINEERING
COURSES**

ECE 1000—Introduction to Electrical and Computer Engineering (1). Introduction to department, college and campus computing facilities and software; overview of areas encompassed by electrical engineering; small-team lab/projects. Lectures help sessions, and lab sessions. Prerequisite: freshman status.

ECE 1001—Experimental Course (cr.arr.). For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

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 (3). DC circuit analysis, inductors and capacitors, first-order response, AC circuit analysis, AC power and three-phase, transformers. Prerequisite: MATH 4100 and PHYSICS 2760 concurrent. For ECE Majors.

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: ENGINR 2100 concurrently.

ECE 2210—Introduction to Digital Systems (3). (same as Computer Science 2210). Introduces microprocessor-based systems, computer organization, programming concepts, bus control, input-output transfers, subroutines and interrupts. Prerequisite: CS 1040 or 1050. Graded on A/F basis only.

ECE 3110—Electrical Engineering Projects Laboratory (2). 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: at least two of three from the following: ECE 3210, 3410 and 3510. Graded on A/F basis only.

ECE 3210—Logic Design (4). (same as Computer Science 3210). Digital electronics, chip level design, algorithmic state machines, microprocessor architecture and interfacing, and digital system design methodology. Lecture and lab. Prerequisites: ECE 2210.

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: 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. Prerequisite: ECE 2110, 3810 concurrent.

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 ac machines; power transmission and distribution;

introduction to power electronics and to pulse power electronics. Prerequisite: ECE 3410. Graded on A/F basis only.

ECE 3510—Electromagnetic Fields (4). Elements of vector analysis, transmission line theory, electrostatics, magnetostatics, time varying fields and plane waves. Prerequisite: PHYSICS 2760, MATH 4100 and ECE 2110. 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: ECE 3510.

ECE 3810—Circuit Theory II (3). Continuous and discrete systems analysis; discrete and continuous convolution techniques. Prerequisite: CS 1050, ENGR 2100, MATH 4100/7100.

ECE 3830—Transform Analysis of Signals and Linear Systems (3). Transform Analysis of Signals and Linear Systems. Laplace transforms, z-transforms, Fourier series and transforms. Prerequisite: ECE 3810.

ECE 4001—Topics in Electrical and Computer Engineering (3). Current and new technical developments in electrical engineering. Prerequisite: senior standing.

ECE 4010—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. Prerequisite: MATH 2300.

ECE 4020—Energy Systems and Resources (3). (same as Nuclear Science and Engineering 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: ENGINR 2300.

ECE 4030—Introduction to Nuclear Reactor Engineering (3). (same as Nuclear Science and Engineering 4346). Engineering principles of nuclear power systems, primarily for the production of electrical energy. Prerequisites: 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: 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: ECE 4310, 3210, 3110.

ECE 4210—Microcomputer Architecture

and Interfacing (4). (same as Computer Science 4210). Advanced microprocessor architecture and programming; special interface devices, such as memory controllers, disk controller, I/O processors, terminal controllers, communication interfaces, coprocessors. Prerequisite: ECE 3210.

ECE 4250—VDHL and Programmable Logic Devices (3). (same as Computer Science 4250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors. Prerequisites: ECE 3210.

ECE 4310—Feedback Theory (3). Feedback system analysis. System modeling methods, performance specifications, construction, and use of root-locus, Bode plots, and Nyquist diagrams. Continuous and Discrete systems are treated in parallel. Prerequisites: ECE 3830

ECE 4330—Robotic Control And Intelligence (4). Introduces robotics; robot system characteristics; robot motive power systems; geometric structure of robots; sensors and feedback; control applications and algorithms; data acquisition and output actuation function; robots and AI; microprocessor applications. Lecture and Laboratory. Prerequisites: ECE 4310, 3210 and 3410.

ECE 4340—Building Intelligent Robots (4). 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: ECE 2210 and CS 2050 or instructor's consent.

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: 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: 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: ECE 3610 and 3410.

ECE 4430—Electronic Circuits and Signals II (3). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscil-

lators, and feedback amplifiers. Prerequisites: 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: ECE 4430

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: 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: ECE 3510.

ECE 4550—Introduction to Plasmas (3). (same as Nuclear Science and Engineering 4375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications. Prerequisites: ECE 4930.

ECE 4570—Lasers and Their Applications (3). (same as Nuclear Science and Engineering 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 2760 and MATH 4110.

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: ECE 3510.

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. Emphasis on semiconductor-based devices and application to fiber-optical communications. Prerequisite: ECE 3610.

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: ECE 3610.

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: ECE 3610.

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: 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: ECE 3830.

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 (4). 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: ECE 3470.

ECE 4810—Multimedia Engineering and Technology (4). (same as Computer Science 4810). Survey of multimedia applications. Capture, coding, storage, transmission, and software tools for developing productions involving text, graphics, images, animation, sound and video. Term projects. Lecture and laboratory. Prerequisites: ECE 3210 and 3830.

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: ECE 2110, 2210, 3830.

ECE 4850—Introduction to Digital Image Processing (4). (same as Computer Science 4650). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

ECE 4910—Microwave Systems (3). Theory and applications of transmission systems with emphasis on transmission lines at low and high frequencies. Prerequisites: 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—Distributed Transmission Systems (4). Theory and application of transmission systems with emphasis on transmission lines for low and high frequencies. Lecture and laboratory. Prerequisites: ECE 2110 and 3510.

ECE 4940—Antenna Theory and Design (3). Introduction to antenna theory and design emphasizing engineering aspects of antenna systems, transmitting and receiving antenna parameters, various wire and aperture antennas, the role of parasitic elements, reflectors, and arrays. Prerequisites: 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: ECE 3510 and 3410.

ECE 4970—Senior Capstone Design I (3). (same as Computer Science 4970). Group design projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Oral and written reports. Not for graduate credit. Prerequisites: ECE 3110 and senior standing.

ECE 4980—Senior Capstone Design II (2). (same as Computer Science 4980). Completion of 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 ECE 4970.

ECE 4990—Undergraduate Research in Electrical 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 4995—Research-Undergraduate Honors Electrical & 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.

Department of Industrial and Manufacturing Systems Engineering

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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 (BS IE).

Major Program Requirements – Industrial Engineering (BS IE)

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-Columbia are able to:

- Assess and create enterprise value through the optimization of systems by using methodologies that make processes faster or more innovative, reliable or cost-efficient
- Analyze and design integrated systems problems comprised 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 graduates should have:

- Foundational knowledge in mathematics, natural sciences, engineering sciences, applied probability, computer science, humanities and social science
- Optimization skill sets for modeling, optimization and evaluation of integrated systems of people, technology and information
- Problem-solving ability based upon knowledge and skills to develop integrated solutions to large-scale, socio-technical problems
- Communication and group dynamics skills to communicate in both oral and written forms and to become proficient in working in diverse teams of individuals

- Understanding of professional and ethical behavior to be prepared for ethical decision making and service to the engineering profession, and to have the means to continue in the acquisition of knowledge

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: Analytical Geometry & 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)	2-3
PHYSICS 2750: University Physics I.....	5
PHYSICS 2760: University Physics II.....	5
CS 1040: Intro to Problem Solving & Programming OR CS 1050: Algorithm Design & Programming I.....	3
ENGINR 1100: Engineering Graphics Fundamentals	2
ENGINR 1200: Statics and Elem Strength	3
ENGINR 2300: Engineering Thermodynamics	3
ENGINR 2100: Circuit Theory for Engineers	3
IMSE 1087: Undergraduate Seminar	0
IMSE 2030: Fund of Sys Design & Analysis.....	3
IMSE 2210: Linear Algebra for Engrs.....	3
IMSE 2110: Probability & Stats for Engrs.....	3
IMSE 2710: Engr Economic Analysis	3
IMSE 4110: Engineering Statistics	3
IMSE 4610: Engineering Quality Control	3
IMSE 3810: Ergonomics & Workstation Des	3
IMSE 4550: Comp Aided Design & Mfg	4
IMSE 4970: Capstone Design I.....	1
IMSE 4980: Capstone Design II	3
IMSE 3410: Mgmt Info Systems Design	3
IMSE 4310: Integrat Prod Systems Design.....	3
IMSE 4210: Linear Programming.....	3
IMSE 3280: Industrial Systems Simulation.....	3
IMSE 4230: Operations Research Models	3
IMSE 4350: Production & Operations Analysis	3
IMSE electives	6
Choose from the following:	
IMSE 1010: Experimental Course Industrial Engineering ..	1
IMSE 2010: Experimental Course Industrial Engineering ..	1
IMSE 4085: Problems in IMSE	1-3
IMSE 3030: Manufacturing & Supply Systems.....	3
IMSE 4750: Entrepreneurial Innovation Mgmt: Enterprise Conception	3
IMSE 4760: Entrepreneurial Innovation Mgmt: Enterprise Design	3
IMSE 4770: Entrepreneurial Innovation Mgmt: Enterprise Operations	3

IMSE 4330: Material Flow & Logistics Sys Des.....	3
IMSE 4570: Comp Intgr Mfg Control	3
IMSE 3510: Mfg Systems Design.....	3
IMSE 4410: Web-Based Info Systems	3
Engineering electives	3
Choose from the following:	
BIO EN 2180: Engineering Analysis of Bioprocesses	
CS 2210: Intro to Digital Logic	
CS 2050: Alogrithm Design & Program II	
CV ENG 3400: Fundamentals of Geotechnical Engr	
CV ENG 3700: Fluid Mechanics	
ENGINR 2200: Intermediate Strength of Mtls	
MAE 2600: Dynamics	
Technical electives	6
A technical elective is defined as any course relevant to the degree program but not required.	

Sample Eight-Semester Program

Bachelor of Science in Industrial Engineering

Fall I

MATH 1500: Analytical Geometry & Calculus	5
ENGINR 1100: Engineering Graphics.....	2
IMSE 1087: Undergraduate Seminar ..	0
Humanities/soc science elective	3
Constitutional..... requirement	3
Economics requirement ..	3
Total.....	16

Fall II

MATH 2300: Calculus III.....	3
PHYSICS 2750: University Physics I.....	5
IMSE 1087: Undergraduate Seminar ..	0
IMSE 2110: Prob & Statistics for Engrs	3
IMSE 2710: Engr Economic Analysis	3
Total.....	15

Winter I

MATH 1700: Calculus II.....	5
CHEM 1310: General Chemistry I OR CHEM 1320: General Chemistry II With Lab..	2-3
CS 1040: Intro to Prob Solv & Programming OR CS 1050: Algorithm Design & Programming I	3
ENGLSH 1000: Exposition and Argumentation	3
IMSE 1084: Undergradate Seminar.....	0
IMSE 2030: Fund. of System Design & Analysis	3
Total	16-17

Winter II

MATH 4100: Differential Equations	3
PHYSICS 2760: University Physics.....	5
IMSE 1087: Undergraduate Seminar...0	
IMSE 2210: Linear Algebra for Engineers	3
IMSE 3280: Industrial Systems Simulation.....	3
Social science elective.....	3
Total	17

Sample Eight-Semester Program (Cont.)

Fall III	Winter III	Fall IV	Winter IV
ENGINR science	ENGINR 2100: Circuit	IMSE 1087:	ENGINR 2300:
elective 3	Theory 3	Undergraduate Seminar . 0	Engr
IMSE 1087:	IMSE 1087:	IMSE 3810: Ergonomics	Thermodynamics 3
Undergraduate Seminar . 0	Undergraduate	& Workstation Design.... 3	IMSE 1087:
IMSE 4110: Engineering	Seminar..... 0	IMSE 4550: Computer	Undergraduate Seminar... 0
Statistics 3	IMSE 4610: Engr	Aided Design & Mfg 4	IMSE 4980: Capstone
IMSE 4210:	Quality Control..... 3	IMSE 4970: Capstone	Design II..... 3
Linear Programming 3	IMSE 4310: Int. Prod.	Design II..... 1	IMSE elective..... 3
IMSE 4230: Operations	Systems Design 3	IMSE 3410: Mgmt	Technical elective 3
Research Models 3	IMSE 4350: Production	Information Systems	Humanities/ soc science elective 3
ENGINR 1200: Statics and	and Operations Analysis... 3	Design 3	Total 15
Elem Strength of Mtl 3	Humanities/social	IMSE elective..... 3	
Total..... 15	science elective..... 3	Technical elective..... 3	
	Total 15	Total..... 17	

INDUSTRIAL AND MANUFACTURING SYSTEMS ENGINEERING COURSES

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 2010—Experimental Course (1). For second semester freshman-level students. Content to be listed in Schedule of Courses.

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 2050—Industrial Systems Design (3). Sequence of simple systems design problems; several numerical analysis techniques integrated into the design problems; opportunities provided for building skill in computer programming. Prerequisite: CECS 1001, 1040 or 1050.

IMSE 2110—Probability and Statistics for Engineers (3). Introduction to data analysis, probability concepts, random variables, parameter estimation and hypothesis testing. Prerequisite: MATH 1500.

IMSE 2210—Linear Algebra for Engineers (3). Study of quantitative methods necessary for analysis, modeling and design of optimal industrial systems. Prerequisite: CECS 1001, 1040, 1050 and MATH 1700.

IMSE 2410—Introduction to Information Systems (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 cost and breakeven analysis. Decision making using capital budgeting techniques and time value of money. This includes cash flow analysis, replacement and make-or-buy taxes, inflation, risk and sensitivity analysis.

IMSE 2810—Performance Measurement and Ergonomics (4). 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: 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: IMSE 2030. Restricted to undergraduate students.

IMSE 3087—Industrial Engineering Seminar (1). Selected topics in industrial engineering. Oral presentations and engineering reports. Prerequisite: junior standing.

IMSE 3280—Industrial Systems Simulation (3). Traditional IE data collection techniques leading to an introduction to discrete-event stochastic systems modeling and experimentation using specialized software. Statistical design and analysis including distribution fitting and alternative comparison methodologies. Prerequisites: IMSE 4230. Corequisites: IMSE 2810.

IMSE 3410—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: CECS 1040 or 1050.

IMSE 3510—Manufacturing Systems Design (3). Design project involving development, analysis and comparison of alternate methods of manufacturing a product; extensive survey of a variety of manufacturing methods is included. Prerequisites: CHEM 1310 or 1320.

IMSE 3530—Applied Robotics in Production (3). Robot structures, arm geometry, drive systems, end effectors, work station design, management aspects, economic factors, applications in various industries. Prerequisites: IMSE 2210, 2810 and ENGINR 1200.

IMSE 3810—Ergonomics and Workstation Design (3). Ergonomics and engineering psychology applied to the design of man-machine system, includes robotic workstation design and workplace safety; includes lab. Prerequisites: junior standing. Restricted to undergraduate students.

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 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: IMSE 2110.

IMSE 4210—Linear Programming (3). Theory and application of linear programming. Prerequisite: IMSE 2210.

IMSE 4230—Operations Research Models (3). Formulates probabilistic models and determines optimal control policies for queuing and inventory systems. Introduces Markov chains and dynamic programming. Prerequisites: IMSE 2110 and 2210.

IMSE 4310—Integrated Production Systems Design (3). Design and operation of flow shop, job shop, and cell-based production systems, including scheduling, layout and material flow issues. Prerequisites: IMSE 4210, 3280.

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 systems, and distribution/transportation systems. Prerequisites: IMSE 4210, 3280.

IMSE 4350—Production and Operations Analysis (3). Quantitative methods for forecasting, scheduling, and production control in complex manufacturing systems. Use of Enterprise Resource Planning (ERP) systems. Prerequisite: IMSE 4230.

IMSE 4410—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: IMSE 3410 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: IMSE 4610, 4310.

IMSE 4570—Computer Integrated Manufacturing Control (3). Implementation of computer integrated manufacturing (CIM) at the shop floor level. Covers essential components of machine sensing and actuation, information representation and processing, data communication and networking.

IMSE 4610—Engineering Quality Control (3). Analysis of quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. Prerequisite: IMSE 4110.

IMSE 4650—Reliability (3). Use of Boolean algebra in design and analysis of complex engineering systems; reliability of system in terms of component reliabilities; poisson process as basic failure model; life testing techniques; maintainability; reliability demonstration procedures. Prerequisite: IMSE 4110.

IMSE 4750—Entrepreneurial Innovation Management: Enterprise Conception (3). (same as Management 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 (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 4760). Expand on 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: IMSE 4750.

IMSE 4765H—Entrepreneurial Innovation Management: Enterprise Design (3). Expand on 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: IMSE 4755H. Honors eligibility required.

IMSE 4770—Entrepreneurial Innovation Management: Enterprise Operations (3-4). (same as Management 4770). Perform the day-to-day operations for an enterprise conceived in IMSE 4750 and designed in IMSE 4760 by managing all business processes including finance, manufacturing, sales and delivery. Prerequisite: IMSE 4760. Restricted to undergraduate students only.

IMSE 4775H—Entrepreneurial Innovation Management: Enterprise Operations (3-4). Perform the day-to-day operations for an enterprise conceived in IMSE 4755H and designed in IMSE 4765H by managing all business processes including finance, manufacturing, sales and delivery. Prerequisite: IMSE 4765H. Restricted to undergraduate students only. Honors eligibility required.

IMSE 4970—Capstone Design I (1). Combination of case study and industry based problem analysis, each structured to integrate material presented in several theory or methods courses. Prerequisite: senior standing.

IMSE 4980—Capstone Design II (3). Industry-based design problem structured to integrate material presented in several theory or methods courses. Must immediately follow IMSE 4970. Prerequisite: IMSE 4970, 3810, 4310, 4350.

IMSE 4990—Undergraduate Research in Industrial Engineering (0-6). Independent investigation or project in industrial engineering. Prerequisite: senior standing 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.

Department of Mechanical and Aerospace Engineering

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The MU Department of Mechanical and Aerospace Engineering trains students in two distinct stems of mechanical engineering: thermal systems and mechanical systems. The department instructs students in four major focus areas: design and manufacturing, dynamics and controls, energy systems and materials. Collaborations with other departments include joint capstone design projects. (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 (BS ME) 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.

The mission of the Mechanical and Aerospace Engineering Department is to:

- Prepare students for successful careers in the mechanical engineering profession
- Conduct high quality and innovative research
- Serve the community and industry providing educational and research resources.

The educational objectives of the undergraduate program in mechanical engineering are to produce graduates who can (during the first several years following graduation):

- Apply analytical, experimental and computational techniques to solve engineering problems associated with the design and manufacture of devices, machines and systems (a,b,e,k)
- Synthesize and analyze integrated thermal/fluid and mechanical systems, communicate effectively, and work collaboratively on multidisciplinary teams in relation to the design process (a,c,d,e,g,k)
- 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,j)
- Engage in life-long learning necessary to advance professionally through continuing education and training (a, h, i, j)
- Succeed in graduate studies in mechanical engineering or a related field if pursued (a-k)

Note: letter(s) in parentheses indicates appropriate ME Program Outcome(s) below.

Program Outcomes

Graduates from the mechanical engineering program will have (by the time of graduation):

- a. an ability to apply knowledge of mathematics, science and mechanical engineering
- 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
- 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 in a global 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 (BS ME)

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 or controls.

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	
ECONOM 1014: Principles of Microeconomics OR	
ECONOM 1024: Fundamental Microeconomics OR	
IMSE 2710: Engineering Economic Analysis.....	3
MATH 1500: Analytical 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 OR	
IMSE 2110 Probabilistic Models	3
PHYSCS 2750: University Physics I.....	5
PHYSCS 2760: University Physics II.....	5
CS 1040: Introduction to Problem Solving and	
Programming.....	3
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 3100 Computational Methods for Engineering	
Design	3
MAE 2600: Dynamics.....	3
MAE 3200: Engineering Materials	4
MAE 3400: Fluid Mechanics	3
MAE 3600: System Dynamics.....	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 4700: Automatic Control.....	3
MAE 4800: Thermal and Fluid Sciences Laboratory	3
MAE 4900: Mechanical Design II	3
MAE 4980: Senior Capstone Design MAE	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 4001: Topics in MAE	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 entrepreneurship option may be added by taking IMSE 4750 and IMSE 4760 in the sixth and seventh semesters before the Senior Capstone Design Experience (MAE 4980). These three courses combine to give the student a fundamental understanding of entrepreneurial methods. This option will not add credits to the degree program. IMSE 4750 meets the requirement for social science/behavioral science above 2000 and IMSE 4760 fulfills the technical elective requirement.

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: Honors Research. 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 adviser) 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 adviser and then approved by the chair of the MAE honors committee. A finished copy of the honors thesis, signed by the honors adviser and second reader, is required for satisfactory completion of the project.

Academic Qualifications for the Honors 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. If a student pursuing the honors program fails to satisfy the 3.0 GPA requirements, the project credit effectively becomes MAE elective credit under the heading of MAE 4085: Problems.

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.

Sample Eight-Semester Program

Bachelor of Science with a major in Mechanical Engineering

See the *Undergraduate Catalog* for prerequisites.

Fall I

MATH 1500: Analytical Geometry and Calculus I... 5
 CHEM 1320: General Chemistry II With Lab... 3
 ENGINR 1100: Engineering Graphics Fundamentals.. 2
 HIST 1100 or 1200 or POL SC 1100 or 1700: American History/Government*..... 3
 MAE 1000: Introduction to Mechanical Engineering 1
 Elective 2
Total..... 16

Fall II

MATH 2300: Calculus III..... 3
 ENGINR 1200: Statics and Elementary Strength of Materials 3
 ENGINR 2300: Engineering Thermodynamics..... 3
 PHYSICS 2760: University Physics II..... 5
 ECONOM 1014: Principles of Microeconomics* OR ECONOM 1024: Fundamental Microeconomics* OR IMSE 2710: Engineering Economic Analysis..... 3
Total..... 17

Winter I

MATH 1700: Calculus II. 5
 ENGLSH 1000: Exposition and Argumentation* 3
 PHYSCS 2750: University Physics I 5
 CS 1040: Introduction to Problem Solving and Programming 3
 ENGINR 1110: Solid Modeling for Engineering Design..... 1
Total 17

Winter II

MAE 2600: Dynamics..... 3
 MAE 3100: Computational Methods for Engineering Design ... 3
 MATH 4100: Differential Equations 3
 ENGINR 2200: Intermediate Strength of Materials..... 3
 Humanities/fine arts elective* 3
Total 15

Fall III

ENGINR 2100: Circuit Theory for Engineers..... 3
 MAE 3200: Engineering Materials 4
 MAE 3400: Fluid Mechanics 3
 STAT 4710: Intro to Mathematical Statistics OR IMSE 2110: Probability and Statistics for Engineers 3
 Humanities/fine arts elective* 3
Total..... 16

Fall IV

MAE 4000+: MAE electives..... 6
 MAE 4700: Automatic Control 3
 MAE 3800: Instrumentation and Measurement Laboratory 3
 MAE 4900: Mechanical Design II 3
Total..... 15

*Denotes General Education Requirements

Winter III

MAE 3600: Systems Dynamics..... 3
 MAE 3900: Mechanical Design I 3
 MAE 4300: Heat Transfer 3
 MAE 4500: Manufacturing Methods 3
 Humanities/fine arts elective* 3
Total 15

Winter IV

MAE 4800: Thermal and Fluid Sciences Laboratory 3
 MAE 4980: Senior Capstone Design MAE.... 3
 Approved Technical elective above 3000..... 3
 MAE 4000+: MAE elective 3
 Behavioral/social science elective* 3
Total 15

MECHANICAL AND AEROSPACE ENGINEERING COURSES

MAE 1000—Introduction to Mechanical Engineering (1). Orientation to MU, the College of Engineering, the Mechanical and Aerospace Engineering Department, and student support services. Fundamentals of Excel, design project.

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—Computer Programming (3). Introduction to the use of computers. Topics include problem solving, MATLAB programming techniques, algorithm design, and software development. Prerequisite: MATH 1500.

MAE 2300—Thermodynamics (3). (same as Engineering 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes. Prerequisites: PHYSCS 2750.

MAE 2600—Dynamics (3). Basic fundamentals of particle and rigid body dynamics; energy and momentum methods. Prerequisite: grade of C or better in ENGINR 1200. Restricted to MAE students only.

MAE 3100—Computational Methods for Engineering Design (3). Principles of com-

puter aided-design. Analysis and application of numerical methods in computer-aided design of mechanical systems. Computer implementation. Prerequisites: CS 1040 or 1050, 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 the physical properties. Mechanical behavior of engineering materials. Prerequisite: grade of C or better in ENGINR 2200 and CHEM 1310. 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 of fluid flow, Navier-Stokes equations,

dimensional analysis internal and external flows. Prerequisites: MAE 2600 and ENGINR 2300. Restricted to MAE students only.

MAE 3600—System Dynamics (3). Modeling, Analysis and Design of Dynamic Systems. Prerequisites: MAE 2600, 3100; MATH 4100; ENGINR 2100 concurrent. Restricted to MAE students only.

MAE 3800—Instrumentation and Measurements Laboratory (3). Design and reporting of experimental investigations. Instrument design equations, sources of error, selection, and calibration. Survey of instruments to measure: volt, ohm, amp, time, frequency, displacement, velocity, acceleration, strain, force and torque. Prerequisites: ENGINR 2200, MAE 3600, ENGINR 2100 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: ENGR 2200 and 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 4220—Materials Selection (3). Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications. Prerequisite: MAE 3200. Restricted to MAE students only.

MAE 4230—Non-Metallic Engineering Materials (3). Structures, properties and applications of ceramics, glasses, polymers and composite materials. Prerequisite: MAE 3200.

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: MAE 3200. Restricted to MAE students only.

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: 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:

ENGINR 2200 and MAE 3100. Restricted to MAE students only.

MAE 4300—Heat Transfer (3). Fundamentals of conduction, convection and radiation. Use of nondimensional parameters. Theory and design of simple heat exchangers. Prerequisites: MAE 3400, grade of C or better in ENGINR 2300. Restricted to MAE students only.

MAE 4310—Intermediate Heat Transfer (3). Advanced topics in conduction, convection, and radiation. Heat exchangers and their applications will also be analyzed. Prerequisite: MAE 4300. Restricted to MAE students 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: MAE 4300.

MAE 4330—Solar Energy Utilization (3). Thermal aspects of solar radiation applied to human and industrial needs. Solar energy availability: hourly, daily, and seasonally. Space and water heating. Thermal storage. Passive and active solar design of buildings and homes. Prerequisite: 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: MAE 4300. Restricted to MAE students only.

MAE 4350—Power Plant System Design (3). Preliminary component and system design. Optimum design of boilers, steam turbines, condensers and cooling towers and their integration into a system to minimize production costs and impact on the environment. Prerequisites: MAE 4300.

MAE 4360—Internal Combustion Engines (3). Gas and oil engines. Thermodynamics of ideal and actual cycles, fuels and combustion, carburetor and injection systems, performance, construction. Prerequisite: MAE 3400.

MAE 4370—Combustion Fundamentals (3). Introduction to combustion principles. Prerequisites: MAE 4300.

MAE 4380—Intermediate Thermodynamics (3). Topics from classical and statistical thermodynamics. Prerequisite: ENGINR 2300.

MAE 4390—Aerospace Propulsion (3). Analysis of aircraft engines and spacecraft propulsion systems. Prerequisites: MAE 3400.

MAE 4420—Intermediate Fluid Mechanics (3). Topics in potential and viscous flow theory, and computational fluid dynamics. Prerequisite: 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: MAE 3400, 4300 and 4402.

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: 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: 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: MAE 3200, ENGR 1110. 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: MAE 4500.

MAE 4530—Applied Robotics in Production (3). Robot structures, arm geometry, drive systems, end effectors, work station design, management aspects, economic factors, applications in various industries. Prerequisites: IMSE 2210, 2810 and ENGINR 1200.

MAE 4550—Integrated Production Systems (3). (same as Industrial and Manufacturing Systems Engineering 4550).

MAE 4600—Advanced Mechanics of Materials (3). (same as Civil Engineering 4600). Analysis of more complicated problems in stresses, strains. Prerequisite: ENGINR 2200.

MAE 4610—Experimental Stress Analysis (3). (same as Civil Engineering 4610). Photoelastic, electric strain gage, brittle lacquer methods of experimental stress analysis for static loads. Strain gage work includes strain rosettes. Prerequisite: ENGINR 2200.

MAE 4620—Intermediate Dynamics (3). Introduction to advanced concepts in particle and rigid body dynamics. Topics include particle and rigid body kinematics in three-dimensions, moving coordinate systems and gyroscopic motion. Prerequisites: MAE 2600.

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: MAE 3600. Restricted to MAE students only.

MAE 4640—Analysis of Mechanisms (3). Kinematics and dynamic (bearing force, shaking force, and time response) design analysis of mechanisms: graphical, analytical and computer assisted techniques. Prerequisites: MAE 3100 and 2600. 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: MAE 3100.

MAE 4660—Vibration Analysis (3). (same as Civil Engineering 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: MAE 2600 and 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: MAE 3600.

MAE 4700—Automatic Control (3). Basic study of controller characteristics, feedback elements, compensation techniques, state space methods, analysis and synthesis of complete linear systems. Prerequisites: MAE 3600. Restricted to MAE students only.

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: M A EN 3400 and 3600. May be repeated for credit. Graded on A/F basis only.

MAE 4730—Mechatronic System Design (3). Synergistic combination of control, sensors, actuators, electronics, computers, and real-time programming. Actuator and computer fundamentals; logic devices; electronic components including transistors, operational amplifiers and power amplifiers; interface design and control programming. Prerequisites: MAE 4700.

MAE 4800—Thermal and Fluid Science Laboratory (3). Continuation of MAE 3800 with emphasis on: instruments to measure temperature, pressure fluid flow, fluid velocity, sound, and computer data acquisition. Prerequisite: 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: MAE 4800 and 4300.

MAE 4900—Mechanical Design II (4). Methodology of engineering design. Design and selection of mechanical elements to meet functional and environmental requirements. Prerequisites: MAE 3200. Restricted to MAE students only.

MAE 4930—Applied Mechanical Optimization (3). Introduction to mathematical programming techniques and applications to the design of mechanical systems and components. Prerequisite: MAE 3100. Restricted to MAE students only.

MAE 4980—Senior Capstone Design in Mechanical and Aerospace Engineering (3). Mechanical design including reliability, safety, manufacturing, economic and environmental constraints; design case studies; industrial design projects. Prerequisite: MAE 3600, 4500, 4900, and STAT 4710. 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 Re-

search Mechanical & Aerospace Engineering (cr.arr.). Independent investigation to be presented as an undergraduate honors thesis. Prerequisite: Honors student in Mechanical and Aerospace Engineering.

Department of Naval Science

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VISITING INSTRUCTOR W. Callahan, LT., USN,
 G. L. Field, Capt., USMC, A. L. Steiner, 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 Naval or Marine Corps Reserve. Today, NROTC is one of the primary 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. NROTC graduates incur a minimum three- or four-year military obligation.

NAVAL SCIENCE COURSES

NAVY 1100—Introduction to Naval Science (2). This course serves as an introduction to Midshipmen 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;

Navy/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.....	11
NAVY 1100: Introduction to Naval Science	2
NAVY 1200: Seapower and Maritime Affairs	3
NAVY 2110: Naval Ships Systems I	3
NAVY 2210: Naval Ships Systems II	3
Junior year	6
NAVY 3120: Marine Navigation.....	3
NAVY 3220: Naval Operations.....	3
Senior year	6
MANGMT 3000: Fundamentals of Management.....	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).....	11
NAVY 1100: Introduction to Naval Science	2
NAVY 1200: Seapower and Maritime Affairs	3
NAVY 2130: Evolution of Warfare.....	3
NAVY 3130: Amphibious Warfare.....	3

their application in selected examples from modern.

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: NAVY 3120.

NAVY 4940—Leadership and Ethics (3). This course in Leadership and Ethics is the capstone course of the NROTC academic syllabus. It is designed to provide all midshipment with the ethical foundation and basic leadership tools needed to be effective junior officers. Prerequisite: junior standing in NROTC.

School of Health Professions

School of Health Professions

DEGREES OFFERED

Bachelor of Health Science (BHS) with the following majors:

- Communication Science and Disorders
- Occupational Therapy
- Preprofessional Physical Therapy*
- Diagnostic Medical Ultrasound
- Radiologic Sciences, with emphasis areas in *Radiography*, *Nuclear Medicine Technology*
- Respiratory Therapy

*Students can only earn the BHS concurrently with the Master of Science in Physical Therapy

ADMINISTRATION

Richard E. Oliver, Dean

Kristofer J. Hagglund, Associate Dean of Health Policy and Academic Affairs

P. Kevin Rudeen, Associate Dean of Administrative Affairs and Director for Research

504 Lewis Hall
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Advising and Scholarship Contact

SHP Advising Center
504 Lewis Hall

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 health 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 four departments and six 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, occupational therapy, respiratory therapy and radiologic sciences with emphasis in radiography or nuclear medicine technology. The school offers graduate degrees in communication science and disorders, diagnostic medical ultrasound and physical therapy.

Students gain valuable experience by participating in nationally recognized service centers including The Eldercare Center, The Health Connection, the Speech and Hearing Clinic, Robert G. Comb's Language Preschool and more than eight hundred fieldwork sites.

ADMISSIONS

Freshmen and sophomore students are enrolled in the School of Health Professions for academic advisement in order to complete University general education and prerequisite requirements. Students are advised by faculty and staff of the department in which they have declared a major. Undecided students are advised in the Student Affairs Office. Students should contact the respective department faculty to ensure satisfactory progress toward completion of the prerequisites.

Admission to the University and to the School of Health Professions as a preprofessional student does not constitute admission as a candidate for the Bachelor of Health Science degree. Preprofessional students are admitted to candidacy for the BHS only when they have been selected to participate in the professional component of a program.

Exploratory Courses

To assist with career decisions, the School of Health Professions offers introductory courses and experiences to provide information and career opportunities in these areas. These courses are listed below:

HTH PR 1000: Introduction to Health Related Professions

NUCMED 1000: Orientation to Nuclear Medicine

Technology

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: Intro to C S D

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 or 1120 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 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 also are 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 and disadvantaged students in its programs.

The application deadlines for the professional component of each program are shown below.

	Application deadline	Classes begin
Communication Science and Disorders	March 1, sophomore	Fall
Physical Therapy	Jan. 24, sophomore	Summer
Occupational Therapy	Jan. 31, sophomore	Summer
Radiography	Feb. 1, sophomore	Summer
Nuclear Medicine	Feb. 1, sophomore	Fall
Respiratory Therapy	Feb. 1, sophomore	Fall
Diagnostic Medical Ultrasound	Jan. 31, sophomore	Summer

School of Health Professions Scholars Guaranteed Admission Program

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 1320 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.

Students accepted as SHP Scholars who maintain participant status at MU are guaranteed admission into one of the following degree programs:

- Communication Science and Disorders
- Occupational Therapy
- Diagnostic Medical Ultrasound
- Radiologic Sciences, with emphasis in *Radiography, Nuclear Medicine Technology*
- Respiratory 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 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 adviser 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

Each student is assigned a faculty adviser in the program of study. The school also maintains a Student Affairs Office staffed by a professional academic adviser.

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.

Other

Liability insurance coverage is provided for students in the clinical component of the professional major. Personal health insurance is not provided but is strongly recommended.

HEALTH PROFESSIONS COURSES

HTH PR 1000—Introduction to the Health Related Professions (1). Acquaints students with information about program requirements, relationship of individual interests, aptitudes and abilities to various careers; and assists with career planning and selection of appropriate preparation programs. Graded on S/U 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 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 3250—Human Kinesiology (3). (same as Physical Therapy 4250 and Occupational Therapy 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 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 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. Graded on A/F basis only.

HTH PR 4300H—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. 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.

Department of Communication Science and Disorders

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School of Health Professions
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Advising Contact

Ruth Crozier
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FACULTY

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ASSOCIATE PROFESSOR J. C. Goodman
ASSISTANT PROFESSOR S. W. Silverman, B. Slansky
CLINICAL PROFESSOR J. D. Amerman
CLINICAL ASSOCIATE PROFESSOR B. L. Brinkman,
J. L. Deal, B. McLay
CLINICAL ASSISTANT PROFESSOR L. Riley
RESEARCH ASSISTANT PROFESSOR L. S. Day
CLINICAL INSTRUCTOR D. R. Fritz, M. A. Scheneman,
P. M. Slansky

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 losses 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)

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

Major core requirements.....23
HIST 1100: Survey of American History to 1865 OR
HIST 1200: Survey of American History Since 1865 OR 3
POL SC 1100: American Government OR

POL SC 1700: Introduction to Political Science	3
PSYCH 1000: General Psychology.....	3
PHYSICS 1150: Concepts of Physics – Physics for Poets OR PHYSICS 1210: College Physics OR	
CHEM 1100: Atoms and Molecules	3
BIO SCI 1010 and 1020: General Prin & Concepts of Biology and Lab OR	
BIO SCI 1500: Intro to Biological Systems w/lab.....	5
STAT 1200: Introductory Statistical Reasoning OR STAT 1300: Elementary Statistics OR	
E&CPSY 4170: Introduction to Educational Statistics.....	3
ENGLSH or LINGST 4600: Structure of American English.....	3
PSYCH 2410: Child Psychology	3
Communication science and disorders courses	42
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: Anat & Physiology of the Speech Mechanism	3
C S&D 3230: Hearing Science	3
C S&D 4430: Neurophysiology for Speech, Language and Hearing	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: Disorders of Fluency and Voice	2
C S&D 4900: Clinical Observation in Communicative Disorders (1 + 1)	2
(one credit is taken fall and winter of senior year)	
C S&D 4330: Introduction to Audiology	3
C S&D 4420: Reading & Language Disorders in School Age Children	3
C S&D 4500: Professional Issues	3

Sample Eight-Semester Programs

Bachelor of Health Science Degree - Communication Science & Disorders

Fall I

HTH PR 1000 Intro to Health Professions	1
CS&D 1000 Intro to CS&D.....	1
BIO SC 1010/1020 or 1500 General Bio	5
PSYCH 1000 General Psych.....	3
Humanities	3
Total.....	13

Fall II

ENGLSH/LINGST 1060 Human Language	3
PSYCH 2410 Child Psychology.....	3
ESC PS 4170 Statistics	3

Winter I

HIST 1100 or 1200 American Hist	3
CHEM 1100 or PHYSICS 1210.....	3-4
ENGLSH 1000 Composition.....	3
MATH 1120 College Algebra.....	3
COMMUN 1200 Speech Comm.....	3
Total.....	15-16

Winter II

CS&D 2120 Survey of Comm Dis	3
CS&D 3210 Anat and Phys Speech.....	3

POL SC 1100 or 1700	
American Govt.....	3
CS&D 1100 Manual	
Communication.....	3
Total.....	15

Fall III

CS&D 3010 American	
Phonetics.....	3
CS&D 3020 Normal Lang	
Devel (wi).....	3
CS&D 3230 Hearing	
Science.....	3
ESC PS 4150	
Counseling.....	3
Elective.....	3
Total.....	15

CS&D 4430	
Neurophysiology.....	3
Humanities.....	3
Special Ed 4300 Intro	
Special Ed.....	3
Total.....	15

Winter III

CS&D 4020 Lang	
Disorders Child (wi).....	3
CS&D 4320 Disorders	
Phon & Artic.....	3
CS&D 4330 Audiology....	3
ENGLISH/LINGST 4600	
Structure Am English.....	3
Elective.....	3
Total.....	15

Fall IV

CS&D 4030 Land	
Disorders Adults.....	2
CS&D 4210 Disorders	
Fluency/Voice.....	2
CS&D 4340 Aural	
Rehabilitation.....	3
CS&D 4900 Observation	
in CS&D.....	1
ELPA 4301 Sociology of	
education.....	3
Elective.....	3-6
Total.....	14-17

Winter IV

CS&D 4420 Reading/Lang	
Dis Child.....	3
CS&D 4500 Professional	
Issues CSD.....	3
CS&D 4900 Observation	
in CS&D.....	1
Elective.....	3-16
Total.....	10-13

COMMUNICATION SCIENCE AND DISORDERS COURSES

C S&D 1000—Introduction to Communication Science and Disorders (1). Types of speech, language and hearing disorders; professional preparation of speech pathologists, audiologist; professional settings, requirement, ethics.

C S&D 1010—Hearing and Deafness (3). Anatomy and physiology of the ear, types and causes of hearing loss, methods of rehabilitation; psychology of deafness, history of deaf education and the culture of deaf persons. Communicative Disorders majors may not take for credit.

C S&D 1060—Human Language (3). (same as Anthropology 1060, Linguistics 1060 and 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 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 1120—Manual Communication II (3). Continued vocabulary development and introduction of American Sign Language syntax and morphology. Prerequisites: C S&D 1110 or instructor’s consent.

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 3010). Analysis of sounds of Midwestern American dialect. Standards of pronunciation, feature analysis transcription, articulation mechanics, coarticulation.

C S&D 3020—Normal Language Development (3). (same as Psychology 3610). Language development in preschool and school-age children. Specific attention to cognition and language, developmental sequences, language learning processes, language sample analysis, and the relationship between spoken and written language. Prerequisites: LINGST 4600 (preferred) or instructor’s consent.

C S&D 3210—Anatomy and Physiology of the Speech Mechanism (3). (same as Linguis-

tics 3210). Introduction to anatomical and functional aspects of the speech mechanism.

CS&D 3230—Hearing Science (3). Anatomy and physiology of the auditory and vestibular systems in health and disease. Also includes acoustics, measurement of sound, and psychoacoustics. C S&D majors or instructor’s consent.

CS&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.

CS&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: C S&D 2120, 2302002, LINGST 4600. C S&D majors only.

CS&D 4030—Language Disorders of Adults (2). Introduction to disorders of language that occur in the adult population. Basic review of neuroanatomy/physiology, etiologies, symptomatology. Major emphasis will be placed on assessment and treatment. Prerequisites: C S&D 2120, 3020, 4430, and LINGST 4600, or instructor’s consent. C S&D majors only.

CS&D 4210—Fluency and Voice Disorders (2). Investigation of fluency and voice disorders in children and adults with particular attention to identification procedures and clinical management techniques. Prerequisite: C S&D 2120, 3210, 4430. C S&D majors only.

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: C S&D 2120, 3010, 3020, 3210. C S&D majors only.

C S&D 4330—Introduction to Audiology (3). Tests and techniques in the evaluation and diagnosis of auditory and vestibular disorders. CSD majors only. Prerequisites: C S&D 3230 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 is-

suces related to speech/language development, communication, education, and social factors. Prerequisites: C S&D 3230 and 4330.

C S&D 4420—Reading and Language Disabilities in School-Age Children (3). Theories, research, and practice in reading development and disorders. Focus on reading disabilities related to language disorders of various etiologies including developmental language disorders and head injury. Assessment, remediation, teaching methods.

CS&D 4430—Neurophysiology for Speech, Language, and Hearing (3). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

C S&D 4500—Issues in Professional Practice (3). Organizational, interprofessional, economic, legal, and ethical aspects of delivering speech, language, and hearing services.

C S&D 4810—Psycholinguistics (3). (same as Linguistics 4810). Examines the knowledge and processes that underlie the human ability to produce and understand language. Prerequisite: senior or graduate standing.

C S&D 4820—Speech Perception (3). (same as Linguistics 4820). Selected topics in the perceptual processing of spoken language. Prerequisite: senior or graduate standing.

CS&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. 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. CS&D majors only. Prerequisite: senior standing and departmental consent. No graduate credit.

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.

Department of Cardiopulmonary and Diagnostic Sciences

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T. Dobey, E. M. Hdeib, M. M. Hdeib, D. R. Myers,
J. M. Roy, P. D. Situ

The Department of Cardiopulmonary and Diagnostic Sciences offers the Bachelor of Health Science (BHS) with majors in Diagnostic Medical Ultrasound, Respiratory Therapy, and Radiological Sciences. Students majoring in Radiological Sciences may complete emphasis areas in Radiography or Nuclear Medicine 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, computerized axial tomography, magnetic resonance imaging, mammography 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 as well as other medical professionals.

Accreditation of the program is granted by the Joint Review Committee on Education in Radiologic 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 for radiography emphasis46

HTH PR 1000: Intro to HRP	1
MATH 1120: College Algebra	3
SOCIOL/RU SOC 1000: Sociology	3
BIO SC 1010 & 1020 or 1500: General Biology (lec/lab)	5
PSYCH 1000: General Psychology	3
CHEM 1310 & 1320: General Chemistry	5
ENGLSH 1000: Exposition	3
PHYSICS 1210: Physics	4
COMM 1200: Intro to Speech Communication.....	3
PTH&AS Sci 2201 & 2203: Elements of Anatomy (lec/lab)	5
MPP 3202: Elements of Physiology.....	5
CS 1020 or C&I 1210 & 4450: Microcomputers.....	3
CP&D 2190: Medical Terminology	3

Core requirements for radiography emphasis

RA SCI 3120: Fundamentals of Radiography.....	3
RA SCI 3130: Basic Radiographic Skills	2
RA SCI 3110: Radiographic Positioning I	2
RA SCI 3140: Principles of Radiographic Exposures I	3
RA SCI 3180: Radiographic Positioning II	2
RA SCI 3160: Radiologic Physics	3
RA SCI 3941: Clinical Education I.....	3
RA SCI 3150: Radiologic Pharmacology	3
RA SCI 3170: Imaging Modalities.....	2
RA SCI 3190: Radiographic Positioning III	3
RA SCI 3942: Clinical Education II	3
CP&D 3460: Cardiovascular & Pulmonary Diagnostic Application I.....	3
RA SCI 4110: Sectional Anatomy	3
RA SCI 4943: Clinical Education III	3
CP&D 4460: Cardiovascular & Pulmonary Diagnostic Appl I.....	3
RA SCI 4944: Clinical Education IV	3
RS 4303: Radiation Safety	3
RAD 4328: Intro to Radation Biology	3
CP&D 4955: Introduction to Research	2
RA SCI 4440: Organization & 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 & Proc OR RA SCI 4150: Computed Tomography: Physics & Procedures	5
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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, collect 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	15
SOCIOL 1000: Intro to Sociology OR ANTHRO 1000: Intro to Anthropology	3
BIO SC 1100 & 1200 or 1500.....	5
PSYCH 1000: Intro to Psychology	3
CHEM 1310: General Chemistry I	2
CHEM 1320: General Chemistry II	3
MATH 1400: Calculus for Social and Natural Sciences I.3	3
CHEM 1330: General Chemistry III.....	3
CHEM 4600: Introduction to Radiochemistry	3

Core requirements for the nuclear medicine

emphasis	44
MPP 3202: Elem of Physiology	5
STAT 1200: Introductory Statistical Reasoning OR STAT 1300: Elementary Statistics OR ESC PS 4170: Introduction to Educational Statistics ...	3
NUCMED 4329: Radiopharmaceuticals in Nuclear Medicine.....	3
PHYSCS 1220: College Physics.....	4
NUCMED 3263: Morphological Correlations in Nuclear Medicine.....	3
NUCMED 3256: Clinical Nuclear Medicine I.....	2
CP&D 3460: Cardiovascular Pulmonary Diagnostic Application I.....	3
CP&D 4460: Cardiovascular & Pulmonary Diagnostic Appl II	3
NUCMED 4940: Clinical Education in Nuclear Medicine In Vivo.....	6
NUCMED 4971: Clinical Nuclear Medicine II	2
NUCMED 4327: Nuclear Medicine Instrumentation	3
NUCMED 4941: Clinical Education in Nuclear Medicine In Vivo II.....	7
NUCMED 4232: Clinical Education in Nuclear Medicine In Vitro	3

NUCMED 4299: Advanced Nuclear Medicine Procedures	3
NUCMED 4269: Clinical Nuclear Medicine III.....	2
NUCMED 4330: Principles of Positron Emission Tomography	3

Students are strongly encouraged to take the following courses:

CP&D 4440: Organization and Administration	3
CP&D 4955: Introduction to Research	2

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 - 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.

Students must complete the courses listed below in addition to degree and University requirements, which include University general education requirements.

Major core requirements

Prerequisites.....	35
PSYCH 1000: General Psychology	3
CHEM 1100: Atoms and Molecules	3
BIO SC 1010 and 1020: General Prin & Concepts of Biology and Lab	5
SOCIOL 1000: Introduction to Sociology OR RU SOC 1100: Rural Sociology	3
PHYSCS 1210: College Physics.....	4
PTH&AS 2201 and 2203: Elementary Anatomy and Laboratory	5
ESC PS 4170: Introduction to Educational Statistics	3
HTH PR 2190: Medical Terminology.....	3
MPP 3202: Elements of Physiology.....	5
DMU 1000: Introduction to Diagnostic Medical Ultrasound	1

Core requirements.....

84	
DMU 4200: Principles in Diagnostic Medical Ultrasound	3
DMU 4312: Cross Sectional Anatomy.....	3
PHIL 4510: Medical Ethics.....	3
DMU 4313: Ultrasound Physics	3
DMU 4315: Ultrasound Instrumentation	3
DMU 4309: Normal Ultrasound Clinical.....	5
DMU 4311: Pathological Images Ultrasound	3
DMU 4325: Ultrasound Clinical Pharmacology & Contrast Agents	3

DMU 4314: Abdominal Ultrasound.....	5	PHYSCS 1210: College Physics.....	4
DMU 4941: Ultrasound Clinical.....	7	PTH&AS 2201 and 2203: Elementary Anatomy and Laboratory.....	5
DMU 4234: Clinical Pathophysiology.....	3	MPP 3202: Elem of Physiology.....	5
DMU 4322: Superficial Organs Ultrasound.....	3	MICROB 3200: Intro to Medical Microbiology & Immunology.....	4
DMU 4993: Ultrasound Clinical II.....	8	HTH PR 2190: Medical Terminology.....	3
DMU 4318: Gynecology Ultrasound.....	3	ESC PS 4170: Introduction to Educational Statistics.....	3
DMU 4320: Obstetrics Ultrasound.....	3		
DMU 4326: Vascular Ultrasound Physics/Instr/ Hemodynamics.....	3		
DMU 4943: Ultrasound Clinical III.....	6		
DMU 4330: Vascular Ultrasound Lab.....	3		
DMU 4332: Vascular Ultrasound.....	4		
DMU 4944: Vascular Ultrasound Clinical IV.....	7		
DMU 4338: Cardiac Ultrasound Physics/Instr/ Hemodynamic.....	3		

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 - 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 fall 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. Students may select affiliated hospitals outside the Columbia area for this clinical experience or remain on campus at MU Health Care.

Accreditation of the program is granted by the Committee on Accreditation for Respiratory Care (CoARC) in collaboration with the Commission on Accreditation of Allied Health Programs (CAAHEP).

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.....	36
SOCIO 1000: Introduction to Sociology OR ANTHRO 1000: General Anthropology.....	3
RS THR 1000: Introduction to Respiratory Therapy.....	1
PSYCH 1000: General Psychology.....	3
BIO SC 1010 and 1020 or BIO SCI 1500: General Biology	
CHEM 1310 and 1320: General Chemistry I and II.....	5

Core requirements..... 74-76

HTH PR 3200: Essentials of Pathology.....	2
RS THR 3220: Equipment & Techniques.....	5
RS THR 3941: Clinical Practice I.....	2
RS THR 3280: Cardiopulmonary Pharmacology I.....	1
RS THR 4040: Respiratory Pathophysiology.....	5
RS THR 3420: Principles of Mechanical Ventilation.....	4
RS THR 3942: Clinical Practice II.....	4
RS THR 3440: Advanced Skills & Diagnostic Test Lab ..	3
RS THR 3480: Cardiopulmonary Pharmacology II.....	1
RS THR 4020: Perinatal/Neonatal Respiratory Care.....	3
CP&D 3460: Cardiovascular & Pulmonary Diagnostic Appl I.....	3
RS THR 3943: Clinical Practice III.....	2
RS THR 4220: Community and Patient Education I.....	1
RS THR 4240: Pulmonary Rehabilitation.....	3
CP&D 4460: Cardiovascular & Pulmonary Diagnostic Appl II.....	3
RS THR 4940: Clinical Practice IV.....	6
RS THR 4460: Clinical Respiratory Therapy I.....	3
CP&D 4440 or RS THR 4440: Organization & Administration.....	3
CP&D 4955: Intro to Research.....	2
RS THR 4420: Pediatric Respiratory Care.....	2
RS THR 4973: Clinical Practice V.....	5
RS THR 4983: Clinical Practice VI.....	5
RS THR 4993: Clinical Practice VII.....	5
RS THR 4920: Community and Patient Education II... 1-3	

Professional Certification

After graduation, students are eligible to take the Entry Level and Registry Examinations given by the National Board for

Sample Ten-Semester Program

Bachelor of Health Science with a major in Diagnostic Medical Ultrasound

Check the *Undergraduate Catalog* for prerequisites.

Fall I

MATH 1100 OR 1120 College Algebra	3
PSYCH 1000 General Psychology	3
CHEM 1100 Atoms and Molecules (Chemistry).....	3
Humanities	3
Total.....	12

Fall II

PHYSICS 1210 College Physics	1-4
PTH & AS 2201 & 2203 Elementary Anatomy	5
ESC PS 4170 Educ Statistics	3
HTH PR 2190 Medical Terminology	3
Total.....	15

Summer

DMU 4200 Prin of DMU .3	
PHIL 4510 Med Ethics ....3	
DMU 4312 Sect Anatomy3	
Total.....	9

Fall III

DMU 4313 US Physics....3	
DMU 4315 US Instr.....3	
DMU 4309 Norm US Clin.....	5
DMU 4325: Ultrasound Clinical Pharmacology and Contrast Agents	3
DMU 4311 Path Imag US3	
Total.....	17

Summer

DMU 4993 US Clin II.....8	
Total.....	8

Fall IV

DMU 44318 GYN US	3
DMU 44320 OB US.....	3
DMU 4326 Vas US Phys/ Inst/Hemo.....	6
DMU 4943 US Clin II.....	6
Total.....	15

Winter I

BIO SC 1010 & 1020 OR 1500 General Biology	5
ENGLISH 1000 Exposition	3
COMMUN 1200 Intro Speech Comm	3
SOCIOL 1000 Sociology .3	
Total.....	13

Winter II

HIST 1100 OR 1200 OR POL SC 1100 or 1700 Amer Hist/Pol Sci	3
MPP 3202 Elements of Physiology	5
DMU 1000 Introduction to DMU	1
Humanities	3
Total.....	12

Winter III

DMU 4314 Abdominal US	5
DMU 4941 US Clin I.....	7
DMU 4234 Clin Path (WI) 3	
DMU 4322 Superficial Organs US	3
Total.....	18

Winter IV

DMU 4330 Vasc US Lab .3	
DMU 4332 Vasc US.....	4
DMU 4944 Vasc US Clin IV	7
DMU 4388 Card Ultra Phys/InstHemo	3
Total.....	17

* Application for admission due February 1 of the Sophomore year.

WI = Writing Intensive Course

Sample Eight-Semester Program

Bachelor of Health Science with a major in Radiologic Sciences with an emphasis in Nuclear Medicine

Check the *Undergraduate Catalog* for prerequisites.

Fall I

CHEM 1310: General Chemistry I.....	2
MATH 1120: College Algebra	3
HIST 1100 or 1200: American History OR POL SC 1100 or 1700: Am Govt/Political Sc.....	3
PSYCH 1000: General Psychology.....	3
Humanities	3
Total.....	14

Fall II

CHEM 1330: General Chemistry III.....	3
CHEM 2100: Organic Chemistry I OR CHEM 3200: Quantitative Methods.....	3-4
RA SCI 4303: Radiation Safety	3
RADIOL 4328: Intro Radiation Biology	3
Total.....	12-13

Fall III

MPP 3202: Elem Physiology	5
ESC PS 4170 or STAT 1200 or 1300: Statistics	3
HTH PR 2190: Medical ... Terminology	3
NUCMED 4329*: Radiopharm Nuc Med....	3
Humanities	3
Total.....	17

Summer

NUCMED 3256: Clinical Nuc Med I.....	2
CP&D 4460: Cardio & Pulmonary Diag II.....	3
NUCMED 4232: Clinical In Vitro	3
Total.....	8

Fall IV

NUCMED 4299: Advanced Procedures.....	3
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Winter I

CHEM 1320: General Chemistry II.....	3
ENGLISH 1000: Exposition & Argumentation.....	3
BIO SC 1010 & 1020: General Bio & Lab OR BIO SC 1500: Intro to CH 1000: Biological System	5
MATH 1400: Calculus Soc & Nat Sci.....	3
NUCMED 1000: Orientation to Nuc Med... 1	
Total	15

Winter II

PHYSICS 1210: College Physics.....	4
PTH&AS 2201/2203: Elem Anatomy & Lab	5

CHEM 4600: Intro to Radiochemistry.....	3
SOCIOL 1000: Intro to Sociology OR ANTHRO 1000: General Anthropology.....	3
Total	15

Winter III

PHYSICS 1220: College Physics II.....	4
NUCMED 3263*: Morph Cor Nuc Med.....	3
CP&D 3460*: Cardio & Pulmonary Diag I	3
Humanities	3
Total	13

Winter IV

NUCMED 4269: Clinical NM III.....	2
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Sample Eight-Semester Programs (Cont.)

NUCMED 4327: Instrumentation 3	NUCMED 4330: Nuclear Positron Emission Imaging..... 3
NUCMED 4940: Clinical In Vivo I 6	NUCMED 4941: Clinical In Vivo IIB 7
CP&D 4955: Intro to..... Research (WI) 2	NUCMED 4971: Clin Nuclear Med II (WI) 2
Total..... 14	Total 14

Application for admission due February 1 of the sophomore year.

Bachelor of Health Sciences with a major in Radiologic Sciences with an emphasis in Radiography

Check the *Undergraduate Catalog* for prerequisites.

Fall I	Winter I
HTH PR 1000: Intro to HRP..... 1	PSYCH 1000: General Psychology 3
MATH 1120: College Algebra..... 3	CHEM 1310+: General Chemistry I..... 2
SOCIOL 1000: Intro to Sociology OR RU SOC 1100: Rural Sociology ... 3	ENGLISH 1000: Exposition & Argumentation 3
BIO SC 1010 & 1020: General Bio & Lab OR BIO SC 1500: Intro to Biological Systems 5	PHYSICS 1210: College Physics..... 4
Total..... 12	HIST 1100 or 1200: American History OR POL SC 1100 or 1700: Am Govt/Political Sc..... 3
	Total 15

Fall II	Winter II
CHEM 1320+: General Chemistry II 3	MPP 3202: Elem Physiology 5
COMMUN 1200: Intro to Speech	CS 1020: Intro to Computing OR C&I 1210 & 4550: Microcomputers.. 3
Communication..... 3	HTH PR 2190: Medical Terminology 3
PTH&AS 2201/2203: Elem Anatomy & Lab 5	Humanities 3
Humanities 3	Total 14
Total..... 14	

Summer
RA SCI 3120: Fund of Radiography 3
RA SCI 3130: Basic Rad Skills 2
RA SCI 3110: Positioning I..... 2
Total..... 7

Fall III	Winter III
RA SCI 3140: Radiographic Expos 3	RA SCI 3170: Imaging Modalities..... 2
RA SCI 3180: Radiographic Position II .. 2	RA SCI 3190: Radiographic Position III .. 3
RA SCI 3160: Radiographic Physics..... 3	RA SCI 3942: Clinical Education II 3

RA SCI 3941: Clinical Education I..... 3
RA SCI 3150+: Radiologic Pharmacology 3
Total..... 14

Summer
RA SCI 4943: Clinical Education III 3
CP&D 4460: Cardiovascular & Pulmonary Apps II 3
Total..... 6

Fall IV
RADIOL 4328: Intro Radiation Biology 3
RA SCI 4944: Clinical Education IV ... 3
CP&D 4955: Intro to Research (WI) 2
RA SCI 4303: Radiation Safety 3
CP&D 4440: Organization & Admin... 3
Total..... 14

*Application for admission due February 1 of the sophomore year.

Professional component begins Summer Semester, junior year.

WI = Writing Intensive Course

MRP = Math Reasoning Proficiency Course

+ Course is only taught one semester per year.

Bachelor of Health Sciences with a major in Respiratory Therapy

Check the *Undergraduate Catalog* for prerequisites.

Fall I
HTH PR/RS THR 1000: Intro to HRP/RT 1
MATH 1120: College Algebra..... 3
PSYCH 1000: General Psychology 3
HIST 1100 or 1200: American History OR POL SC 1100 or 1700: Am Govt/Political Sc..... 3
CHEM 1310: General Chemistry I..... 2
Humanities 3
Total..... 15

Fall II
PHYSICS 1210: College Physics 4
PTH&AS 2201/2203: Elem Anatomy & Lab 5
ESC PS 4170: Intro to Educ Statistics 3
Humanities 3
Total..... 15

CP&D 3460: Cardiovascular & Pulmonary AppsI..... 3
RA SCI 4110: Sectional Anatomy 3
Total 1

Winter IV
RA SCI 4947: Radiography Overview ... 3
RA SCI 4945: Clinical Education V 3
RA SCI 4980: Imaging Pathology (WI)..... 3
RA SCI 4140 or 4150+: MRI or CT 5
Total 14

Winter I
BIO SCI 1010 & 1020: General Bio & Lab OR BIO SCI 1500: Intro to Biological Systems..... 5
CHEM 1320: General Chemistry II..... 3
ENGLISH 1000: Exposition & Argumentation 3
SOCIOL 1000+: Intro to Sociology OR RU SOC 1100: Rural Sociology..... 3
Total 14

Winter II
MPP 3202: Elem Physiology 5
MICROB 3200: Med/Pub Hlth Microbiology 4
HTH PR 2190: Medical Terminology 3
Humanities 3
Total 15

Sample Eight-Semester Programs (Cont.)

Fall III

HTH PR 3200: Essentials of Pathology ..	2
RS THR 3220: Equip & Techniques	5
RS THR 3941: Clinical Practice I	2
RS THR 3280: Cardiopulmonary Pharm ..	1
RS THR 4040: Pulmonary Pathophys	5
Total.....	15

Winter III

RS THR 3420: Ventilator Applications	3
RS THR 3942: Clinical Practice II	4
RS THR 3440: Adv Skills & Diag Test Lab	3
CP&D 3460 Cardiology I.....	3
RS THR 3480: Cardiopulmonary Pharm II.....	1
RS THR 4020: Perinatal-Neonatal RT	3
CP&D 3460: Cardiovascular & Pulmonary Diagnostic Applications I	3
Total	17

Summer

RS THR 3943: Clinical Practice III (intersession)	2
RS THR 4220: Community Health Education	1
RS THR 4240: Pulmonary Rehab (Internet)	3
CP&D 4460: Cardiology II.....	3
Total.....	9

Fall IV

RS THR 4940: Clinical Practice IV	6
CP&D 4440: Organization & Admin... 3	3
CP&D 4955: Intro to Research (WI)	2
RS THR 4420: Pediatric Resp Care	2
Total.....	13

Winter IV

RS THR 4973: Clinical Practice V (Cap)	5
RS THR 4983: Clinical Practice VI (Cap).....	5
RS THR 4993: Clinical Practice VII (Cap)	5
RS THR 4920: Comm Health Educ II	1-3
RS THR 4085: Problems (not required).....	arr
RS THR 4460: Clinical RT	3
Total	16-21

*Application for admission due February 1 of the sophomore year.

+ One course required: Sociology, Anthropology or Economics.

WI = Writing Intensive Course

MRP = Math Reasoning Proficiency Course

Cap = Caspstone

CARDIOPULMONARY AND DIAGNOSTIC SCIENCES COURSES

CP&D 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.

CP&D 3460—Cardiovascular and Pulmonary Diagnostic Applications I (3). (same as Radiologic Sciences 3460 and Respiratory Therapy 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.

CP&D 4440—Organization and Administration (3). (same as Radiologic Science 4440 and Respiratory Therapy 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.

CP&D 4460—Cardiovascular and Pulmonary Diagnostic Applications II (3). (same as Radiologic Sciences 4460 and Respiratory Therapy 4460). Advanced study of Cardiac dysrhythmias, hypertrophy, and infarction, emphasizing aspects of treatment employed during Advanced Cardiac Life Support. Prerequisite: CP&D 3460.

CP&D 4955—Introduction to Research (2). (same as Respiratory Therapy 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.

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 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: DMU 4312, 4313 and 4315; instructor's consent.

DMU 4311—Pathological Images Ultrasound (3). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology. Prerequisites: DMU 4200, 4312 and 4315; instructor's consent.

DMU 4312—Sectional Anatomy (3). (same as Radiological Science 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: MATH 1100, CHEM 1100 or 1320, 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: 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: 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: 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: 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: 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 DMU 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: 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: 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: DMU 4312, 4311, 4322, and 4326 or instructor's consent.

DMU 4338—Cardiac Ultrasound Physics, Instrumentation and Hemodynamics (3). Study of principles and fundamentals of cardiac ultrasound including physics and instrumentation: ultrasound wave characteristics, M-mode, Doppler principles and cardiac hemodynamics. Prerequisites: DMU 4313 and 4315 and instructor's consent.

DMU 4941—Ultrasound Clinical I (7). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging. Prerequisites: 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: 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: DMU 4326 and instructor's consent.

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: DMU 4941; instructor's consent.

NUCLEAR MEDICINE COURSES

NUC MED 1000—Orientation to Nuclear Medicine (1).

NUC MED 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: NUCMED 3263.

NUC MED 3263—Morphological Correlations in Nuclear Medicine (3). Anatomy, physiology and pathology of the human body as they relate to nuclear medicine studies. Prerequisite: RA SCI 4303.

NUC MED 3328—Introductory Radiation Biology (3). (same as Biological Sciences 328, Nuclear Engineering 328, Veterinary Medicine & Surgery 328). 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.

NUC MED 4085—Problems in Nuclear Medicine (1-3). Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

NUC MED 4232—Clinical In Vitro (6). Practical experience in the clinical setting with radioassay procedures performed in nuclear medicine. Includes lectures describing clinical applications.

NUC MED 4268—Clinical Nuclear Medicine II (2). Continuation of clinical series taught in conjunction with Nuclear Medicine 3256 and 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures. Prerequisite: NUCMED 3256.

NUC MED 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: NUCMED 3256.

NUC MED 4299—Advanced Procedures in Nuclear Medicine (3). Practical experience gained in advanced technical nuclear medicine procedures, computer image manipulation techniques, and quality assurance in the imaging laboratory.

NUC MED 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 1220 and MATH 1400.

NUC MED 4329—Radiopharmaceuticals in Nuclear Medicine (3). Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals. Prerequisites: CHEM 1320 and instructor's consent.

NUC MED 4940—Clinical In Vivo I (6). Practical experience in the clinical setting with imaging procedures performed in nuclear medicine.

NUC MED 4941—Clinical In Vivo II (7). Practical experience in clinical setting with advanced imaging techniques and instrument quality control. Prerequisite: NUC MED 4940. Restricted to undergraduate students. Course may not be taken for graduate credit.

RADIOLOGICAL 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 Respiratory Therapy 360). 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 elec-

tive 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 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. Course for undergraduates only.

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. For undergraduates only.

RA SCI 4303—Radiation Safety (3). (same as Nuclear Science and Engineering 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 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 specialty 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.

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—Normal Respiratory Function (3). Mechanics, control, blood gas transport, work of breathing, and respiratory therapy aspects of acid-base balance.

RS THR 3010—Cardiopulmonary Pathology (2). An introductory course into the study of disease, specifically emphasizing the relationship between structure and function of the diseased lung and related organ systems.

RS THR 3220—Equipment and Techniques (5). History, development and organization of respiratory therapy. Manufacture, supply, storage and piping of gases; pressure regulation, flow control, humidification. Cleaning, sterilizing, maintenance, safety. Equipment for pressure breathing, oxygen, aerosol therapy.

RS THR 3280—Cardiopulmonary Pharmacology I (1). General principles of cardiopulmonary drug dosage, absorption, action and excretion. Specific attention to autonomic nervous system, sympathomimetics, parasympatholytics, methylxanthines, glucocorticoid, anti-allergic and mucokinetic therapy.

RS THR 3420—Principles of Mechanical Ventilation (3). Continuation of Respiratory Therapy 3220. Course covers the functional aspects of natural and artificial ventilation; examines representative classes and types of mechanical ventilators; physiologic monitoring devices, pulmonary function testing.

RS THR 3440—Advanced Skills and Diagnostic Testing Lab (3). Operation and implementation of pulmonary function testing, invasive pulmonary devices, mechanical ventilation, and neonatal resuscitation. Prerequisites: RS THR 3220, 3941, 4040. Graded on A/F basis only.

RS THR 3480—Cardiopulmonary Pharmacology II (1). General principles of cardiopulmonary drug dosage, absorption, action and excretion. Specific attention to neuromuscular blocking agents, central nervous system depressants and stimulants, cardiovascular agents, diuretics, aerosolized antivirals and antibiotics, and select respiratory disease agents.

RS THR 3941—Clinical Practice I (2). To be taken concurrently with 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 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). Con-

tinuation of supervised clinical experience from RS THR 3942. Graded on A/F basis only.

RSTHR 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.

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. Graded on A/F 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: 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.

RSTHR 4420—Pediatric Respiratory Care (2). Evaluation and management of pulmonary, medical and surgical pediatric conditions which require respiratory care. Emphasis will be on pediatric resuscitation, pathophysiology, blood gas and x-ray interpretation, treatment, mechanical ventilation and home health care.

RS THR 4440—Organization and Administration (3). (same as Radiological Science 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—Clinical Respiratory Therapy I (3). Rounds, case studies and extended clinical practice. Specific applications of respiratory therapy in emergency medicine, surgery, obstetrics, pediatrics, etc.

RS THR 4640—Teaching Practicum (3). Structured and supervised experience identifying student characteristics, methods for teaching, improving assessment, current development and instructional design.

RSTHR 4660—Clinical Respiratory Therapy II (3). Continuation of Respiratory Therapy 4460. Clinical rounds, case presentations and advanced study.

RS THR 4920—Community and Patient Education II (1-3). Presentations to a variety of community groups. Emphasis on wellness and disease prevention. Prerequisites: RSTHR 4220 or instructor's consent. Graded on S/U basis only.

RS THR 4940—Clinical Practice IV (6). Structured and supervised clinical experience.

Prerequisites: RS THR 3420, 3942, 3440, 3943, 4020. Graded on S/U basis only.

RS THR 4956—Research in Respiratory Therapy (2-6). Selected research projects guided by a senior staff member. Prerequisite: CP&D 4955.

RS THR 4973—Clinical Practice V (5). An extension of the supervised practicum begun in Respiratory Therapy 4940. Emphasis in adult critical care and special procedures including bronchoscopies, cardiac catheterization and chest tube placement.

RS THR 4983—Clinical Practice VI (5). An extension of the supervised practicum begun in Respiratory Therapy 4940. Emphasis in perinatal and pediatric critical care including pediatric pulmonary function testing and airway management.

RS THR 4993—Clinical Practice VII (5). An extension of the supervised practicum begun in Respiratory Therapy 4940. Emphasis in rehabilitation and home care, inservice education, and management. Students will participate in on-going research projects and community service activities.

Department of Occupational Therapy

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Advising Contact
 S. Borcharding

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 D. Baldwin

FACULTY

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CLINICAL PROFESSOR G. L. McCormack
CLINICAL ASSOCIATE PROFESSOR S. Y. Borcharding
CLINICAL INSTRUCTOR C. A. Bird, L. H. Brittain,
 L. B. Eagle, K. Hickey, G. Krug, D. J. Lackey,
 C. C. Quay, D. E. Weston, S. E. Wiley
INSTRUCTOR D. J. Baldwin

Occupational therapists are skilled health professionals who provide services to infants, children, adults and elderly 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 model. 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 with a major in Occupational Therapy. It is anticipated that the occupational therapy program will offer an entry-level master's degree in 2005.

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 (BHS)

The degree program requires two years of professional course work after completion of all prerequisites and University general education requirements on the MU campus followed by six months of field experiences in affiliated clinical and community-based sites. Required field work must be completed within 24 months after required didactic courses are completed.

Students with a Bachelor's degree must complete the prerequisite courses and meet the admission requirements.

The following are MU courses. Students transferring from other institutions should seek advice from the OT adviser and select appropriate prerequisite courses for admission. Medical terminology proficiency and thirty hours of volunteer or observation is required. In addition to University, college and degree requirements, students must complete the following:

Major core requirements

Prerequisites to the major

H D FS 2400: Principles of Human Development.....	3
BIO SC 1010 and 1020: General Principles/Concepts of Biology and Lab OR BIO SC 1500: Intro to Biological Systems w/lab	5
PSYCH 2510: Fundamentals of Abnormal Psychology	3
CHEM 1100: Atoms and Molecules	3
H D FS 2400: Principles of Human Development.....	3
MPP 3202: Elements of Physiology	5
SOCIOL 1000: Introduction to Sociology OR ANTHRO 1000: General Anthropology	3
PSYCH 1000: General Psychology.....	3
E&CPSY 4170: Introduction to Educational Statistics OR STAT 1300: Elementary Statistics.....	3
OC THR 1000: Introduction to Occupational Therapy OR HTH PR 1000: Introduction to Health Related Professions	1
HTH PR 2190: Medical Terminology	3

Departmental course requirements

PTH&AS 4222: Gross Human Anatomy	7
OC THR 4060: Professional Issues.....	2
OC THR 4240: Applied Neurophysiology for Allied Health Students	3
OC THR 4220: Clinical Kinesiology	3
OC THR 4020: Creative Media I	1
OC THR 4510: Professional Perspectives	2
OC THR 4310: Occupational Performance	4
OC THR 4940: Fieldwork Level I – Disability in Context..	2
HTH PR 3200: Essentials of Pathology	2
OC THR 4530: Loss and Disability OR OC THR 4100: Complementary/Alternative Therapy	3
OC THR 4270: Clinical Pathophysiology II	3
OC THR 4330: Human Motion and Activity	3
OC THR 4410: Developmental Framework	3
OC THR 4950: Research Methods.....	3
OC THR 4730: Management Perspectives	1
OC THR 4941: Fieldwork Level I – Lifespan Developmental Processes	2
OC THR 4943: Fieldwork: Clinical	1
OT THR 4942: Fieldwork: Older Adults	1
HTH PR 4300: Health Care in the United States	3
OC THR 4450: Pediatric Practice	3
OC THR 4350: Rehabilitation Principles in Occupational Performance	4
OC THR 4550: Psychopathology.....	2
OC THR 4945: Fieldwork Rehabilitation	1

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. Successful completion of the exam is required by state regulatory agencies before entering into the profession.

Requirements for Master's degree in Occupational Therapy

The Department of Occupational Therapy has been approved to offer 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.

Sample Eight-Semester Program

Bachelor of Health Science with a major in Occupational Therapy

Check the *Undergraduate Catalog* for prerequisites.

Fall I

HTH PR 1000: Intro to Health Professions1
 OC THR 1000: Intro to Occup Therapy1
 IS< 1110
 Library Research 1
 BIO SC 1010 & 1020 or 1500 General Biology5
 MATH 1120: College Algebra3
 PSYCH 1000: General Psychology3
Total.....14

Fall II

H D FS 2400: Prin Human Dev (WI) 3
 MPP 3202: Elem of Physiology 5
 Humanities 3
 Soc/RS/Anthro: Sociology/Rural Soc/Anthro 3
Total..... 14

Fall III

OC THR 4240: Applied Neurophysiology 3
 OC THR 4220: Clinical Kinesiology 3
 OC THR 4020: Creative Media 1
 OC THR 4510: Professional Perspectives 3
 OC THR 4310: Occupational Performance 4
 OC THR 4940: Fieldwork I-Disability in Context ... 2
 HTH PR 3200: Essentials of Pathology 2
Total..... 18

Summer

PTH & AS 4222: Human Anatomy 7
 OC THR 4060: Professional Issues 2

Winter I

HIST/POL SC 1100, 1200/POL SC1100, 1700 AmHistory/Gov't or PS ...3
 ENGINR 1000: Exposition3
 CHEM 1100: Atoms & Molecules3
 COMMUN 1200: Intro Speech Commun3
 Humanities3
Total.....15

Winter II

PSYCH 2510: Abnormal Psychology3
 ESC PS 4170/1300: Educ Stats/Elem Stat (MRP).....3
 ESC PS 1020/C&I 1210 & 4550: Computer Science ..3
 Applied Art 1-3
 CP&D 2190: Medical Terminology/Proficiency3**
Total13-15

Winter III

OC THR 4530: Loss & Disability (WI) OR3
 OC THR 4100: Complimentary/Alternative Therapy3
 OC THR 4270: Clinical Pathophysiology3
 OC THR 4330: Human Motion & Activity3
 OC THR 4410: Developmental Framework3
 OC THR 4950: Research Methods.....3
 OC THR 4943: Fieldwork Lev I - Clinical1
 OC THR 4941: Fieldwork Lev I - Children1
 OC THR 4942: Fieldwork Lev I - Older Adults1
Total.....18

Fall IV

OC THR 4770: Community Assessment...2
 HTH PR 4300: Health Care in U.S.....3
 OC THR 4450: Pediatric Practice.....3
 OC THR 4350: Rehabilitation Practice4
 OC THR 4550: Psychopathology2
 OC THR 4945: Fieldwork Rehab.1
 *OC THR 7000: Research Project3
Total.....18

*Needs permission to be dually enrolled in graduate course work to enroll in this course.

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 4020—Creative Media I (1). Laboratory course for developing competency in creative media. Emphasis on developing competencies in woodworking, activity analysis and adaptation, and the value of creativity in wellness. Graded on a S/U basis only.

OC THR 4060—Professional Issues (2). Occupational therapy roles from philosophical and ethical perspectives. Examines structure of the profession, professional associations, the curriculum, and professional literature. Study of collaboration, creativity and human occupation through experiential activities. Prerequisite: junior standing; acceptance into the major. 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 4100—Complementary Therapies (3). Introduction to systems of complementary/alternative medicine (CAMs) as it pertains to occupational therapy practice. The course will provide a critical analysis of complementary therapies, techniques, and culture health beliefs. Prerequisite: human anatomy, physiology; Pre/corequisite: clinical pathophysiology. Graded on A/F basis only.

OC THR 4220—Clinical Kinesiology (3). Functional anatomy and biomechanics in normal and abnormal conditions of extremities, back, neck and thorax. Dynamics of human motion and motor skills. Muscle testing and goniometry lab.

OC THR 4240—Applied Neurophysiology for Allied Health Students (3). (same as Communicative Science and Disorders 4430 and Physical Therapy 4240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

OC THR 4270—Clinical Pathophysiology II (3). A system approach to normal physiol-

ogy, disease and clinical manifestations of disease.

OC THR 4310—Occupational Performance (4). The course examines occupation within the health-wellness continuum. Activity analysis and adaptation are performed in laboratory and community experiences. Seminar topics include self awareness, stress management, examination of personal values and human diversity.

OC THR 4330—Human Motion and Activity (3). Analysis of movement within the framework of human occupation. Assessment of musculoskeletal function. Participation in activity adaptation and analysis of performance components. Introductory motor control concepts.

OC THR 4350—Rehabilitation Principles in Occupational Performance (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.

OC THR 4370—Rehabilitation Principles in Occupational Performance II (3). 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.

OC THR 4410—Developmental Framework (3). Lecture and Laboratory course designed to provide the occupational therapy student with an understanding of the process of normal development and prepare the student to administer common developmental assessments for infants and young children.

OC THR 4430—Clinical Conditions in Pediatric Occupational Therapy (1). A systems approach to etiology, physiology, clinical manifestations, and clinical management of diseases and conditions and developmental deviations of pediatric populations relevant to occupational therapy practice.

OC THR 4450—Pediatric Practice (2-3). Examines occupational therapy process through application of evaluation methods, intervention techniques in school based practice.

OC THR 4510—Professional Perspectives (3). Understanding and directing personal and professional communication through experiential activities. Includes formation of a professional and therapeutic relationships, and leadership development. Also concepts of dyad and group dynamics will be presented.

OC THR 4530—Loss and Disability (3). Reactions to illness, disability, and death. Identifies the roles of caregivers and patients. Addresses body image, self concept, and adjustment problems met in life when terminal illness or disability is present.

OC THR 4550—Psychopathology (2). Focus on the major theories in etiology of psychosocial dysfunction as applicable to occupational therapy; review of classification and characteristics of pathological syndromes.

OC THR 4570—Psychosocial Dysfunction in Practice (3). Theories and techniques of occupational therapy in treatment of psychosocial dysfunction. Emphasizes occupational performance in evaluation methods, treatment

techniques, program planning, therapeutic use of self, group leadership in the integration of mental health concepts.

OC THR 4720—Occupational Therapy Practice in Health Care Systems (3). Examines current practice from historical and philosophical perspective. Analyzes influence of environment in delivering health care services. Examines issues and trends in practice from professional, legal, political, ethical viewpoints.

OC THR 4730—Management Perspectives (3). Organizational structure of occupational therapy service programs in various types of community and institutional practice settings. Interdepartmental and intradepartmental relationships, management and supervision, standards, regulations, and ethical guidelines emphasized.

OC THR 4770—Community Assessment (2). Focus on role of occupational therapy in health prevention and promotion. Concepts of program evaluations and development provided through community needs assessment and health promotion project. Emphasis on understanding the environment for health care services. Prerequisite: junior standing; acceptance into the major. Graded on A/F basis only.

OC THR 4940—Fieldwork Level I-Disability in Context (2). Community experiences for observational, interviewing, assessment, and relational skills with persons experiencing cross disabilities throughout the lifespan. Overview of professional and therapeutic relationships. Lecture, seminar weekly.

OC THR 4941—Fieldwork Level I - Lifespan Developmental Processes (2). Fieldwork developing clinical observational skills of preschool children and older adults in supported living environments. Emphasis on data collecting and synthesis, developing therapeutic relationships, planning and implementing developmental activities. Lecture, seminar weekly.

OC THR 4942—Fieldwork: Older Adults (1). Examines the aging process in context of the environment. Develops clinical observation skills through field placement with older adults in support living environments. Opportunities to gather/organize data, plan/implement activities, and develop therapeutic relationships. Prerequisite: completion 1st semester of major in professional curriculum; junior standing. 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 4944—Fieldwork: Children (1). Development of clinical observation skills via on-site observation of active health children. Opportunities to gather/organize data, plan/implement activities, and develop therapeutic relationships with children and their care providers. Prerequisite: completion of 1st semester of major professional curriculum; junior standing. Graded on A/F basis only.

OC THR 4945—Fieldwork Rehabilitation

(1). Clinical experiences in occupational therapy practice. Integration and application of theory and techniques in a treatment setting. Emphasis on clinical reasoning and documentation. Lecture, seminar weekly.

OCTHR 4946—Fieldwork Level I-Rehabilitation

(1). Clinical experiences in rehabilitation practice settings. Emphasis on integration and application of human occupation theory and treatment techniques. Explores roles and functions of occupational therapy in rehabilitation. Promotion of professional values. Lecture, seminar weekly.

OCTHR 4947—Fieldwork Level I-Children

(1). Clinical experiences in practice settings focused on children. Emphasis on integration and application of human occupation theory and treatment techniques. Explores roles and functions of pediatric occupational therapy. Promotion of professional values. Lecture, seminar weekly.

OC THR 4948—Fieldwork Level I-Mental Health

(1). Clinical experiences in mental health settings. Emphasis on integration and application of human occupation theory and treatment techniques. Explores mental health occupational therapy roles and functions. Promotion of professional values. Lecture, seminar weekly.

OC THR 4950—Research Methods (3)

Research methodology and efficacy studies emphasizing development of knowledge and skills in critiquing research and professional literature pertinent to occupational therapy. Application of evidence-based research results to practice settings.

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—Clinical Cases in Occupational Therapy (2)

Synthesis of occupational therapy approaches to clinical cases across age-span in primary practice areas. Identifying community health needs and health promotion/prevention interventions. Clinical reasoning, life-long learning, self-evaluation emphasized utilizing case methodology.

OCTHR 4983—Fieldwork Level II-Foundations of Rehabilitation (3-9)

Clinical practicum in rehabilitation setting for application of rehabilitation principles and techniques. Emphasis on connection of theory of human occupation to practice in biopsychosocial model and collaborative professional relationships. Graded on a S/U basis only.

OCTHR 4993—Fieldwork Level II-Transition to Independence (3-9)

Clinical practicum in specialized or community based settings. Integrates occupational therapy concepts and interventions. Emphasizes critical analysis and application of human occupation theory in biopsychosocial model and collaborative professional relations. Graded on a S/U basis only.

Department of Physical Therapy

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 School of Health Professions
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FACULTY

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CLINICAL ASSOCIATE PROFESSOR C. C. Abbott,
 M. K. Sanford, K. L. Wingert
CLINICAL INSTRUCTOR C. A. Blow, K. Gibson, J. Krug,
 S. E. Lindaman, J. J. McElroy, E. Prost, P. S. Rubinstein,
 L. A. Wright

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-Columbia offers a Master of Physical Therapy degree. No terminal undergraduate degree in physical therapy remains. This reflects the national requirement set forth by the Commission on Accreditation in Physical Therapy Education. Upon completion of the professional phase of the physical therapy curriculum, the Bachelor of Health Science with a major in Pre-Professional Physical Therapy is awarded concurrently with the Master of Physical Therapy degree to students who have completed undergraduate education requirements at MU. It is anticipated that the Doctor in Physical Therapy will be offered beginning Summer 2007. At that point, the BHS and MPT will no longer be offered and students will be required to hold a Bachelor's degree for application to the professional major. See the *Graduate Catalog* for a list of degree requirements and courses.

ADMISSIONS

Professional Phase of Physical Therapy Program

Admission to the professional phase of the physical therapy curriculum is selective and occurs by a separate application process administered by the Department of Physical Therapy. Applications are due to the department in January. Acceptance to the University of Missouri-Columbia does not assure admittance to the professional phase of the physical therapy curriculum. An undergraduate degree is not a requirement at this time for admission into the professional phase of the program. Applicants to the professional phase of the physical therapy program must have completed approximately 60 college credits, including all departmental prerequisite course work. Students applying without a bachelor's degree must also have completed all University

of Missouri-Columbia general education requirements prior to the start of the professional phase of the physical therapy curriculum.

Professional Phase - Master of Physical Therapy

Information regarding the professional phase of the physical therapy curriculum can be found in the University of Missouri-Columbia *Graduate School* catalog.

Sample Eight-Semester Program

Bachelor of Health Sciences with a Pre-Professional major in Physical Therapy. (Awarded concurrently with the Master of Physical Therapy degree.)

Prerequisites

Fall I

HTH PR 1000: Intro Health Professions 1
 CHEM 1310: General Chemistry I..... 2^
 MATH 1120: College Algebra..... 3*
 PSYCH 1000: General Psychology 3^
 Am hist, gov't or pol sci....3*
 HIST 1100, 1200 or POL SC 1100 or 1700
Total..... 12

Fall II

PHYSCS 1210: College Physics (MRP) 4^
 MPP 3202: Elem of Physiology 5^
 Second psychology + ... 3^
 Humanities 3*
Total..... 14-15

Professional Phase

Summer

PH THR 4222: Gross Human Anatomy 7^^
 PH THR 3022: Principles of Physical Therapy ... 1^^
Total..... 8

Fall III

PH THR 3200: Essentials of Pathology 2^^
 PH THR 4420: Found Therapeutic Exercise.. 3^^
 PH THR 4380: Clin. Eval & Procedures 3^^
 PH THR 4120: Intro to Clinical Edu I..... 1^^
 PH THR 4240: Applied Neurophysiology..... 3^^
 PH THR 4250: Human Kinesiology 3^^
Total..... 15

Winter I

CHEM 1320: General Chemistry II..... 3^
 ENGLSH 1000: Exposition 3*
 BIO SC 1010 & 1020, or 1500: General Biology 5^
 Humanities 3*
Total 14

Winter II

PHYSCS 1220: College Physics 4^
 Science elective 3-5^^*
 Soc / r. soc / anthro / econ.. 3^
 Statistics, finite, or calculus 3^^#
 Humanities 3*
Total 16-18

Winter III

PH THR 4620: Intro to Orthopedics 3^^
 PH THR 4330: Physical Agents..... 3^^
 PH THR 4150: Intro to Clinical Ed II 1^^
 PH THR 4270: Clinical Pathophysiology 3^^
 PH THR 4470: Clinical Kinesiology 3^^
Total 13

Summer

PH THR 4940: Clinical Education I 3^^
Total..... 3

Fall IV

HTH PR 4300: Health Care in the U.S. 3^^
 PH THR 4510: Evidence-Based Practice..... 3^^
 PH THR 4680: Orthopedic PT 3^^
 PH THR 4730: Pediatric PT..... 4^^
 PH THR 4770: Adult Neurological Rehab ... 4^^
Total..... 17

Winter IV

PH THR 4945: Clinical Education II ... 5^^
 PH THR 7890: Case Mgmt I, Medical/Surgical..... 5^^
 PH THR 4570: Bridging the Clinical-Research Gap 3
Total 13

Fall V

PH THR 8130: Professional Issues ..3^^+
 PH THR 8390: Case Mgmt II, Ortho/Geriatric5^^+
 PH THR 8940: Clinical Education III5^^+
Total..... 13

MRP: Math Reasoning Proficiency

WI: Writing Intensive (This designation is determined by the Campus Writing Board each term and may be found on their web site.)
 +: One psychology course required past general psychology
 ++ See Graduate Catalog for course descriptions.
 *: One course required; Consult Departmental or School Adviser
 #: One course required; Statistics, finite math or calculus.
 A course in statistics is the preferred method of satisfying this requirement.
 Consult Departmental or School Adviser
 *: University Gen-Ed only
 ^: Degree/ University Gen-Ed Combination
 ^^: Degree only

Winter V

PH THR 8087: Seminar.....3^^+
 PH THR 8690: Case Mgmt III: Neuro/Pediatric5^^+
 PH THR 8945: Clinical Education IV.....5^^+
Total 13

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 3001—Topics in Physical Therapy (1-3). Organized study of a specified area of interest in physical therapy and related subjects. Topics and credit hours will vary. Prerequisite: instructor's consent.

PH THR 3022—Principles of Physical Therapy (1). History of physical therapy: the profession; basic skills: first aid, infection control, vital signs; medical terminology.

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 4001—Topics in Physical Therapy (1-3). Organized study of a specified area of interest in physical therapy and related subjects. Topics and credit hours will vary. 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: graduate standing and 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 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 3250) 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 Diagnostic Medical Ultrasound 4234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

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 4380—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 4420—Foundations of Therapeutic Exercise (3). Physiologic basis of therapeutic exercise with emphasis on effects on the musculoskeletal and cardiopulmonary systems; principles of exercise prescription; types and methods of exercise.

PH THR 4470—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.

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 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: 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 4940—Clinical Education I (3). 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.

**College of
Human
Environmental
Sciences**

College of Human Environmental Sciences

(including 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 and Interior Design*
 Consumer and Family Economics, with emphasis areas in *Personal Financial Planning*
Personal Financial Management Services
 Human Development and Family Studies with emphasis areas in
Child Development and Education
Child Life Specialist
Family and Consumer Sciences Education
Family Studies
General Human Development and Family Studies
Human Development
Human Development and Family Studies and Social Work (dual degrees)
 Nutritional Sciences, with emphasis areas in
Medical Dietetics
Nutrition and Fitness
Nutritional Science
 Textile and Apparel Management

Bachelor of Social Work (BSW)

Minors

Architectural Studies
 Consumer and Family Economics
 Nutritional Science
 Personal Financial Management Services
 Human Development and Family Studies
 Textile and Apparel Management
 Social Justice

ADMINISTRATION

Stephen R. Jorgensen, Dean
 Bea Smith, Dean Emeritus
 Margaret Mangel, Dean Emeritus
 Jo Britt-Rankin, Associate Dean for Human Environmental Sciences Outreach and Extension
 Marjorie Sable, Associate Dean for Research and Graduate Studies
 Victoria Shahan, Student Services Director

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The mission of the College of Human Environmental Sciences is to improve the quality of life for individuals and families where they live and work. The human sciences seek scientific solutions to everyday problems such as food and wellness, clothing, shelter, money and financial planning, human growth, family resiliency and social justice. The College of Human Environmental Sciences prepares students to be leaders in some of the largest industries in the world.

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 may 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 HES1100: Introduction to Human Environmental Sciences. This course emphasizes career decision-making, provides an orientation to the campus and the college and brings into focus the role of human environmental sciences in the improvement of the quality of life in the near environment.

Admission to the School of Social Work

Incoming students who declare a major in social work when admitted to the University are assigned to an adviser in the School of Social Work. 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. Students may apply early in the winter semester for fall admission to the BSW professional program social work core if they meet the following criteria:

- 45 credits completed by the application deadline and
- 55 credits expected before the beginning of the first semester of the BSW core
- 2.5 cumulative GPA
- Completion of required liberal arts prerequisite courses with minimum grades

- Submission of BSW Professional Program application, including essay and 3 references by early deadline of February 1 or late deadline of July 15.

Application to Studio Sequence in Architectural Studies

Students must apply for admission to the studio sequence required for all of the undergraduate program majors. Applications must be made at the end of the winter semester of the freshman level for enrollment in ARCHST 2811: Studio I.

Application forms with deadlines are available from the department. Admittance decisions are based on:

1. Review of design work submitted in a portfolio, which should include a range of the student’s best work from at least two of the following three courses (or equivalent courses):
 - ARCHST 1200: Architectural Drafting and Working Drawings
 - ARCHST 1100: Visual Design (or ART 1030: Basic Design or ART 1010: Intro. to Art)
 - ART 1050: Beginning Drawing
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)

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 general education 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
American history or political science (choose from).....3

HIST1100, 1200, 1400, 2440, 2210, 7000, 4220, 4230 or POL SC 1100, 1700, 2100

Social and behavioral sciences (choose from).....9–12

- Agricultural Economics
- ANTHRO 1000, 1350, 1300, 2030, 2040, 2580
- Black studies
- Economics
- Geography
- History
- Linguistics
- Peace studies
- Political science
- Psychology
- Sociology
- Women’s and Gender studies

Biological sciences, Physical, and/or Mathematical Sciences (Choose from two different areas and at least one must include a laboratory)9

- Biological sciences (choose at least one from)
 - Animal sciences
 - Biological anthropology (2051 and 2052 or 2050)
 - Biochemistry
 - Biological sciences
 - Fisheries and wildlife
 - Food science
 - Nutritional sciences
 - Forestry
 - Honors College science sequence
 - Plant sciences
- Physical sciences
 - Astronomy, chemistry, geological sciences, physics, engineering, soil and atmospheric sciences
- Math Sciences, Math Statistics, Computer science

Humanities and fine arts (choose from)9

- Applied courses are accepted on a department-by-department basis.
- Art
 - Art history
 - Anthropology
 - Classics
 - COMMUN 1200
 - English (other than 1000)
 - Foreign civilization
 - Foreign language
 - Honors humanities sequence
 - Music
 - Philosophy
 - Religious studies
 - Theatre

Communication skills (choose from).....3

- COMMUN 1200, 3571, 3575 OR
- AG JRN 3210

***Capstone experience**

All majors must complete a capstone experience within the department. This may include a course, an internship or practicum experience, or a thesis or special project. It should be completed during the last two semesters of course work. Check with a faculty adviser for more information.

*All courses in these categories must be completed with a C- or better, unless otherwise specified by the department.

H D FS 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

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
- ARCHST 4362: Environment and Behavior

Consumer and family economics

- C & F EC 2180: Personal and Family Management
- C & F EC 2183: Personal and Family Finance
- C & F EC 2185: The Consumer in Our Society

Nutritional sciences

- NUTR S 1034: Current Concepts and Controversies
- NUTR S 1340: Nutrition and Fitness
- NUTR S 2380: Diet Therapy for Health Professionals

Human development and family studies

- H D FS 2400: Principles of Human Development
- H D FS 1610: Close Relationships in Families
- H D FS 1600: Introduction to the Study of Families

Social work

- SOC WK 1115: Social Work and Social Welfare
- SOC WK 2000: Exploration in Social Justice
- SOC WK 4710: Social Justice and Social Policy

Textile and apparel management

- T A M 1100: Introduction to the Textile and Apparel Industry
- T A M 1300: Softgoods Retailing
- T A M 1400: Global Consumers
- T A M 2100: Textiles
- T A M 2510: History of Western Dress
- T A M 2500: Social Appearance in Time and Space
- T A M 3100: Fundamentals of E-Commerce
- T A M 2400: Softgoods Consumer Behavior

Electives

Electives vary with the student's professional objectives and are chosen by the student in consultation with the adviser. Up to 4 credits in physical education may be taken for elective credit.

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 adviser and the student services director to enroll in more than 17 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. Contact the directors of both programs for more information.

Dual degree core requirements

A. Preprofessional requirements

Science, including one lab course; one course must be biology	9
ASTRON 1010: Introduction to Astronomy (4)	
BIO SCI 1010: General Biology (3)	
BIO SCI 1020: General Biology Laboratory (2)	
BIO SCI 1200: General Botany (5)	
CHEM 1310: General Chemistry I (2) OR	
CHEM 1320: General Chemistry II (3)	
GEOL 1100: Principles of Geology (4)	
PHYSCS 1210: College Physics (4)	

Additional courses

ECONOM 1015: Principles of Macroeconomics	3
Anthropology	3
C & F EC 2183: Personal and Family Finance OR	
C & F EC 2180: Personal and Family Management	3
COMMUN 1200: Introduction to Speech	
Communication	3
ENGLISH 1000: Exposition and Argumentation	3
HIST 1100: Survey of American History to 1865 OR	
HIST 1200: Survey of American History Since 1865 OR	
HIST 1400: American History (5).....	3-5
Humanities and Fine Arts	6
MATH 1100/1120: College Algebra	3
NUTR S 1034: Nutrition, Current Concepts and	
Controversies	3
Philosophy	3
POL SC 1100: American Government OR	
POL SC 1700: Introduction to Political Science	3
PSYCH 1000: General Psychology	3
PSYCH 4310: Theories of Personality	3
SOCIOL 1000: Introduction to Sociology	3
SOCIOL 3810: Social Psychology OR	
PSYCH 2310: Social Psychology	3
STAT 1200: Introductory Statistical Reasoning OR	
STAT 1300: Elementary Statistics OR	
E&CPSY: Education Statistics I OR	
SOCIOL 4120: Social Statistics	3

B. Requirements in Human Development and Family

Studies	35
*H D FS 1600: Introduction to the Study of Families	3
*H D FS 2400: Principles of Human Development	3
*H D FS 2300: Multicultural Study of Children and	
Families	3
*H D FS 2420: Early and Middle Childhood	3
H D FS 2430: Adolescence and Adulthood	3
H D FS 2440: Adulthood and Aging	3
H D FS 3510: Child Development Laboratory	5
H D FS 4300: The Black Family: Past, Present	
and Future.....	3
H D FS 4610: Stress in Families	3
H D FS 4720: Child and Family Advocacy	3
H D FS 4740: Parent-Child Relations over the Life	
Course OR	
H D FS 4620: Family Interaction	3

* Student must earn 2.00 or better in course.

H D FS 1600 must be taken before H D FS 2300 or any 3000-level HDFS course.

C. Social work requirements.....42

SOC WK 2220: Human Behavior and the Environment ..	3
SOC WK 4710: Social Justice and Social Policy	3
SOC WK 4720: Variations in Human Behavior	3

SOC WK 4730: Introduction to Social Work Practice	3
SOC WK 4770: Strategies of Direct Practice	3
SOC WK 4740: Introduction to Community and Organizational Processes	3
SOC WK 4750: Interaction Skills Workshop	3
SOC WK 4760: Theory and Practice of Social Group Work	3
SOC WK 4951: Research for Social Work Practice.....	3
SOC WK 4952: Research Methods for Social Work	3
SOC WK 4971: Undergraduate Field Practicum	6
SOC WK 4970: Senior Professional Seminar	3
Social work elective in a field of practice	3

General electives.....0-3
Up to 3 credits as required to complete the dual-degree
minimum of 133 credits

STUDENT SERVICES

Advising

One of the outstanding features of the College of Human Environmental Sciences is its advisement program. It is designed to assist the student in planning a college program, with each student assigned a faculty adviser during the first registration period. In addition, the Student Services Office provides consultation on student problems and concerns.

GENERAL HUMAN ENVIRONMENTAL SCIENCES COURSES

**GN H E 1100—Introduction to Human
Environmental Sciences (1-2).**

Degree Audit

A degree audit is prepared for students at the time of each pre-registration. It includes courses completed and those courses remaining to complete the requirements for a degree. It is the student's "contract" with the college, and it ensures that when the degree program has been completed the student will receive a degree.

Students earning credit from another institution will have a transfer equivalencies form completed by the adviser 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 requirement. This information is used to update the degree audit each semester.

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 Placement

Placement 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 advisers provide information regarding procedures. Career exploration information may be obtained in the Career Center.

Department of Architectural Studies

(Formerly the Department of Environmental Design)

R. Brent Tofle, Chair

College of Human Environmental Sciences

137 Stanley Hall

(573) 882-7224

<http://www.missouri.edu/~arch>

Academic Advising Contact

R. Brent Tofle

Scholarship Information Contact

<http://www.missouri.edu/~hes/scholarships.htm>

FACULTY

PROFESSOR B. Schwarz, R. B. Tofle, M. S. Uddin

ASSOCIATE PROFESSOR R. G. Phillips

RESIDENT ASSISTANT PROFESSOR S. Y. Yoon

RESIDENT INSTRUCTION ASSISTANT PROFESSOR

M. Goldschmidt

The Department of Architectural Studies (formerly Environmental Design) offers a Bachelor of Science in Human Environmental Sciences. The degree program in Architectural Studies describes the processes, procedures, observations and techniques essential to the development of designs for human living, leisure and work environments. The program is oriented in the arts and humanities, uses the exact sciences for stability and durability, and includes the social sciences for a better understanding of people's relationship with places and time.

The interior design emphasis is a four-year, first-professional baccalaureate interior design program accredited by the Foundation for Interior Design Education Research (FIDER). The Architectural Studies emphasis includes the accredited interior design program plus additional course work to prepare students to enter a master's program in architecture.

Students may wish to consider a minor in art or plant sciences to complement their undergraduate degree. The department offers a minor in architectural studies.

Portfolio Review and Laptop Computer Requirements

At the end of the winter semester of the first academic year, students apply for acceptance to the studio sequence that begins the following fall semester. Acceptance decisions are based on (1) a portfolio review of the design work from the three required courses (drafting, two-dimensional design and beginning drawing), (2) grade point average, and (3) ACT scores.

A laptop computer is required for the studio sequence at the beginning of the sophomore year.

Major Program Requirements – Human Environmental Sciences (BS HES) in Architectural Studies

For admission information, see information under the College of Human Environmental Sciences.

Emphasis Areas

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. Program reciprocity agreements were developed with The University of Kansas (KU) and University of Nebraska. All students interested in these programs are encouraged to maintain regular communication with the cooperating institution, because application and transfer procedures are subject to change.

Sample Eight-Semester Program

Bachelor of Science in Human Environmental Science with a major in Architectural Studies (Architectural Studies Emphasis)

Fall I

ARCHST 1100: Visual.....
Design 2
ENGLSH 1000:
Exposition and
Argumentation 3
ART 1050: Drawing 1 OR
ARCHST 1200:
Architectural Drafting and
Working Drawings 3
GEN ED 1110: 3
G N HE 1100: Introduction
to Human Environmental
Social/Behavioral
Sciences (required for
freshmen) 1
General education 3
Total..... 16

Fall II

ARCHST 2220:
Computer Aided Drafting
with AutoCAD 3
ARCHST 2230: Design
Communication I 3
ARCHST 2600:
Environmental
Analysis (WI)..... 3
ARCHST 2811: Studio I.. 4
ARCHST 2310:
Building Systems 3
Total..... 16

Winter I

ARCHST 1600:
Fundamentals of
Environmental Design..... 3
ART 1050: Drawing I OR
ARCHST 1200:
Architectural Drafting and
Working Drawings 3
MATH 1100 or 1120:
College Algebra..... 3
BIO SC 2-3
Elective..... 3
Total 14-15

Winter II

ARCHST 3230: Design
Communications II..... 3
ARCHST 3182: Studio
Studio 2 4
AR H A 1120 3
MATH 1320: Elements
of Calculus..... 3
Elective..... 3
Total 16

Sample Eight-Semester Program

Bachelor of Science in Human Environmental Science with a major in Interior Design

Fall III
 ART 1040: Basic 3-D Design 3
 ARCHST 3371: Design Resource Management... 1
 ARCHST 4410: History of the Designed Environment before 1750 3
 ARCHST 4823: Studio 3... 4
 PHYSCS 1210: College Physics I..... 4
Total..... 15

Fall IV
 ARCHST 4710: Design Business Practices 3
 ARCHST 4860: Programming for Thesis Design Studio 1
 ARCHST 4320: Materials, Methods, & Products 3
 HES Foundation (recommend 2000 or higher 3
 HIST or POL SC 3
 Elective 3
Total..... 16

Emphasis Areas

Emphasis in Interior Design

The professional interior designer enhances the function and quality of interior spaces. Design studio experiences are the core of the undergraduate design curriculum. Studio exercises focus on a cyclical refinement of the design process and the integration of increasingly complex problem parameters. Studios encourage interaction between instructor and students in the design studio sequence.

Winter III
 ARCHST 4333: Compliance and Specifications 3
 ARCHST 4420: History of the Designed Environment after 1750... 3
 ARCHST 4620: Environment and Behavior 3
 ARCHST 4814: Studio 4 .. 4
 Elective or general education courses 3
Total 16

Winter IV
 ARCHST 4990: Thesis Design Studio 4
 Social/Behavioral Science 3
 Electives 8-9
Total 16

Total 125

Fall I
 GN HE 1100: Introduction to Human Environmental Sciences (required for freshmen).. 1
 ARCHST 1100: Visual Design OR ART 1030: Basic 2-D Design 3
 ARCHST 1200: Architectural Drafting and Working Drawings OR ART 1050: Drawing I 3
 ENGLSH 1000..... 3
 Social/Behavioral Science 3
 HIST/POL SC 3
Total..... 16

Fall II
 ARCHST 2220: Computer Aided Drafting with AutoCAD 3
 ARCHST 2230: Design Communication I 3
 ARCHST 2600: Environmental Analysis (WI)..... 3
 ARCHST 2811: Studio I 4
 ARCHST 2310: Building Systems 3
Total..... 16

Fall III
 ART 1040: Basic 3-D Design 3
 ARCHST 4320: Materials, Methods, and Products..... 3
 ARCHST 4410: History of the Designed Environment to 1750..... 3
 ARCHST 4813: Studio 3... 4
 PHYSCS 1210 4
Total..... 15

Fall IV
 ARCHST 4710: Design Business Practices 3
 ARCHST 4860: Programming for Thesis Design Studio..... 1
 ARCHST 3371: Design Resource Management..... 1
 Physical/Biological/Math Science 4
 Electives 6
Total..... 15

Winter I
 ARCHST 1200: Architectural Drafting and Working Drawings OR ART 1050: Drawing I..... 3
 ARCHST 1600: Fundamentals of Environmental Design (WI) 3
 MATH 1100..... 3
 General education courses 6
Total 15

Winter II
 ARCHST 3230: Design Communications II..... 3
 ARCHST 3182: Studio 2. 4
 AR H A 1120 History of Western Art II. 3
 Physical/Biological/ Math Science 2
 Elective..... 3
Total 15

Winter III
 ARCHST 4420: History of the Designed Environment after 1750... 3
 ARCHST 4620: Environment and Behavior..3
 ARCHST 4814: Studio 4 .. 4
 ENGINR 1200: Statistics & Elementary Strength of Materials 3
 General education..... 3
Total 16

Winter IV
 ARCHST 4333: Compliance and Specifications 3
 ARCHST 4990: Thesis Design Studio 4
 Electives 9
 Social/Behavioral Science 3
Total 16

Total 125

Minor in Architectural Studies

A minor in the Department of Architectural Studies is comprised of a minimum of 15 credits.

Minor core requirements3

ARCHST 1600: Fundamentals of Environmental Design

Electives (choose from)12

ARCHST 1100: Visual Design

ARCHST 1200: Architectural Drafting and Working Drawings

ARCHST 2220: Computer Aided Drafting with AutoCAD

ARCHST 2310: Building Systems

ARCHST 2315: Building Systems Lab

ARCHST 4230: Computer Graphic Applications for Design

ARCHST 4320: Materials, Methods and Products

ARCHST 4410: History of the Designed Environment to 1750

ARCHST 4420: History of the Designed Environment after 1750

ARCHST 4555: Recent Trends

ARCHST 4620: Environment and Behavior

For exceptional students, with consent of instructor and department approval, additional course work in the department may be selected.

ARCHITECTURAL STUDIES COURSES

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 2085—Problems in Architectural Studies (cr.arr.). Supervised independent work. Prerequisite: instructor's consent.

ARCHST 2100—Understanding Architecture (3). Overview of the architectural environment emphasizing historical, cultural-behavioral, perceptual and conceptual studies. Prerequisite: ARCHST 1200, 1600.

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: 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: ARCHST 1200 or equivalent; ART 1050 or equivalent.

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: ARCHST 1200, MATH 1100/1120.

ARCHST 2315—Building Systems Laboratory (1-3). 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. May be repeated for credit.

ARCHST 2600—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: ARCHST 1200, 1600.

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 space/s. Formation of design concept, development of form and space, and application in built environment. Prerequisite: ARCHST 1100, or ART 1030 and ARCHST 1200, ART 1050.

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: ARCHST 2600, 2811, instructor's consent. Co-requisites: ARCHST 2230, 2310, 4341, 4601/7360.

ARCHST 3230—Design Communication II (3). Advanced studio course in techniques and conventions of graphic communication as aids in the design process. Prerequisite: 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: ARCHST students, sophomore standing.

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: ARCHST 2310.

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: ARCHST 4320.

ARCHST 4355—Recent Trends in Digital Media I (cr.arr.).

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: AR H A 1110 or 1120.

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: AR H A 1110 or 1120.

ARCHST 4550—Electronic and Manual Portfolio (3). Studio course emphasizing techniques and conventions of preparation for portfolio material. Focus on concepts of design, layout, reprographic techniques, and final production.

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 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 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, and instructor's consent. Co-requisite: ARCHST 3230.

ARCHST 4814—Interiors Studio IV (4). Continuation of Environmental Design 3282. 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: EDN 3282.

ARCHST 4815—Studio V (4). A continuation of previous studio with emphasis on digital media. Prerequisite: ARCHST 4814.

ARCHST 4823—Architectural Studio III (4). Continuation of 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: ARCHST 3182; 3230.

ARCHST 4824—Architectural Studio IV (4). Continuation of 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: ARCHST 4823.

ARCHST 4860—Programming for Thesis Design Studio (1). 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. Corequisites: instructor's consent.

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 ARCHST 4860. 4385. Prerequisites: ARCHST 4860, 4814.

Department of Consumer and Family Economics

Robert O. Weagley, Chair
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(573) 882-7836
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Advising Contact

Victoria Shahan, Student Services Director
117 Gwynn Hall
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Scholarship Information Contact

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FACULTY

ASSOCIATE PROFESSOR D. L. Sharpe, R. O. Weagley,
M. J. Zelenak
ASSISTANT PROFESSOR M. S. Finke, S. J. Huston
EXTENSION INSTRUCTOR B. J. Procter

Admissions

Students must have a University of Missouri cumulative GPA of at least a 2.4, based on at least 50 credits attempted, and a C or better in both C & FEC 2183 and C & FEC 3283 to be admitted to the Personal Financial Planning professional program of the department. Other departmental programs require a 2.0 GPA.

Major Program Requirements – Consumer and Family Economics (BS HES)

The Department of Consumer and Family Economics (C & FEC) offers a major in Consumer and Family Economics with two emphasis areas: personal financial planning and personal financial management services. The department also offers a track in e-consumer studies. 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 foundation courses
- Major core courses
- Professional specialization

Students must complete 5-6 credits in introductory economics, from either the Agricultural Economics or Economics Department with a grade of C (2.0) or above. A grade in the D range is allowed in only one course under the department core and professional specialization.

Students must complete the C & FEC Department program assessment in May or December prior to graduation.

Major core requirements16

C & F EC 2083: Introduction to Personal Financial Management Services	1
C & F EC 2183: Personal and Family Finance	3
C & F EC 2185: The Consumer in Our Society	3
C & F EC 2188: Community Agencies and Volunteerism ..	3
C & F EC 3287: Consumer and Household Economics I....	3
C & F EC 4380: Assessing the American Dream	3

Emphasis in Personal Financial Planning

Certified Financial Planner™

The emphasis for Certified Financial Planner™ is approved by the CFP® Board of Standards for CFP® Program Registry. This emphasis satisfies the academic requirements for the Certified Financial Planner™ certification and allows the graduate to sit for the comprehensive CFP® 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.....42

C & F EC 3282: Financial Counseling	3
C & F EC 3283: Financial Planning: Computer Applications	3
C & F EC 4382: Financial Planning: Risk Management	3
C & F EC 4383: Financial Planning: Investment Management.....	3
C & F EC 4386: Financial Planning: Employee Benefits and Retirement Planning.....	3
C & F EC 4393: Financial Planning: Estate and Gift Planning	3
C & F EC 4993: Internship	3
ACCTCY 2036: Accounting I.....	3
ACCTCY 2037: Accounting II.....	3
ACCTCY 4353: Introduction to Taxation	3
ECONOM 3229: Money and Banking.....	3
MANGMT 3540: Introduction to Business Law	3
STAT 2500: Introduction to Probability and Statistics.....	3
STAT 3500: Introduction to Probability and Statistics II.....	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. Such positions are available in financial counseling, financial planning, employee benefits, customer service, credit counseling, insurance services, brokerage services, investment services and student financial aid.

Emphasis core requirements.....42

C & F EC 3282: Financial Counseling	3
C & F EC 3283: Financial Planning: Computer Applications	3
C & F EC 4382: Financial Planning: Risk Management	3
C & F EC 4383: Financial Planning: Investment Management	3
C & F EC 4386: Financial Planning: Employee Benefits and Retirement Planning	3
ACCTCY 2010: Introduction to Accounting	3
ECONOM 3229: Money and Banking	3
MANGMT 3540: Intro to Business Law	3
STAT 1300: Elementary Statistics OR	

STAT 2500: Introduction to Probability and Statistics	3
Additional credits.....	15
These courses are selected by students from a list of approved courses to complement their degree. Contact the Student Services Office of the College of Human Environmental Sciences for examples of how students are able to focus their additional credits in a specific area, while satisfying either the requirements for a minor from the College of business or the Department of Economics.	
Track in E-Consumer Studies	
This track prepares students to conduct consumer-oriented/customer-focused market research to be applied in an electronic retail environment. Students are prepared for numerous occupations in which consumer tastes and preferences are necessary for product positioning and sale. (Note: Tracks do not appear on transcripts or diplomas.)	
Core requirements	24
C & F EC 2183: Personal and Family Finance	3
C & F EC 2185: The Consumer in Our Society	3
C & F E 3283: Financial Planning Computer Applications	3
C & F E 3287: Consumer and Household Economics I.....	3
T A M 1300: Softgoods Retailing.....	3
T A M 1400: Global Consumer	3
T A M 2400: Softgoods Consumer Behavior	3
T A M 3410: The Clothing/Textile Consumer	3
Professional core	27
T A M 3100: Fundamentals of E-Commerce	3
T A M 4140: Web-based Market Research.....	3
C & F E 4380: Assessing The American Dream	3
ACCTCY 2036: Accounting I	3
MRKTNG 3000: Principles of Marketing	3
STAT 1300: Elementary Statistics OR	3
STAT 2500: Introduction to Probability and Statistics.....	3
ACCTCY 2258: Computer Based Data Systems	3
MRKTNG 4650: e-Marketing.....	3
C & F E 4993: Financial Planning Internship OR TAM 4949: Field Training.....	3

Minor in Consumer and Family Economics

Students can minor in consumer and family economics 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 minor exists with the Department of Agricultural Economics that allows agricultural economics students to complete a CFP® Board Registered Program, allowing them to sit for the CFP® examination.

Minor with agricultural economics

C & F EC 2083: Introduction to Personal Financial Management Services	1
C & F EC 2183: Introduction to Personal and Family Finance	3
C & F EC 3283: Financial Planning: Computer Applications	3
C & F EC 4382: Financial Planning: Insurance.....	3
C & F EC 4383: Financial Planning: Investments	3
C & F EC 4386: Financial Planning: Employee Benefits and Retirement Planning	3
C & F EC 4393: Financial Planning: Estate Planning	3

General minor in personal financial management services.....

.....	16
C & F EC 2083: Introduction to Personal Financial Management Services	1
C & F EC 2183: Personal and Family Finance	3
C & F EC 2185: The Consumer in Our Society.....	3
C & F EC 3283: Financial Planning: Computer Applications	3
CFE 3287: Consumer and Household Economics	3
Choose at least one from the following.....	3
C & F EC 4382: Financial Planning: Risk Management	
C & F EC 4383: Financial Planning: Investment Management	
C & F EC 3285: Financial Planning: Real Estate	

Sample Eight-Semester Programs

BS HES with an Emphasis in Personal Financial Planning

Fall I		Winter I	
HES 1100.....	1	Humanities.....	3
ENGLSH 1000.....	3	MATH 1120.....	3
History or Political Science.....	3	PSYCH 1000.....	3
Humanities.....	3	Science.....	5
Science.....	4	Total.....	14
Total.....	14		

Fall II	
CFE 2083: Intro to Per Fin Mgmt Ser.....	1
Communications.....	3
ECONOM 1014 or AG EC 1041.....	3
SOCIOL 1000.....	3
Humanities.....	3
General Elective.....	3
Total.....	16

Fall III	
CFE 2180: Pers and Fam Mgmt.....	3
CFE 2183: Pers and Fam Finance.....	3
CFE 2185: Consumer in our Society.....	3
ECONOM 3229.....	3
ACCTCY2037.....	3
Total.....	15

Fall IV	
ACCTCY 4353: Intro to Taxation.....	3
HES Foundation Course ..	3
CFE 4382: Financial Planning Risk Mgmt.....	3
CFE 4383: Financial Planning: Investments	3
MANGMT.....	3
CFE 3287: Consumer and Household Economics I...3	3
Total.....	15

Winter II	
AGRIC 1111 or CS 1020.....	3
ECONOM 1015 or Ag ECONOM 1042.....	3
ACCTCY 2036.....	3
STAT 1300 or 2500.....	3
General Elective.....	3
Proficient in Excel	
Total.....	15

Winter III	
CFE 3283: Fin Plan: Comp Appli.....	3
CFE 4380: Family Ecology.....	3
HES Foundation Course ..	3
MANGMT 3540.....	3
General Elective.....	3
Total.....	15

Winter IV	
CFE 4386: Emp. Benefits & Ret. Plan.....	3
CFE 4387: Consumer and Household Economics II...3	3
CFE 4993: Internship.....	3
CFE 4393: Financial Planning: Estate and Gift Planning.....	3
CFE 2188: Community Agencies & Volunteerism..	3
Total.....	15

Sample Eight-Semester Programs

BS HES with an Emphasis in Personal Financial Management Services

Fall I		Winter I	
HES 1100.....	1	Humanities.....	3
ENGLSH 1000.....	3	MATH 1100 or 1120.....	3
General Elective.....	2	PSYCH 1000.....	3
History or Political Science.....	3	Science.....	5
Humanities.....	3	Total.....	14
Science.....	4		
Total.....	16		

Fall II	
CFE 2083 Intro to Pers Fin Mgmt.....	1
Communications.....	3
ECONOM 1014 or AG EC 1041.....	3
SOCIOL 1000.....	3
Humanities.....	3
Total.....	13

Fall III	
CFE 2180: Pers and Fam Mgmt.....	3
CFE 2183: Pers and Fam finance.....	3
CFE 2185: Consumer in our Society.....	3
Professional Elective.....	3
Professional Elective.....	3
Total.....	15

Fall IV	
HES Foundation Course ..	3
HES Foundation Course ..	3
CFE 3287: Consumer and Household Economics I...3	3
CFE 4382: Risk Management.....	3
CFE 4383: Investments...3	3
Total.....	15

Winter II	
Demonstrate Proficiency in Excel	
ECONOM 1015 or AG EC 1042.....	3
ACCTCY 2036.....	3
General Elective.....	3
STAT 1300 or 2500.....	3
Total.....	12

Winter III	
General Elective.....	3
CFE 4380: Family Ecology.....	3
ECONOM 3229.....	3
CFE 3283: Fin Plan: Comp Appli.....	3
Professional Elective.....	3
Total.....	15

Winter IV	
CFE 4386: Employee Benefits.....	3
CFE 4387: Cons & Hshld Econ II.....	3
CFE 4993: Internship or Prof Elec.....	3
MANGMT 3540.....	3
CFE 2188: Community Agencies & Volunteerism ..	3
Total.....	15

CONSUMER & FAMILY ECONOMICS COURSES

C&F EC 2083—Introduction to Personal Financial Management Services (1). This course will provide the student with a broad, general introduction to personal financial management services. Through readings, discussions, and guest speakers, the student will develop a basic understanding of the many facets of this field.

C&F EC 2180—Personal and Family Management (3). Principles of resource management for achieving life satisfaction, with emphasis on interpersonal interaction, balancing career and family demands. Uses family systems perspective. Prerequisites: ENGLSH 1000, and sophomore or above standing.

C&F EC 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: MATH 1100/1120 with grade of C or above, and sophomore or above standing.

C&F EC 2185—The Consumer in Our Society (3). The economic system and the marketplace from the consumer point of view; consumer problems, protection, representation. Prerequisites: 3 hours economics; sophomore standing or above.

C&F EC 2188—Community Agencies and Volunteerism (3). Service learning in a non-profit community social support agency. Students engage in service experiences, seminars to share insights gained in service activities. Prerequisites: 3 hours of economics, and sophomore or above standing.

C&F EC 2189—Community Service (1). Service learning in a non-profit community social support agency. Students engage in service experiences, seminars to share insights gained in service activities.

C&F EC 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: instructor's consent.

C&F EC 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: C&F EC 2183.

C&F EC 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: C&F EC 3283; 5-6 hours of ECON; STAT 1300 or 2500.

C&F EC 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: C&F EC 2185; 5-6 hours of ECON.

C&F EC 4000—Problems in Consumer and Family Economics (cr.arr.). Supervised and independent work. Prerequisites: a 2000- or 3000-level course in field of problem, and senior standing, and instructor's consent.

C&F EC 4318—Topics in Consumer and Family Economics (cr.arr.). Selected current topics in field of interest. Prerequisites: vary with topic.

C&F EC 4355—Recent Trends in Consumer and Family Economics (1-3). For upper-class and graduate students who wish additional knowledge and understanding in specific subject matter areas. Prerequisites: vary with the topic.

C&F EC 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: C&F E 2180 and junior standing or instructor's consent.

C&F EC 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: C&F EC 3283; 5-6 hours of ECON; STAT 1300 or 2500.

C&F EC 4383—Financial Planning: Investment Management (3). Introduction to investment for family financial planning. Prerequisite: C&F E 3283; 5-6 hours of ECON; STAT 1300 or 2500; Economics 3229 or consent.

C&F EC 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:

C&F EC 4382, 4383, or instructor's consent.

C&F EC 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: C&F EC 3287 or ECON 3251; STAT 1300 or 2500.

C&F EC 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: C&F EC 2185; 5-6 hours of ECON.

C&F EC 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: C&F EC 4382 and 4382.

C&F EC 4418—Topics in Consumer and Family Economics (cr.arr.). Selected current topics in field of interest. Prerequisites: and instructor's consent.

C&F EC 4992—Readings in Consumer and Family Economics (cr.arr.). Prerequisite: 2-3 hours in subject.

C&F EC 4993—Internship in Consumer and Family Economics (cr.arr.). Prerequisites: junior standing and instructor's consent.

Department of Human Development and Family Studies

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FACULTY

MILLSAP PROFESSOR M. C. Lambert
PROFESSOR M. A. Fine, M. C. Coleman, L. Ganong,
J. M. Ispa, S. R. Jorgensen,
ASSOCIATE PROFESSOR T. M. Cooney, S. E. Gable,
J. W. Morrison
ASSISTANT PROFESSOR A. M. Kowal, K. K. Leon,
D. Rudy
ASSISTANT INSTRUCTOR L. Ellis, N. S. B. Ferree,
S. L. Garton, F. A. Geyer, J. A. Moore, E. Morrow,
A. N. Southard, P. Storey
ADJUNCT INSTRUCTOR J. Mumford, J. Rippetto,
S. Brooks
LABORATORY INSTRUCTOR J. L. Buehler, E. O. Geyer,
B. A. Hammerli, K. D. Kelley, L. M. Thurman
PROFESSOR EMERITUS K. Thornburg

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 is also 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. The human development and family studies area focuses on this synthesis and allows for further specialization, if desired, in emphasis areas. (Note: Emphasis areas appear on transcripts but not on diplomas.)

Emphasis Areas

- *Child Development and Education*
- *Child Life*
- *Family and Consumer Sciences Education*
- *Family Studies*
- *General, Human Development and Family Studies**
- *Human Development*
- *Human Development and Family Studies and Social Work**

*For more updated information on these emphasis areas, contact the Student Services office.

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 the following classes:

Required entry courses.....	6
H D FS 2400: Principles of Human Development.....	3
H D FS 1600: Foundations of Family Studies	3
Major core requirements.....	14
H D FS 2300: Multicultural Study of Children and Families	3
H D FS 2420: Early and Middle Childhood	3
H D FS 3500: Child Development Laboratory OR	
H D FS 3510: Family Development Laboratory*	5
H D FS 2200: Research Methods	3

Child Development Laboratory Courses H D FS 2500, 3500, 3510, 3520 and 4500 all have prerequisites and require the consent of the instructor. Because enrollment is limited, students must see their advisers to be placed on the waiting list a minimum of two semesters before anticipated enrollment. Students in the Human Development emphasis may substitute another practicum experience (in adolescence or adulthood) with consent of 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, business, humanities, or biological sciences may be appropriate.

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 facilities for children. Additional job opportunities include group homes, adolescent drop-in centers, hospital play groups and YMCA/YWCA. (Note: Emphasis areas appear on transcripts but not on diplomas.)

The general goal of the emphasis area is to provide instruction and experience to help students gain competence in understanding, guiding and teaching children. The emphasis is on understanding human development, with primary focus on child development, behavior and learning, and on planning for families. Attention is also devoted to the development of working relationships with children, parents, professional colleagues and community workers.

Required Entry Courses HDFS 1600*, 2400*	6
Emphasis core requirements	15
COMMUN 1200: Introduction to Speech Communication OR	
COMMUN 3571: Group Communication	3
NUTR S 1034: Nutrition, Current Concepts and	
Controversies	3
C & F EC 2183: Personal and Family Finance OR	
2185: The Consumer in Our Society	3
H D FS 2200*: Research Methods	3
STAT 1200: Introductory Statistical Reasoning OR	
STAT 1300: Elementary Statistics OR	
STAT 1400: Statistical Analysis OR	
E&CPSY 4170: Educational Statistics	3
Subject area requirements in HDFS	41
*H D FS 2300: Multicultural Study of Children and	
Families	3
*H D FS 2420 Early and Middle Childhood.....	3
*H D FS 2530: Quality School-Age Programs	3
*H D FS 3530: Overview of Programs for Children	3
*H D FS 2600: Working With Parents	3
*H D FS 2500: Infant-Toddler Development and	
Programs	4
*H D FS 2510: Curriculum and Creative Activities for the	
Early Childhood Setting	3
*H D FS 3500: Child Development Laboratory	5
*H D FS 4720: Child and Family Advocacy	3
*H D FS 4510: Administration of Programs for Children	
and Families	3
*H D FS 4500: Advanced Child Development Lab (consent	
required)	8
* Student must earn 2.00 or better in course.	
Requirements in related areas	12
C&I 4500: Emergent Language in Early Childhood	3
C&I 4510: Assessment in Early Childhood	3
SPC ED 4305: Introduction to Special Education for	
Regular Educators	3
Supporting courses (from HDFS and related areas)	3

Emphasis in Child Life

This emphasis prepares graduates to provide for the developmental and social/emotional needs of children and their families in health-care settings. Child life specialists use therapeutic play and educational activities to help children cope with the anxieties and concerns inherent in illness, disability, hospitalization and medical procedures. They give parents and other family member's reassurance and emotional support, help them understand children's psychosocial needs, and provide suggestions regarding ways to safeguard their own and their children's emotional health.

Courses focus on understanding normal and exceptional child and family development, methods of working with children, parents, and staff and understanding basic hospital organization and procedures. The student's last semester is spent in a 40-hour-per-week internship in a hospital pediatric setting.

All courses in sections A-B below are required.

Required Entry Courses: H D FS 1600 and 2400	6
A. Major core requirements	26
BIO SCI 1500: Introduction to Biological Systems	5
Physical Sciences: CHEM 1100: Atoms and Molecules	
w/lab OR CHEM 1310 General Chemistry I.....	3
C & F EC 2183: Personal and Family Finance OR	
C & F EC 2185: The Consumer in Our Society	3
*H D FS 2200: Research Methods	3

NUTR S 1034: Nutrition, Current Concepts and	
Controversies	3
PHIL 4510: Medical Ethics	3
STAT 1200: Introductory Statistical Reasoning OR	
STAT 1300: Elementary Statistics OR	
STAT 1400: Statistical Analysis OR	
E &CPSY 4170: Educational Statistics	3
RU SOC 2205: Social Processes of Communication and	
Diffusion OR	
E &CPSY 4087: Interviewing and Counseling	3
B. Requirements in HDFS	52
*H D FS 2300: Multicultural Study of Children and	
Families	3
*H D FS 2420: Early and Middle Childhood.....	3
H D FS 2430: Adolescence and Young Adulthood	3
H D FS 2600: Working with Parents	3
*H D FS 2500: Infant-Toddler Development and	
Programs	4
H D FS 2510: Curriculum and Activities for the Early	
Childhood Setting	3
*H D FS 3500: Child Development Laboratory	5
H D FS 4085: Problems (Child Life Volunteering)	1
H D FS 4100: Children in Health Care Settings	3
H D FS 4110: Child Life Therapy Practice	3
H D FS 4510: Administration of Programs for	
Children & Families	3
** H D FS 4130: Child Life Practicum	3
***H D FS 4993: Internship.....	15
H D FS 4400: Childhood Death and Bereavement	3

* Student must earn 2.00 or better in course.
 ** Students are admitted to H D FS 4130 on a competitive and space-available basis. Applications are considered the semester before the student wishes to take H D FS 4130.
 ***Students are admitted to H D FS 4993 after satisfactory completion of H D FS 4130 (grade of 3.0 or higher).

Supporting course work (choose from).....

SPC ED 4300: Introduction to Special Education for	
Regular Educators, OR	
SPC ED 4300: Introduction to Special Education (3)	
H D FS 4720: Child and Family Advocacy (3)	
H D FS 4620: Family Interaction (3)	
H D FS 4470: Problems of Development (3)	
CS & D 1110: Manual Communication I.....	3

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 in the College of Education. In order to take junior-level course work in the College of Education, students must meet minimum GPA and ACT score requirements.

Emphasis core requirements

Social and behavioral sciences	
POL SC 1100: Intro to Political Science OR	
1700: American Government	3
HIST 1100 OR 1200	3
PSYCH 1000 OR Western Civilization	3
One world/international course	3
One multicultural course	3

GN HE 1100: Intro to Human Environmental Sciences	1
TDP 2000: Inquiry into Learning I	4
TDP 2020: Inquiry into Learning II	4
**TDP 4040: Inquiry into Schools, Communities and Society I	3
**TDP 4060: Inquiry into Schools, Communities and Society II	2
**H D FS 4800: Program and Curriculum Design for Family and Consumer Sciences Education	3
**H D FS 4940: Field Experience	1
**H D FS 4820: Assessment in Family and Consumer Sciences	2
**H D FS 4941: Field Experience	1
**H D FS 4830: Methods of Teaching Family & Consumer Sciences in Middle and Secondary Schools	3
**C & I 4560: Teaching of Reading in the Content Area ...	2
**H D FS 4942: Student Teaching Family and Consumer Sciences in Middle and Secondary Schools	15

Emphasis content area

Family and human development*	
H D FS 3500: Child Development Laboratory	5
Nutrition and wellness	
NUTR S 1034: Nutrition: Current Concepts & Controversies	3
HRM 1995: Principles of Food Preparation	5
NURT S 1340: Nutrition and Fitness	3
Family and consumer resource management	
C & F EC 2183: Personal and Family Finance	3
C & F EC 2185: The Consumer in Our Society	3
ARCH ST 1600: Fundamentals of Environmental Design	3
ARCH ST 4620: Environmental and Behavior OR	
ARCH ST 4320 Materials and Methods	3
T A M 2200: Textiles	3
T A M 2500: Social Appearance in Time and Space	3
Additional requirement for the HDFS degree*	3
H D FS 3520: Research Methods	

- * Must earn 2.00 or better in course.
- **Must have a 2.75 GPA and a 22 composite ACT score before enrolling.

Emphasis in Family Studies

This emphasis acquaints the student with the concepts and principles basic to the development of a broad understanding of families and how they function in a changing environment. Relationships within families are studied, as are the relationships between families and other social groups (communities, schools, employees, etc.). The family studies major emphasizes diverse and multicultural family structures and processes.

Students completing this program will have met most of the academic qualifications to apply to become a provisional Certified Family Life Educator (by the National Council on Family Relations).

Major core requirements

NUTR S 1034: Nutrition, Current Concepts and Controversies	3
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Total from Categories I-XII60

A minimum of 60 credits must be selected from categories I-XII below.

- At least one course must be taken from each category I-XI, although additional courses can be used to fulfill the 60-credit requirement.

- Students must take at least 14 credits in HDFS courses at the 3000-level from categories I-X listed below (not including the internship, H D FS 4993 and 4640).
- H D FS 1600 must be taken before H D FS 2300 or any 3000-level H D FS course.
- *Course is required.
- **Student must earn a 2.00 or better in course.

I. Families and society

- **H D FS 1600: Foundations of Family Studies (3)
- **H D FS 2300: Multicultural Study of Children & Families (3)
- H D FS 4300: Black Families (3)
- H D FS 4655H: History of the Family in Russia (3)
- RU SOC 1150: The Amish Community (3)
- SOCIOL 3420: The Family (3)

II. Internal dynamics of families

- **H D FS 2400: Principles of Human Development (3)
- ** H D FS 2420: Early and Middle Childhood (3)
- H D FS 4610: Stress in Families (3)
- H D FS 4700: Children and Families in Poverty (3)
- H D FS 4740: Parent-Child Relations over the Life Course (3)
- H D FS 4620: Family Interaction (3)
- H D FS 4630: The Process of Divorce (3)

III. Human growth and development

- ** H D FS 2400: Principles of Human Development (3)
- ** H D FS 2420: Early and Middle Childhood (3)
- H D FS 2430: Adolescence and Young Adulthood (3)
- H D FS 2440: Adulthood and Aging (3)
- H D FS 4470: Problems of Development in a Multicultural Context (3)
- SOCIOL 4210: Sociology of Aging (3)
- WGST 1360: The Female Experience: Body, Identity and Culture (3)

IV. Human sexuality

- PSYCH 2810 Human Sexuality (3)
- C & I 4650: Education in Human Sexuality (3)

V. Interpersonal relations

- **H D FS 4640: Interpersonal Relationships (3)
- COMMUN 3571: Group Decision Making Processes

VI. Family resource management

- C & F EC 2183: Personal and Family Finance (3)
- C & F EC 4380: Family Ecology (3)
- C & F EC 4382: Financial Planning and Risk Management (3)

VII. Parent education

- H D FS 2500: Infant and Toddler Development & Programs (3)
- H D FS 2600: Working with Parents (3)
- **H D FS 3510: Child and Family Development Laboratory (5)

VIII. The family, the law and public policy

- H D FS 4720: Child and Family Advocacy (3)

IX. Ethics

- PHIL 1100: Introduction to Ethics (3)
- PHIL 2400: Ethics and the Professions (3)
- PHIL 4510: Medical Ethics (3)

X. Family Life Education Methods

- **H D FS 4970: Family Studies Capstone (3)
- *H D FS 4993: Internship (3–6)

XI. Research Foundations

- H D FS 2200: Research Methods OR
- PSYCH 3010: Research Methods in Psychology OR
- SOCIOL 2950: Social Research (3)
- *STAT 1200: Introductory Statistical Reasoning OR

- STAT 1300: Elementary Statistics OR
- STAT 1400: Statistical Analysis OR
- ESC PS 4170: Educational Statistics 1 OR
- SOCIOL 4120: Social Statistics (3)

XII. Related electives (approved by adviser) to total 60 credits

Emphasis in Human Development

This emphasis provides students with an in-depth understanding of normative human development across the lifespan, as well as appreciation for diversity in developmental experiences within and across cultures and socioeconomic groups. Students also are introduced to problems of development. It emphasizes the acquisition of basic critical thinking skills as they relate to the research process and the application of human development principles and critical thinking skills as they relate to practice. Students select one phase of the lifespan (infancy-early childhood, adolescence or adulthood) as a focus.

Major core requirements.....12

- NUTR S 1034: Nutrition, Current Concepts and Controversies.....3
- C & F EC 2183: Personal and Family Finance3
- PHIL 1100: Introduction to Ethics OR
 - PHIL 2400: Ethics and the Professions OR
 - PHIL 4510: Medical Ethics3
- ANTHRO 1000: General Anthropology (3) OR
 - ANTHRO 1350: Deviance: A Cross Cultural Perspective OR
 - ANTHRO 1300: Multiculturalism: An Introduction OR
 - ANTHRO 2030: Cultural Anthropology OR
 - ANTHRO 4350: Psychological Anthropology3

Required courses.....41

Required Entry Courses: H D FS 1600 and 24006

A minimum of 60 credits must be completed in the areas below, with a minimum of 42 H D FS credits. H D FS 2400 should be taken first in the sequences of developmental courses (before H D FS 2420, 2430, 2440, 4470). H D FS 1600 should be taken before other family courses (2300, 4300, 4702, 4740, 4640, 4650, or 4630).

- H D FS 2200: Research Methods3
- H D FS 2300: Multicultural Study of Children and Families3
- H D FS 2420: Early and Middle Childhood.....3
- H D FS 2430: Adolescence and Adulthood3
- H D FS 2440: Adulthood and Aging3
- H D FS 4470: Problems of Development in Multicultural Context3
- Statistics (STAT 1200: Introductory Statistical Reasoning OR E&CPSY 4170: Educational Statistics 1 OR STAT 1400: Statistical Analysis OR SOCIOL 4230: Social Statistics3
- H D FS 4700: Children and Families in Poverty OR
 - H D FS 4300: Black Families OR
 - H D FS 4655H: History of the Family in Russia3
- H D FS 4720: Child and Family Advocacy3
- H D FS Developmental Practicum course related to emphasis:
 - H D FS 2500: Infant and Toddler Development & Programs OR
 - H D FS 3500/3510: Child Development Laboratory OR Placement in a well-supervised and arranged practicum working with relevant age group (adolescents, adults, or elders). Adviser will assist in setting up these alternative placements.)5
 - H D FS 4970: Capstone.....3

Developmental emphasis area.....12

Students must complete 12 credits from courses designated in a selected area: I, II or III.

I. Infancy, early and middle childhood

- C S&D 4420: Reading & Language Disabilities in School-age Children (3)
- C S&D 4020: Language Disorders in Children (3)
- C & I 4500: Emergent Language in Early Childhood (3)
- C & I 4510: Assessment in Early Childhood Education (3)
- E&CPSY 4130: Parent Counseling & Consultation (3)
- H D FS 2600: Working with Parents (3)
- H D FS 2500: Infant & Toddler Development and Programs (if not taken above) (5)
- PSYCH 3810: Normal Language Development (3)
- PSYCH 4540: Emotional Disorders in Childhood and Adolescence (3)
- SOC WK 4550: Introduction to Child Welfare Practice and Services (3)
- SOC WK 4390: Helping Strategies with Children & Adolescents (3)
- SPC ED 4305: Introduction to Special Education for Regular Education (3)

II. Adolescence

- H D FS 2600: Working with Parents (3)
- H D FS 4640: Interpersonal Relationships (3)
- C S&D 4020: Language Disorders in Children (3)
- PSYCH 2810: Human Sexuality (3)
- PSYCH 4540: Emotional Disorders in Childhood and Adolescence (3)
- SOC WK 4360: Working with Minority Youth (3)
- SOC WK 4370: Delinquent, Corrections & Social Treatment (3)
- SOC WK 4390: Helping Strategies with Children & Adolescents (3)
- NUTR S 2460: Eating Disorders (3)

III. Adulthood and Aging

- H D FS 2600: Working with Parents (3)
- H D FS 4640: Interpersonal Relationships (3)
- PSYCH 4540: Human Sexuality (3)
- NUTR S 2450: Nutrition Throughout the Lifespan (3)
- SOCIOL 2230: Social Perspectives on Aging (3)
- SOCIOL 4210: Sociology of Aging (3)
- SOCIOL 4300: Death and Dying (3)
- PSYCH 3140: Cognitive Psychology (3)
- PSYCH 3150: Human Memory (3)
- PSYCH 4830: Psychology of Women (3)
- PSYCH 4410: Psychology of Aging (3)
- E&CPSY 4180: Foundations of Rehabilitation (3)
- PHIL 4510: Medical Ethics (if not taken as the ethics course) (3)

Capstone/internship experience

H D FS 4993: Internship 3-6

Students must participate in a faculty supervised research experience dealing with their developmental emphasis area or work with the particular age group (with good supervision) in their emphasis area. (This experience should be different from that done in the required practicum course.) For most students the research experience is advised, but depending on student interests and career goals and on adviser recommendations, the practitioner option would be available.

Supporting course work

H D FS-related course work (approved by the adviser) to bring the total credits in the program to 60 credits.

Note: Only six hours of graduate work may be completed by undergraduates, and only during their senior year. See Dual

Enrollment in the Academic Rules and Regulations section of this catalog.

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 Studies3

H D FS 1610: Intimate Relationships & Marriage.....3
 H D FS 2400: Principles of Human Development3
 H D FS 2420: Early and Middle Childhood OR
 H D FS 2430: Adolescence and Young Adulthood OR
 H D FS 2440: Adulthood and Aging3
 *H D FS 2500: Multicultural Study of Children and Families3
 * Students who have completed PSYCH 2410 cannot receive credit for H D FS 2420.

Sample Eight-Semester Programs

Child Development & Education

Fall I	Winter I
HES 1100 Intro to Human Env Sciences .....1	MATH 1120: College Algebra.....3
HDFS 1600 Foundation of Family Studies .....3	HDFS 2400: Prin of Human Development .....3
Biological Science w/Lab .....5	NUTR S 1034: Nutrition Concepts & Controversies .....3
ENGLSH 1000 Composition.....3	SOCIOL 1000: General Sociology .....3
PSYCH 1000: General Psychology .....3	Am History/Government .3
Total.....15	Total.....15

Fall II	Winter II
HDFS 2200: Research Methods.....3	COMMUN 1200: Intro to Communication.....3
HDFS 2420: Early and Middle Childhood .....3	HDFS 2300: Multicultural Study of Child .....3
HDFS 2350: Quality School-Age Programs .....3	Humanities .....3
Humanities .....3	Social/Behavioral Science .....3
C&F EC 2183: Personal and Family Finance.....3	Statistics .....3
Total.....15	Total.....15

Fall III	Winter III
HDFS 2500: Infant-Toddler Dev & Prog.....4	HDFS 3500: Child Development Lab.....5
HDFS 2510: Curriculum and Activities .....3	HDFS 2600: Working with Parents.....3
HDFS Supporting Course...3	C&I 4510: Assessment in Early Childhood.....3
C&I 4500: Emergent Lang. in Early Child.....3	Physical Science.....4
Elective .....3	Total.....15
Total.....16	

Fall IV	Winter IV
HDFS 3530: Overview of Prog for Children .....3	HDFS 4500: Adv Child Development Lab.....12
HDFS 4510: Admin. of Programs for Children.....3	HDFS 4720: Child and Family Advocacy .....3
SPC ED 4305: Intro to Spec Education.....3	Total.....15
Humanities .....3	
Elective .....3	
Total.....15	

Sample Eight-Semester Programs

Child Life Specialist

Fall I
 HES 1100: Intro to Human Env Sciences1
 Biology with lab.....5
 ENGLSH 1000: Composition3
 HDFS 1600 Foundations of Family Studies3
 PSYCH 1000 General Psychology3
Total.....15

Fall II
 HDFS 2420: Early and Middle Childhood3
 Hist or Pol Science.....3
 Physical Science.....4
 Humanities3
 C&F EC 2183: Personal and Family Finance.....3
Total.....16

Fall III
 HDFS 2510: Curriculum and Acitivities3
 HDFS 4100: Children in Health Care Sett.3
 HP 2190: (online) Medical Terminology2
 HDFS 3500: Child Development Laboratory .5
 HDFS 4110: Child Life Theory & Practice3
Total.....16

Fall IV
 PHIL 1100: Ethics or 4510 Medical Ethics3
 C&I 4510: Assessment in Early Childhood Ed.....3
 HDFS 4510: Admin. of Programs3
 HDFS 4130: Child Life Practicum3
 Supporting Coursework ...3
Total.....15

Winter I
 NUTR S 1034: Nutrition and Current Concepts.....3
 Humanities3
 SOCIOL 1000: General Sociology3
 HDFS 2400: Prin of Human Development3
 MATH 1120: College Algebra.....3
Total.....15

Winter II
 Anthropology3
 HDFS 2500: Infant-Toddler Dev and Programs.....4
 Statistics3
 HDFS 2300: Multicultural Study of Child3
 Communication.....3
 HDFS 40851
Total.....17

Winter III
 HDFS 2600: Working with Parents.....3
 HDFS 2200: Research Methods.....3
 HDFS 2430: Adolescence and Young Adulthood3
 HDFS 4400: Childhood Death & Bereavement.....3
 HDFS 4720: Child and Family Advocacy3
Total.....15

Winter IV
 HDFS 4993: Internship ..15
Total.....15

Sample Eight-Semester Programs

Family Studies

Fall I

HES 1100: Intro to Human Environmental Sciences...	1
HDFS 1600: Foundations of Family Studies	3
Biological/Physical Science w/lab	4-5
ENGLSH 1000: Composition	3
PSYCH 1000: General Psychology	3
Total	14-15

Fall II

HDFS 2420: Early and Middle Childhood	3
PHIL 1100: Ethics—Humanities	3
Communication	3
Statistics	3
ANTHRO 1000:	3
Total	15

Fall III

HDFS 3510: Child Development Lab	5
HDFS 4640: Interpersonal Relationships	3
HDFS 4000-level Course	3
Human Sexuality Course	3
C&F EC 2183: Personal and Family Finance	3
Total	17

Fall IV

HDFS 4970: Family Studies Capstone	3
Humanities	3
Related Electives	6
Elective	3
Total	15

Winter I

MATH 1120 College Algebra	3
HDFS 2400: Principles of Human Development	3
SOCIOL 1000: General Sociology	3
NUTR S 1034: Nutrition and Current Concepts	3
Humanities	3
Total	15

Winter II

HDFS 2300: Multicultural Study of Child	3
HDFS 2200: Research Methods	3
Hist or Pol Science	3
Biological/Physical Science	1-2
Elective	3
Total	17

Winter III

HDFS 4720: Child & Family Advocacy	3
HDFS Internal Dynamics of Families Course	3
HDFS 4000-level Course	3
Electives	6
Total	15

Winter IV

HDFS 4993: Internship	3-6
Related Electives	6
Elective	3
Total	12-15

Sample Eight-Semester Programs

Human Development

Fall I

HES 1100: Intro to Human Env Sciences	1
HDFS 1600: Foundations of Family Studies	3
Biology with lab	5
ENGLSH 1000: Composition	3
PSYCH 1000: General Psychology	3
Total	15

Fall II

HDFS 2420: Early and Middle Childhood	3
Hist or Pol Science	3
Physical or Mathematical Science	4
Humanities	3
Statistics	3
Total	16

Fall III

HDFS 2300: Multicultural Study of Child	3
CFE 2183: Personal and Family Finance	3
Communications	3
Area of Specialization	3
Elective	3
Total	15

Fall IV

PHIL 1100: Ethics or 4510 Medical Ethics	3
Area of Specialization	3
Area of Specialization	3
Elective	3
Supporting Coursework	3
Total	15

Winter I

HDFS 2400: Prin of Human Development	3
NUTR S 1034: Nutrition and Current Concepts	3
SOCIOL 1000: General Sociology	3
MATH 1120: College Algebra	3
Humanities	3
Total	15

Winter II

HDFS 2500: Infant-Toddler Dev. and Prog.	5
HDFS 2200: Research Methods	3
HDFS 2430: Adolescence and Young Adulthood	3
Anthropology	3
Total	14

Winter III

HDFS 2440: Adulthood and Aging	3
HDFS 4470: Problems of Development	3
Area of Specialization	3
Supporting Coursework	3
Elective	3
Total	15

Winter IV

HDFS 4700: Children and Families in Poverty	3
HDFS 4720: Child and Family Advocacy	3
HDFS 4993: Capstone (Research or Practicum)	6
Supporting Coursework	3
Total	15

HUMAN DEVELOPMENT AND FAMILY STUDIES COURSES

HDFS 1100—Introduction to Human Environmental Sciences (1). Lecture-discussion of professional opportunities and their relation to contemporary issues. Required for freshmen.

HDFS 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 E S major only or H D FS minors.

H D FS 1610—Intimate Relationships and Marriage (3). Examination of issues pertaining to intimate and marital relationships, such as relationship formation and dissolution processes, love, sex, behavioral scripts, and conflict. Diversity related to race, ethnicity, gender, and sexual orientation is explored. Non-Majors only.

HDFS 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. Prerequisites: H D FS 1600 or equivalent or instructor's consent.

H D FS 2400—Principles of Human Development (3). Concepts and principles basic to an understanding of human development and learning throughout the life span. Prerequisite: ENGLSH 1000

HDFS 2410—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: PSYCH 1000.

HDFS 2420—Early and Middle Childhood (3). Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course.

H D FS 2430—Adolescence and Young Adulthood (3). Physical, intellectual, and psychosocial maturation of adolescents and young adults within the context of life long developmental sequelae.

H D FS 2440—Adulthood and Aging (3). Examination of biological, cognitive, psychological and social changes experienced across adulthood.

HDFS 2500—Infant-Toddler Development and Programs (3-5). Applied cognitive, language, and social development of infants and toddlers. Emphasizes development in a child care setting and staff relations. Prerequisites: H D FS 2420 or equivalent, and instructor's

consent.

H D FS 2510—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 concurrently with H D FS 2420 and 2500 and instructor's consent.

HDFS 2520—Drop-In Child Care Programs (2). Examination of appropriate planning for and experience in a drop-in child care program. Prerequisites: H D FS 2420 or equivalent and instructor's consent.

H D FS 2530—Quality School-Age Programs in Early and Middle Childhood (3). Examines programming for children in after school programs. Experience working with children ages 6-9. Prerequisites: H D FS 2420 or equivalent and instructor's consent. Graded on A/F basis only.

H D FS 2600—Working With Parents (3). Understanding of parental roles, perspectives, relationships, and diverse parenting types, approaches, and challenges. Researching, compiling, and presenting educational materials relative to parenting are integral course components. Prerequisite: H D FS 2420.

H D FS 3001—Topics in Human Development and Family Studies (cr.arr.). Selected current topics in the field of interest.

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 3500—Child Development Laboratory (5). 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: H D FS 2420 or equivalent and instructor's consent.

H D FS 3510—Child and Family Development Laboratory (5). Experience working with young children (ages 2-6 years) and their families, adult-child relationships, applied child development principles, and planning for parent education. Prerequisites: H D FS 2420 or equivalent and instructor's consent.

H D FS 3520—Student Teaching Prekindergarten (5). Experience working with children (2-5 years), using general guidance principles and methods for fostering creativity. Prerequisites: H D FS 2420 or equivalent and instructor's consent.

H D FS 3530—Overview of Programs for Young Children (3). This course is an overview of the programs and services related to providing care and education for children, birth through age 10 and their families, particularly in the state of Missouri. Prerequisites: H D FS 3500 or equivalent, H D FS 2530 or equivalent and instructor's consent. Graded on A/F basis only.

H D FS 3950—Recent Trends in Child and Family Development (1-2). Review of current research and/or practice in child and family development. Prerequisite: instructor's consent.

HDFS 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 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: H D FS 2400 and 2420, or equivalent.

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: H D FS 2420, 2500 and instructor's consent.

H D FS 4120—Child Life Administration (3). This course offers an overview of topics related to the provision of child life services, including policies and procedures related to documentation, quality assurance, and staffing. Prerequisites: instructor's consent.

H D FS 4130—Child Life Practicum (2). Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization. Prerequisites: H D FS 2500 and 3500, consent required.

H D FS 4300—Black Families (3). (Same as 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: 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 families when facing terminal illness or death. The course also includes an examination of coping and helping strategies for dying and grieving children. Prerequisites: H D FS 2400 and 2420.

H D FS 4470—Problems of Development in Multicultural Context (3). Within the context of socio-cultural diversity, this course covers development problems from conception to early adulthood. Theoretical and empirical contributions to classification, assessment, intervention, and public policy are emphasized. Prerequisites: H D FS 1600, 2300, 2400 and 2420, or instructor's consent.

HDFS 4500—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: H D FS 3500 or equivalent and instructor's consent.

H D FS 4510—Administration of Programs for Children and Families (3). The ABCs of administering community- and hospital-based programs for children and their families. In-

cludes an overview of office procedures, staff and volunteer management, public relations, budgeting, accounts, accountability and quality assurance. Prerequisites: HDFS 3500 or 3510.

HDFS 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.

HDFS 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: 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: HDFS 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.

H D FS 4655H—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. Honor eligibility required.

HDFS 4670—The Politics of Reproduction and Fertility Control (3). (same as WGST 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.

H D FS 4680—Family Communication (3). (same as COMMUN 4680).

H D FS 4700—Children and Families in Poverty (3). Study of the extent, distribution, and implications of poverty of children and families. Examination of myths and realities, social conditions, policies, and programs that contribute to or reduce poverty and its consequences. Prerequisites: H D FS 1600, 2400, and 2420 or equivalent.

H D FS 4720—Child and Family Advocacy (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.

HDFS 4740—Parent-Child Relations Over the Life Course (3). Examines the development, continuities, transitions, and discontinuities of parent-child relationships over the life course. Considers the influence of parents on children and children on parents. Prerequisite: H D FS 2200 or equivalent.

HDFS 4800—Program & Curriculum Design for FACS Education in Mid. & Sec. Sch (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: TDP 2000 and TDP 2020 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, 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 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 H D FS 4820, 4830; requires instructor's consent.

H D FS 4942—Student Teaching FACS in Middle and Secondary Schools (15). “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: H D FS 4800, 4820, 4830, instructor's consent.

H D FS 4970—Family Studies Capstone (3). Focus is on students integrating, extending, critiquing, and applying knowledge gained in the family studies option within a family life education framework. Prerequisites: H D FS 1600, 2200, 2300, and at least 2 of the following: H D FS 4300, 4620, 4630, 4640, 4655, 4700 or 4740 and senior standing or 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. Prerequisites: advisor consent.

Department of Nutritional Sciences

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RESIDENT INSTRUCTION ASSISTANT PROFESSOR
M. D. Raedeke
ADJUNCT INSTRUCTOR L. Hudson, T. P. Lafontaine
ASSOCIATE PROFESSOR EMERITUS R. P. Dowdy

The program leading to the BS in Human Environmental Science 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: Nutrition and Fitness.

Major Program Requirements – Nutritional Sciences (BS HES)

Required entry-level courses for the program include CHEM 1310 and 1320 and BIO SCI 1500.

Emphasis in Medical Dietetics

The Coordinated Program in Dietetics combines academic course work with supervised practice in health-care settings.

Enrollment is limited. To apply, students must have completed (or be enrolled in) prerequisite courses and have a GPA of at least 2.5. 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

Food science	9
HRM 1995: Principles and Science of Food Preparation	.5
FS 4310: Food Chemistry and Analysis	4
Nutritional sciences	53
NUTR S 2340: Human Nutrition I.....	3
NUTR S 2450: Nutrition Throughout the Life Span	3
NUTR S 2590: Community Nutrition.....	2
NUTR S 3280: Foodservice I: Introduction to Food Service.....	3
NUTR S 3290: Foodservice I SPE.....	1
NUTR S 3360: Nutrition Assessment SPE	2
NUTR S 3370: Nutrition Therapy I SPE	3
NUTR S 3390: Teaching & Counseling Techniques.....	2
NUTR S 3400: Teaching & Counseling Techniques SPE.....	1
NUTR S 3590: Community Nutrition SPE.....	1
NUTR S 4280: Foodservice II: Advanced Food Service Management.....	1
NUTR S 4290: Foodservice II: Adv. Food Service Manage Supervised Practice Exp.....	2
NUTR S 4340: Human Nutrition II	3
NUTR S 4360: Nutrition Assessment	3
NUTR S 4370: Nutrition Therapy I	3
NUTR S 4380: Nutrition Therapy II	2
NUTR S 4381: Nutrition Therapy II	4
NUTR S 4390: Issues in Dietetic Practice	1
NUTR S 4950: Research in Dietetics.....	2
NUTR S 4951: Research in Dietetics SPE.....	1
NUTR S 4975: Practice of Dietetics SPE	10
Human Environmental Science foundation courses	6

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.

Emphasis core requirements

Nutritional sciences	13
NUTR S 1340: Nutrition and Fitness	3
NUTR S 2340: Human Nutrition I	3
NUTR S 2450: Nutrition Throughout the Life Span	3
NUTR S 4360: Nutrition Assessment	3
NUTR S 4970: Nutrition Capstone Seminar	1
Exercise physiology	11
NUTR S 3800: Care and Prevention of Athletic Injuries	.2
HTH PR 3250: Kinesiology	3
NUTR S 4850: Physiology of Exercise	3
NUTR S 4860: Exercise Testing and Prescription	3

Supporting area10
 Choose from selected courses in curriculum and instruction, educational and counseling psychology, nutritional sciences, human development and family studies, psychology or sociology.

Electives chosen to meet college requirements and career objectives16
 Anatomy lab and internships are available and highly recommended.

Electives: Hours to total 120

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.

Emphasis core requirements.....30
 NUTR S 2340: Human Nutrition3
 NUTR S 2450: Nutrition Throughout the Life Span.....3
 NUTR S 4330: Human Nutrition II lab.....2
 NUTR S 4340: Human Nutrition II lecture.....3
 NUTR S 4970: Capstone Seminar1
 BIOCHM 4270: Biochemistry3
 BIOCHM 4272: Biochemistry3
 BIO SCI 202: General Genetics4
 BIO SCI 203: Intro Cell Biology3
 PHYS 3202: Physiology OR
 BIO SCI 3700: Animal Physiol.....5

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 2340.

NUTR S 1310—Basic Concepts of World Nutrition (3). Transdisciplinary approach to nutrition, considering anthropological, physiological, geographical, socioeconomic and psychological elements in world nutrition.

NUTR S 1340—Nutrition and Fitness (3). The utilization and requirement of nutrients for physical activity and athletic performance. Graded on A/F basis only.

NUTR S 1800—Psychology of Fitness and Sport (2). An introduction to psychological concepts relating to physical activity, sport, and fitness; relationships between movement forms and socialization processes.

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.

Supporting area5
 Choose from selected courses in biochemistry, chemistry, nutritional sciences or molecular microbiology and immunology

Electives to total 120 hours7

Additional courses may be required to meet college requirements or career objectives. On-campus research internships are available and highly recommended.

Minor in Nutritional Science

The minor in nutritional science is intended for students majoring in biological sciences, biochemistry, health and exercise sciences or related fields.

Minor core requirements.....15

NUTR S 2340: Human Nutrition3
 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 Span3
 NUTR S 2460: Eating Disorders.....2
 NUTR S 3390: Teaching & Counseling Techniques in Nutrition2
 NUTR S 4330: Human Nutrition II Laboratory2
 NUTR S 4340: Human Nutrition II Lecture3
 NUTR S 4360: Nutritional Assessment3
 NUTR S 4370: Nutritional Therapy I3
 NUTR S 4380: Nutrition Therapy II2

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, MPP 3202 or instructor’s consent.

NUTR S 2380—Diet Therapy for Health Professionals (3). Principles underlying normal nutrition and diet for health and disease. Prerequisites: instructor’s consent.

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: introductory nutrition course.

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: NUTR S 1034 or higher level nutrition course.

NUTR S 2590—Community Nutrition (2). Food production systems, public policy development, food security, laws and regulations pertaining to food and nutrition, nutrition programming, food availability and access and the use of mass media in community-based food

and nutrition programs. Lecture/discussion 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.

NUTR S 3110—Investigation of Food Properties (3). Study of the chemical and physical properties of foods and the interaction of food components. Lecture and laboratory. Prerequisites: Organic Chemistry.

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: H R M 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 NUTR S 3280; open to students enrolled in the Coordinated Program in Dietetics only.

NUTR S 3360—Nutrition Assessment Supervised Practice Experience (2). Supervised

practice to develop skills in screening individuals for nutrition 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 NUTR SCI4360/7360; 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 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: PSYCH 1000 and 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 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: 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: 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: NUTR S 3800 and instructor's consent.

NUTR S 3820—Kinesiology (3). Study of the relationships of physical laws, mechanical principles, and structural parameters to the analysis of human motion, with emphasis on application to daily activities, sport/athletic performance, and developmental exercise. Prerequisite: PTH&AS 2201.

NUTR S 3830—Human Body Composition and Nutrition (3). Basic concepts of human body composition related alternative models, measurement techniques, and nutritional, physiological, and life-style factors. Graded on A/F basis only. Prerequisite: NUTR S 2340.

NUTR S 3900—Field Training in Nutritional Sciences (cr.arr.). Prerequisites: junior or senior standing and instructor's consent.

NUTR S 4020—Monogastric Nutrition (3).

(same as Animal Science 4312 and Nutrition 7020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A/F basis only. Prerequisite: AN SCI 3212 and BIOCHM 3630.

NUTR S 4280—Food Service II: Advanced Food Service Management (1). Issues related to marketing and financial control in the food-service sector. Lecture course. Prerequisite: 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 principle in the foodservice industry. 8 hours of supervised practice per week. Prerequisite: Concurrent enrollment in 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 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 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: PSYCH 1000, NUTR S 2340.

NUTR S 4370—Nutritional 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: 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: 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 Science 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: NUTR S 4950 and 4380; or instructor's consent.

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: MMP 3202 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: NUTR S 4850 and HTH PR 3250.

NUTR S 4940—Internship in Nutritional Science (1-6). Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation. Prerequisites: 90 hours including 3 courses in Nutritional Sciences and instructor's 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: statistics course, senior standing or instructor's consent.

NUTR S 4951—Research in Dietetics Supervised Practice Experience (1). Implement, analyze, document, and present the results of the outcomes research proposal developed in NUTR S 4950. 4 hours of supervised practice per week. Prerequisite: NUTR S 4950; Open to students enrolled in the Coordinated Program in Dietetics 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 Seminar (1). Integration of research literature with knowledge from previous coursework. Examination of research articles in major. Presentation or research results in a formal setting. Prerequisite: senior standing or instructor's permission.

NUTR S 4975—Practice of Dietetics Supervised Practice Experience (10). Supervised practice in providing quality nutrition services in clinical, community, management and long-term care settings. 40 hours of supervised practice per week. Prerequisite: NUTR S 4280, 4290, 4380, and 4381; Open to students admitted to the Dietetics Program only.

Department of Textile and Apparel Management

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S. F. Stevens

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:

Business studies:

- Apparel Marketing and Merchandising
- Apparel Product Development and Management

International Studies:

- International Apparel Marketing and Merchandising
- International Apparel Product Development and Management

E-Consumer Studies:

- E-Consumer

*(Note: Tracks do not appear on transcripts and 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 & Production
- T A M 1300: Softgoods Retailing
- T A M 1400: Softgoods Consumer Behavior

Major Program Requirements - Textile and Apparel Management

The following courses are required of all students majoring in TAM. 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.

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 2400: Global Consumers.....	3
T A M 2120: Professional Seminar	1
T A M 2200: Textiles	3
T A M 2500: Social Appearance in Time and Space	3
T A M 2510: History of Western Dress	3
T A M 3110: Textile and Apparel in the Global Economy ..	3
T A M 3410: The Clothing and Textile Consumer	3

Track in Business Studies

There are two tracks available in business studies: Apparel Product Development and Management or Apparel Marketing 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.)

Apparel product development and management track

Requirements	28
T A M 2280: Apparel Production	4
T A M 2211: Patternmaking Lab	1
T A M 2210: Patternmaking	3
T A M 3280: Principles of Apparel Manufacturing.....	3
T A M: to be determined	
T A M 4110: Global Sourcing	3
T A M 4980: Softgoods Production Development	4
Elective hours in the department.....	9

Supporting requirements

ACCTCY 2036: Accounting I	3
MRKTNG 3000: Principles of Marketing	3
MANGMT 3000: Fundamentals of Management	3
E&CPSY 4170: Introduction to Educational Statistics OR STAT 1300: Elementary Statistics OR STAT 2500: Introduction to Probability and Statistics..	3
Approved electives in business, engineering, art or theatre	6

Supporting requirements for business minor

ACCTCY 2036: Accounting I.....	3
ACCTCY 2037: Accounting II.....	3
MANGMT 3000: Fundamentals of Management.....	3
MRKTNG 3000: Principles of Marketing	3
STAT 1300: Elementary Statistics OR STAT 2500: Introduction to Probability and Statistics OR E&CPSY 4170: Introduction to Educational Statistics..	3
FINANC 2000: Corporate Finance for Business Minors..	3

Apparel marketing and merchandising track

requirements

T A M 3100: Fundamentals of E-Commerce	3
T A M 2300: Retail Financial and Merchandise Control ..	3

T A M 4990: Retail Marketing and Merchandising	3	T A M 2300: Retail financial and Merchandise Control ...	3
Elective hours in the department	12	T A M 4990: Retail Marketing and Merchandising	3
Supporting requirements	18	Select from two of the following:	
ACCTCY 2036: Accounting I	3	T A M 2400: Global Consumers	3
ACCTCY 2037: Accounting II	3	T A M 4110: Global Sourcing	3
FINANC 2000: Corporate Finance for Business Minors..3		T A M 4310: Global Retailing	3
MRKTNG 3000: Principles of Marketing	3		
MANGMT 3000: Fundamentals of Management	3	Supporting requirements	37
STAT 1300: Elementary Statistics OR		ACCTCY 2036: Accounting I	3
STAT 2500: Introduction to Probability and		ACCTCY 2037: Accounting II	3
Statistics	3	MRKTNG 3000: Principles of Marketing	3
		MANGMT 3000: Fundamentals of Management	3
		FINANC 2000: Corporate Finance for Business Minors .3	
		E&CPSY 4170: Introduction to Educational Statistics OR	
		STAT 1300: Elementary Statistics OR	
		STAT 2500: Introduction to Probability and Statistics..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
Track in International Studies		Track in E-Consumer 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.		The Department of Textile and Apparel Management offers a program in e-consumer studies in cooperation with the Department of Consumer and Family Economics. Check the degree requirements under the Department of Consumer and Family Economics.	
International apparel product development and management track requirements.....	28	Minor in Textile and Apparel Management	
T A M 2280: Apparel Production	3	The undergraduate minor in textile and apparel management requires a minimum of 18 credits with at least 6 credits at the 3000-level or above. Students must meet prerequisites for all courses or obtain instructor's permission.	
T A M 2210: Patternmaking	3		
T A M 2211: Patternmaking Lab	1		
Course to be determined.....	1		
T A M 3280: Principles of Apparel Manufacturing	3		
T A M 4110: Global Sourcing	3		
T A M 4980: Softgoods Product Development	4		
Elective hours in the department	9		
Supporting course requirements	19		
ACCTCY 2036: Accounting I.....	3		
MRKTNG 3000: Principles of Marketing OR			
MANGMT 3000: Principles of Management	3		
POL SCI 1400: International Relations	3		
GEOG 2550: Intro to the Humanized Earth OR			
GEOG 2780: World Political Geography.....	3		
Foreign language (must be the same language)	10		
International apparel marketing and merchandising tract requirements	15	Historical/behavioral studies	
T A M 2300: Retail Financial and Merchandise Control ..3		Historical studies (T A M 2500, 2510, 4500, 4510).....	3
T A M 3100: Fundamentals of E-Commerce	3	Textiles (T A M 2200)	3
		Apparel industry studies	6
		(select from T A M 1100, 1200, 1300, 1400, 2200, 2510, 3100, 3200, 3410, 4100, 4110, 4980, or 4990)	
		Area of specialization	6

Sample Eight-Semester Programs

Apparel Marketing and Merchandising

Fall I		Winter I	
GN HE 1100: Intro to Human Env Sc	1	ENGLISH 1000: Expos & Argumentation	3
Social/Behavioral Science	3	Physical/Biological Science	5
TAM 1100: Intro to Textile & App Ind	3	TAM 1200: Basic Concepts App Des	3
History or Political Science	3	Humanities	3
MATH 1120: College Algebra.....	3	TAM 1300: Softgoods Retailing.....	3
Total.....	13	Total.....	17
Fall II		Winter II	
TAM 2200: Textiles	3	TAM 2510: History of Western Dress	3
HES Foundation Course ..3		Physical/Biological Science	4
TAM 2500: Social App Time & Space.....	3	MRKTNG 3000: 204 Prin of Marketing.....	3
ECONOM 1014: Prin of Microeconomics.....	3	Social/Behavioral Science	3
TAM 2120: Professional Seminar	3	ECONOM 1015: Prin of Macroeconomics	3
Total.....	15	Total.....	16
Fall III		Winter III	
TAM 2300: Retail Fin. & Merchan. Cont.....	3	TAM 3110: Textiles & App Global Econ	3
Humanities	3	MANGMT 3000: Fund of Management.....	3
TAM Elective	3	Elective	3
ACCTCY 2036: Accounting I.....	3	Humanities	3
TAM 1400: Softgoods Consum. Behavior.....	3	ACCTCY 2037: Accounting II	3
Total.....	15	Total.....	16
Fall IV		Winter IV	
Statistics	3	FINANC 3000: Corporate Finance	3
TAM 3100: Fundamental of E-Commerce	3	TAM Elective	3
HES Foundation Course ..3		TAM 4990: Retail Mkt & Merch	3
TAM Elective	3	TAM 3410: The Clothing/ Tex Consumer	3
TAM Elective	3	COMMUN 1200: Intro to Speech	3
Total.....	15	Total.....	15

Sample Eight-Semester Programs

Apparel Product Development & Management

Fall I		Winter I	
G N HE 10 Intro to Human Env Sc	1	Physical/Biological Science	5
Social/Behavioral Science	3	TAM 1200: Basic Concepts App Des	3
TAM 1100: Intro to Textile & Apparel Industry	3	TAM 1300: Softgoods Retailing	3
History or Political Science	3	MATH 1120: College Algebra.....	3
ENGLISH 1000: Expos & Argumentation	3	Humanities	3
Total.....	13	Total.....	15
Fall II		Winter II	
TAM 2200: Textiles	3	TAM 2510: History of Western Dress	3
COMMUN 1200: Intro to Speech	3	Supporting Elective.....	3
TAM 2500: Social App Time & Space.....	3	TAM 2280: Apparel Production	4
ECONOM 1014: Prin of Microeconomics.....	3	Humanities	3
ACCTCY 2036: Accounting I.....	3	ECONOM 1015: Prin of Macroeconomics	3
TAM 2120: Professional Seminar	3	Total.....	16
Total.....	18		
Fall III		Winter III	
TAM 3280: Prin Apparel Manuf.....	3	TAM 3110: Textiles & App Global Econ	3
TAM 2210: Pattern Making	4	MANGMT 3000: Fund of Management.....	3
HES Foundation Course ..3		Social/Behavioral Science	3
MRKTNG 3000: Prin of Marketing	3	Humanities	3
STAT 1300: Elementary Statistics	3	TAM 3410: The Clothing/ Tex Consumer	3
Total.....	17	Total.....	15
Fall IV		Winter IV	
TAM 1400: Softgood Consumer Behavior	3	TAM 4980: Softgoods Prod. Develop.	4
TAM 4110: Global Sourcing	3	Supporting Elective.....	3
TAM Elective	3	TAM Elective	3
Physical/Biological Science	4	Supporting Elective.....	3
TAM Elective	3	HES Foundation Course ..3	
Total.....	16	Total.....	16

Sample Eight-Semester Programs

E-Consumer Studies

Fall I

GN HE 1100: Intro to Human Env Sc	1
Humanities	3
Physical/Biological Science	5
History or Political Science	3
ENGLSH 1000: Expos & Argumentation	3
Total.....	14

Fall II

ECONOM 1015: Prin of Macroeconomics	3
SOCIOL 1000: Intro to Sociology	3
Humanities	3
COMMUN 1200: Intro to Speech.....	3
ACCTCY 2036: Accounting I.....	3
Total.....	15

Fall III

TAM 3100: Fundamental of E-Commerce.....	3
ACCTCY 2258: Comp. Based Data Systems.....	3
TAM 2400: Global Consumer	3
C&F EC 2180: Personal & Family Manag.	3
C&F EC 2185: The Consumer in Our Society..	3
Total.....	15

Fall IV

C&F EC 4387: Consumer & Household Econ.....	3
HES Foundation Course ..	3
Supporting Course	3
MRKTNG 4650: E-Marketing	3
Supporting Course	3
Total.....	15

Winter I

MATH 1120: College Algebra.....	3
Physical/Biological Science	4
PSYCH 1000: General Psychology	3
Humanities	3
ECONOM 1014: Prin of Microeconomics.....	3
Total.....	16

Winter II

Supporting Course	3
MRKTNG 3000: Prin of Marketing	3
C&F EC 2183: Intro to Personal & Family Fin.....	3
STAT 1300: Elementary Statistics	3
TAM 1300: Softgoods Retailing.....	3
Total.....	15

Winter III

HES Foundation Course ..	3
TAM 1400: Softgoods Consum. Behavior.....	3
Supporting Course	3
Supporting Course	3
TAM 3410: The Clothing/ Tex Consumer	3
Total.....	15

Winter IV

C&F EC 4388: Effect. Consum. Decision Making	3
Supporting Course	3
Supporting Course	3
Supporting Course	3
TAM 3001: Web-Based Market Research	3
Total.....	15

Sample Eight-Semester Programs

International Option:Apparel Production Development & Management

Fall I

GN HE 1100: Intro to Human Env Sc	1
MATH 1120: College Algebra.....	3
TAM 1100: Intro to Textile Ind	3
History or Political Science	3
HES Foundation Course ..	3
Total.....	13

Fall II

TAM 2200: Textiles	3
TAM 2120: Professional Seminar	3
TAM 2500: Social App Time & Space.....	3
ECONOM 1014: Prin of Microeconomics.....	3
ACCTCY 2036: Accounting I.....	3
Total.....	18

Fall III

TAM 3280: Prin Apparel Manuf	3
TAM 1200: Basic Concepts App Des.....	3
Foreign Language	5
Humanities	3
Total.....	14

Fall IV

COMMUN 1200: Intro to Speech	3
TAM 4110: Global Sourcing	3
TAM Elective	3
GEOG 2550: GEOG 2780:	3
TAM 1400: Softgoods Consum. Behav.	3
Total.....	15

Winter I

ENGLSH 1000: Expo & Argumentation	3
Physical/Biological Science	5
TAM 2280: Apparel Production	4
TAM 1300: Softgoods Retailing.....	3
Humanities	3
Total.....	17

Winter II

TAM 2510: History of Western Dress	3
Foreign Language	5
TAM 2210: Patternmaking	4
ECONOM 1015: Prin of Macroeconomics.....	3
Total.....	15

Winter III

TAM 3110: Textiles & App Global Econ	3
POL SC 1400: International Relations	3
MRKTNG 3000: Prin of Marketing.....	3
HES Foundation Course ..	3
TAM 3410: The Clothing/ Tex Consumer	3
Total.....	15

Winter IV

TAM 4980: Apparel Production Mgt	4
TAM Area Elective	3
TAM Elective.....	3
Biological/Physical Science	4
Humanities	3
Total.....	17

TEXTILE AND APPAREL MANAGEMENT COURSES

TAM 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 & Production (3). Introduction to design techniques, coordination of fabric with design, selection of support materials, and basic understanding of garment assembly operations.

TAM 1300—Softgoods Retailing (3). Surveys merchandising and retailing principles with specific applications to the softgoods industry.

TAM 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 (3). 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—Textiles (3). Textile fibers and their processing related to selection, care, and performance of end products.

T A M 2210—Patternmaking (3). (same as Theatre 2320). A beginning course in the methods of pattern drafting. Methods explored include: flat patterning, draping, and theatrical patterning techniques. Graded on A/F basis only. Prerequisites: TAM 2280 or THEATR 1340 and instructor's consent.

T A M 2211—Patternmaking Lab (1). Students will apply flat pattern principles to creating patterns using computer software. Required when registered for THEATR 2320 or TAM 2210. Prerequisite: TAM 2280 or THEATR 2320. Graded on A/F basis only.

TAM 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: TAM 1200 or taken concurrently and T A M 2100.

T A M 2300—Retail Finance and Merchandise Control (3). Emphasizes assortment and financial planning utilizing computer applications in the retail environment. Prerequisites: T A M 1300, MATH 1100/1120 and computer familiarity.

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.

TAM 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: ENGLSH 1000.

T A M 2510—History of Western Dress (3). Surveys the history of Western dress from prehistory through the 18th Century. Prerequisite: ENGLSH 1000.

T A M 3001—Recent Trends in Textiles and Apparel Management (1-3). For upper-class and graduate students who wish additional knowledge and understanding in specific subject matter areas.

TAM 3100—Fundamentals of E-Commerce (3). An overview of the development, present status, barriers, and future e-commerce from a managerial point of view. Prerequisite: junior standing.

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: 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: 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: T A M 1200 or 2200, minimum 2.5 GPA required, and instructor's consent.

T A M 3210—Computer Aided Design (3). (same as Theatre 3320). Use of computer aided design technology to perform patternmaking techniques for apparel production. Prerequisite: T A M 2210.

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: T A M 2100, 1200 or instructor's consent.

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: 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; 3 hours in statistics.

TAM 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: 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: T A M 3110.

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: TAM 3110 and 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: TAM 1100 or 1300 and 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: T A M 1300.

TAM 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: T A M 2510, 2500.

TAM 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: T A M 2510, or THEATR 1320 or instructor's consent.

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.

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). Examination of issues and management strategies necessary to produce a competitively priced apparel product of high quality. Graded on A/F basis only. Prerequisites: 2200 and 2210, and junior standing or above.

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: T A M 1300, ACCTCY 2036, MRKTNG 3000.

School of Social Work

(WITHIN THE COLLEGE OF HUMAN ENVIRONMENTAL SCIENCES)

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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 department 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 21st 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 are 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 42 credits. BSW core courses are offered only once each year in sequence and require three semesters to complete. Students who have completed all other University, and School of Social Work requirements may graduate in December of the senior year. In the third semester of the BSW core, each student spends three full days a week in a social service agency for supervised field instruction.

Admissions

Students in good academic standing may declare a social work major. Admission to the Professional BSW program, however is competitive. Application to the Professional BSW Program is made in the Sophomore year and requires a 2.5 cumulative GPA and completion of the *courses below.

Students wanting to explore social work as a major may take the following exploratory courses:

SOC WK 1100: Introduction to the Social Work Major

SOC WK 1115: Social Welfare & Social Work

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

*ENGLSH 10003

Writing intensive classes6

Students accepted into the professional BSW program must take SW 2220 and 4951, both designated "WI." No additional "WI" courses are required.

Humanities (grades for communication and philosophy must be in the "C" range).....9

*COMMUN 12003

*PHIL (1000, 1100 or 1200 recommended).....3

Additional humanities3

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 adviser before selecting courses.

Science9
 *BIO SC 1010 with a minimum grade in the C range.3
 Lab Science Physical or Mathematical Science

Math and Math Reasoning Proficiency6
 MATH 1100/12003
 SOC WK 4310, E&CPSY 4710, STAT 1200 and 1300 are approved for social work students.

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
 *Either the history or the political science course must meet the state government requirement; may be satisfied by POL SC 1100, 1700 or 2100; or HIST 1100, 1200, 1400, 2440, 7000, 4220, 4230

Behavioral science (grades for sociology and psychology must be in the “C” range).....15

*SOCIOL 10003
 *PSYCH 1000.....3
 SOCIOL 3810 OR PSYCH 23103
 Theories of personality course (SOC WK 3320 or PSYCH 7310)3
 SOC WK 2220: Human Behavior and the Environment

Cultural, ethnic and racial diversity6

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

Electives to reach 120 credits

In addition to the above liberal arts requirements and the 42-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.

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

The School of Social Work follows the College of Human Environmental Sciences requirements for honors.

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 requirements9

SOC WK 1115: Social Welfare and Social Work
 SOC WK 2220: Human Behavior and the Social Environment
 SOC WK4710: Social Justice and Social Policy OR
 SOC WK2000: Exploration in Social Justice

Social work electives (choose from)6

SOC WK 4330: Addiction Treatment and Prevention
 SOC WK 4360: Working with Minority Youth
 SOC WK 4370: Delinquency Corrections and Social Treatment
 SOC WK 4380: Social Work Practice with Minorities
 SOC WK 4390: Helping Strategies with Children and Adolescents
 SOC WK 4400: Domestic Violence
 SOC WK 4410: Law and Social Work practice
 SOC WK 4450: Introduction to Child Welfare
 SOC WK 4455: Latino/a Immigrants in Receiving Communities

Sample Eight-Semester Programs

Bachelor of Social Work (BSW)

Fall I

*ENGLSH 1000.....3
 *BIO SC 1010.....3
 BIO SC 1020 (lab)2
 *PSYCH 1000.....3
 *History (Constitution)....3
 SOC WK 1110 (Elective).1
Total.....15

Fall II

*Economics.....3
 Elective3
 Physical Science.....4
 SOC WK 22203
 Cultural Diversity.....3
Total.....16

Winter I

*COMMUN 12003
 *MATH 11203
 *SOCIOL 10003
 *Anthropology (any).....3
 SOC WK 1115
 (Elective).....3
Total.....15

Winter II

*Philosophy (any)3
 *Social Statistics
 (SOC WK 4310)3
 Humanities (upper level)..3
 SOC WK 33203
 Social Psychology3
 Elective (e.g. Art).....1
Total.....16

* = prerequisite courses to the BSW Professional Program

Fall III	
SOC WK 4710	3
SOC WK 4730	3
SOC WK 4750	3
Cultural Diversity.....	3
Elective	3
Total.....	15

Winter III	
SOC WK 4720	3
SOC WK 4740	3
SOC WK 4760	3
SOC WK 4951	3
SOC WK Practice Elective	
3	
Total.....	15

Fall IV	
SOC WK 4770	3
SOC WK 4952	3
SOC WK 4971	6
SOC WK 4970	3
Total.....	15

Winter IV	
Political Science (any)	3
Elective	3
Elective	3
Elective	3
Elective	1
Total.....	13

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. For undergraduate students and graduate students outside the school. 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: 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 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 (3). Descriptive, analytic techniques applied to qualitative and quantitative social data. Prerequisite: sophomore standing.

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 4360—Working with Minority

Youth (3). (same as Black Studies 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 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 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 4450—Introduction to Child Welfare Practice and Services (3). Introductory course designed to develop the student’s awareness, understanding and appreciation of the field of child welfare and specifically of its most critical function: child protection. Prerequisite: junior standing.

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 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 (3). 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: SOC WK 4730 and 4750; third semester professional program standing; consent required. Co-requisite: SOC WK 4971 and 4970. f.

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 Profes-

sional 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: 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; 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.

School of Journalism

School of Journalism

DEGREE OFFERED

Bachelor of Journalism (BJ), with emphasis areas in *Advertising, Broadcast News, Magazine, News Editorial and Photojournalism*

Minor

Journalism

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The world's first School of Journalism was established in 1908 at the University of Missouri-Columbia to strengthen the effectiveness of public communications 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 communications through its advertising department. 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 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.

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

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ADMISSIONS

Effective fall semester 2004

Admission to Journalism as a Freshman

Admission to the School of Journalism is competitive. Students apply to the School of Journalism through the regular admissions process of the University of Missouri-Columbia. Students who are accepted for admission to MU as freshmen and express an interest in journalism are admitted in three groups:

- 1. Journalism Scholars:** Scholars are those with composite ACT scores of 29 or higher (or those with combined math-verbal SAT scores of 1280 or higher) who also rank in the top 10 percent of their high school graduating classes. Students in this category are admitted directly to the School of Journalism as freshmen and are automatically enrolled in the MU Honors College. Freshmen close to those achievement levels may petition for this category through the Honors College petition process. When accepted into the Honors College, successful petitioners also win automatic admission to the School of Journalism and the Journalism Scholars Program. Special classes and programming are available to Journalism Scholars.
- 2. Directly Admitted Freshmen:** Students with ACT scores of 26 or higher (1170 or higher on the SAT) or those who rank in the top 10 percent of their high school classes are automatically admitted directly to the School of Journalism as freshmen.
- 3. Prejournalism Students:** Students with ACT scores below 26 (below 1170 on the SAT) and who do not rank in the top 10 percent of their high school classes are admitted to the College of Arts and Science as prejournalism students. Students in this category will be admitted to the School of Journalism on a space available basis upon completion of 60 credits and fulfillment of all other requirements for upper-class status in the School of Journalism. These students are not necessarily admitted in order of highest GPA. The Journalism Undergraduate Admissions Committee extensively reviews individual applications for admission from students in this category. Criteria used in evaluating these applications include a student's stated passion to work in the fields of journalism or advertising, demonstrated commitment to journalism or advertising (as evidenced by work with student or professional media, high school activities or participation in journalism student groups), needs of the profession, etc. The committee also will attempt to match interests of students in this category with openings in the school's various academic disciplines.

Admission to Journalism as a Transfer Student

Transfer students are admitted to the School of Journalism when they complete 60 credits, fulfill all prerequisites for upper-class status in journalism and maintain a cumulative GPA of at least 3.0 in courses taken at MU. Completion of at least one semester at MU is required for transfer students to establish a grade point average and qualify for admission.

Gaining or Maintaining Upper-Class Status in Journalism

Students admitted as freshmen are expected to maintain 3.0 GPAs to ensure their advancement to upper-class status. Students with GPAs below 3.0 upon completion of 60 credits and all prerequisites will be assigned a sequence and allowed to continue in the School of Journalism only if space is available.

Admission to an Emphasis within the School of Journalism

While the school accepts any student who maintains a 3.0 cumulative GPA at MU and fulfills other requirements, it does not guarantee first choice of emphasis. It may be necessary from time to time to limit enrollment in high-demand areas.

International Admission

A minimum score of 600 on the Test of English as a Foreign Language (TOEFL) is required for all prejournalism and journalism students whose native language is other than English.

Required Entry-Level Courses

Prior to admission to 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 a sequence in journalism.

A crosslisting of course numbers to the numbers used under the former course numbering system is available at https://sis.iats.missouri.edu/sis/course_num_select.cfm.

Writing (9 credits):

- ENGLSH 1000: Composition (3 credits) with a grade of B or better OR a grade of C and a satisfactory score on the Missouri College English Test. AP and IB test credit will satisfy this requirement for freshmen admitted after the fall semester 2002.
- Two Writing Intensive courses (6 credits)

College Algebra (3 credits):

- MATH 1120 with a C-range grade is required. Students are exempt from College Algebra with a math ACT sub-score of 26 or better.

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 a sequence 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.

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, CECS 1050, geology, math and physics. One course must include a lab.
- Note that College Algebra, with a C-range grade, is a prerequisite for some math courses.

Social and Behavioral Science (12 credits):

- American History: HIST 1100, 1200, 1400 or 2210 OR American Government OR Introduction to Political Science: POL SC 1100 or 1700
- Microeconomics: ECONOM 1014
- 6 additional credits, including at least a 3-credit behavioral science course
- Pre-advertising majors must complete both microeconomics (ECONOM 1014) and macroeconomics (ECONOM 1015)

- Note that ECONOM 1014 is the prerequisite for ECONOM 1015

Humanistic Studies (9 credits):

- American or British literature (3 credits): Choose from: ENGLSH 1100, 1200, 1300, 1160, 2200, 2300, 2400, 2100, 2180, 2160, 2140, 3420, 3180, 3200, 3210, 3300, 3310, 3400, 3410

NOTE: If completed prior to winter 2004, ENGLSH 15 – Introduction to World Literature satisfied this requirement

Additional courses in two of six areas (6 credits):

- Communication/film studies/theater
- History or appreciation of art or music
- Humanities
- Non-US civilization or classics
- Philosophy
- Religious studies

Journalism (9 credits, effective fall semester 2004):

- JOURN 1100: Principles of American Journalism should be taken in the second semester of the freshman year, after completion of 15 credits, and must be completed with a C-range grade or better. To enroll, students must have satisfied the English composition requirement and have a minimum campus GPA of 2.75.
- JOURN 2100: News should be taken in the sophomore year, after the completion of 30 credits, and must be completed with a C-range grade or better. To enroll, students must have completed JOURN 2000 and have a minimum campus GPA of 2.80.
- JOURN 2000: Cross-Cultural Journalism should be taken in the sophomore year, after completion of 30 credits, and must be completed with a C-range grade or better. To enroll, students must have completed JOURN 2000 and have a minimum campus GPA of 2.80.
- JOURN 2100 and JOURN 2000 should be taken in separate semesters.

Word-Processing Skill

Journalism courses require the use of a computer. Students must demonstrate word-processing proficiency. Effective Fall Semester 2005, incoming freshmen will be required to purchase a wireless laptop computer, 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 (1280 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 enrollment in the MU Honors College. Students still must complete the Honors College enrollment form for eligibility.

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 (1470 or higher on the SAT). 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, DC programs at any time before graduation.

Transfer Credit

Students may offer for admission a maximum of 64 credits of work from community or junior colleges. Such work taken after admission to an emphasis in the School of Journalism will count only as general elective credit.

The school accepts no journalism or communication credits in transfer. In certain instances, students may be excused from repeating some introductory journalism courses but still must complete a minimum of 39 journalism credits at MU. The school does not accept credit in basic military science, basic physical education, typing or shorthand. It accepts no more than 3 credits of applied or performance music, dance, drama or studio art, or courses considered professional education for other disciplines.

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 adviser in the School of Journalism and in the department of major interest in the College of Arts and Science.

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 Agricultural Journalism. This is not considered a dual degree. For more information, see the College of Agriculture, Food and Natural Resources in this catalog.

CONCENTRATIONS

Note: Concentrations are not noted on diplomas or transcripts.

Concentration in Business and Economics Reporting

To obtain the Bachelor of Journalism with a concentration in Business and Economics Reporting, students must meet the following requirements:

- Complete requirements for the news-editorial emphasis
- Pass JOURN 4438: Business and Economics Reporting
- Complete 12 credits in the College of Business or in the Department of Economics

Concentration in Management

To obtain the Bachelor of Journalism with a concentration in Management, students must meet the following requirements:

- Complete JOURN 4978: Media Management and Leadership
- Complete 12 credits in the College of Business; the following courses are highly recommended:
ACCTCY 2037: Accounting II

MANGMT 4020: Personnel Management
 MANGMT 4420: Collective Bargaining
 MANGMT 4030: Organizational Behavior
 MRKTNG 3000: Principles of Marketing
 MRKTNG 4000: Marketing Management
 FINANC 3000: Corporate Finance

- Complete one of the following courses in the School of Journalism:
 JOURN 4220: Creative Portfolio
 JOURN 4250: Management of Strategic Communications
 JOURN 4710: Newspaper Management

Public Affairs Journalism

The program in Public Affairs Journalism prepares students for graduate work. Political science students with a minimum of 60 credits may include up to 13 credits of journalism in their BS program. Political science students with a minimum of 60 credits and 3.0 or above MU cumulative GPA may include up to 13 credits of journalism in their Bachelor of Science program in Public Administration.

Recommended Journalism courses include:

- JOURN 2000: Principles of American Journalism
- JOURN 3000: History of American Journalism
- JOURN 4000: Communications Law

While the program is designed for students who proceed to graduate school in journalism, the journalism courses are also valuable for city officials who do not go beyond the bachelor's degree.

Public Relations

There is no specific public relations emphasis in the School of Journalism. Students preparing for careers in public relations should enroll in the advertising emphasis, which offers several courses in public relations and prepares students for careers in strategic communication—a blend of advertising and public relations commonly sought in corporate communications departments. In some cases, enrollment in the magazine or news-editorial emphasis may be preferred.

Service Journalism

This magazine concentration prepares students to work on service-oriented periodicals by taking courses in magazine writing, editing and publishing. The program is advised by the Meredith Professor of Magazine Journalism.

Concentrations in Science, Medical or Environmental Writing

Students who wish to take science, medical or environmental writing as an area of concentration may do so while enrolled in the news-editorial or magazine emphasis leading to a Bachelor of Journalism degree.

To obtain the Bachelor of Journalism with a concentration in science, medical or environmental writing, students must meet the requirements below.

- Be regularly admitted to a sequence in the school
- Complete at least 33 credits in journalism, including:
 JOURN 2100: News
 JOURN 4400: Editing
 JOURN 2000: Principles of American Journalism
 JOURN 4450: Reporting
 JOURN 3000: History of American Journalism
 JOURN 4406: Newspaper Editing
 JOURN 4416: Science, Health and Environmental Writing

- Complete at least 30 credits in the physical, biological and social sciences, and environment studies (a list of suggested courses is available from the faculty coordinator)
- Complete a total of 123 credits and otherwise meet requirements for the BJ degree

Sociology-Journalism

This program permits journalism undergraduates to enter the Graduate School for work in sociology, and allows sociology undergraduates to enter the Graduate School for work in journalism, having already taken as many required courses as possible.

Journalism undergraduates may take up to 12 credits of sociology courses under the direction of an adviser in sociology. Sociology undergraduates may take up to 16 credits of non-media courses in journalism, with the help of a journalism adviser. Sociology students become eligible to take journalism courses when they have earned 60 credits and maintained an MU GPA of 3.0 or higher. Journalism students may take sociology courses without being part of a formal program.

MAJOR PROGRAM REQUIREMENTS

The Bachelor of Journalism degree requires 39 journalism credits and 84 non-journalism credits. At least 65 of the 84 non-journalism credits must be credits from the College of Arts and Science.

To obtain the Bachelor of Journalism degree, a student must:

- Be regularly admitted to a sequence 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 1.67 for all journalism courses
- Complete all University graduation requirements, including University general education requirements

A crosslisting of course numbers to the numbers used under the former course numbering system is available at https://sis.iats.missouri.edu/sis/course_num_select.cfm/.

Major core requirements

JOURN 4000: Communications Law
 JOURN 4950: Solving Practical Problems OR
 JOURN 3000: History of American Journalism

Electives outside Journalism (must be numbered 3000 or above).....**24**

Behavioral, biological, physical and mathematical science.....	3
Select from anthropology, biology, computer science, psychology, physical science, sociology, statistics or mathematics.....	6
Social science.....	6
Select from two of four areas: economics, history, political science or geography.....	6
Humanities	6
Select from two of six areas: history or appreciation of art or music, non-US civilization or classics, humanities, literature, philosophy, appreciation of communication and theater or religious studies.....	9
Nonjournalism electives.....	9
Must be numbered 3000 or above or 2000H or above.	

General Electives

Electives necessary to complete a minimum of 84 credits of nonjournalism classes. Any course acceptable to the school and adviser 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.

Journalism and most communications courses completed at any other institution will not count toward graduation from the School of Journalism.

Academic Assessment

Students in broadcast news, magazine, news-editorial 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 department chair during their final semester in school. Advertising students must complete this requirement as part of the capstone course.

Maximum Credits Enrolled

A student in the School of Journalism may usually take no more than 16 credits a semester. However, a student who has established a 3.0 GPA the previous year may carry 17 or 18 credits, and a student who has established a 4.0 GPA may carry 19 credits. In both instances, special permission of the academic unit is required. A student may take no more than 10 credits in journalism per semester.

Independent Study

A maximum of 6 credits, approved in advance by the dean of the School of Journalism, may be earned through independent study and accepted as partial fulfillment of the requirements for upperclass arts and sciences.

Probation, Suspension and Dismissal

In addition to University requirements, the following apply to all students in the School of Journalism.

A student is suspended and becomes ineligible to enroll for a period of one regular semester when the term GPA (journalism or overall) is below 1.5, when passing less than one-half of the

work in any term, or when on probation with a term GPA of 2.0 or lower.

A student is dismissed and becomes ineligible to enroll for a period of one calendar year when the term GPA (journalism or overall) is below 1.0, when passing less than one-fourth of the work in any term, or when failing to perform academic duties.

First-semester freshman journalism students are placed on final probation when their first semester term GPA falls between 0.50 and 1.99. Students may remain on final probation no more than one term. They regain good standing when their term and cumulative GPA 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 GPA is below 0.50.

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.

Enrollment in Other Institutions

Prejournalism students in the College of Arts and Science may not enroll in another institution while enrolled in classes on campus. Students may enroll in courses at other institutions in the summer if they are not enrolled in classes on campus.

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 three 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

Prejournalism and lower-division journalism students have a full-time academic adviser in the School of Journalism. Students admitted to a sequence in the school have a full-time academic adviser and a faculty adviser from their selected sequence. Stu-

dents are expected to seek the advice of the academic adviser in the selection of courses. The faculty adviser 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 adviser 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 adviser. The responsibility for meeting admission and graduation requirements rests with the student.

EMPHASIS AREAS

Emphasis in Advertising

This program is designed for students who wish to develop a solid understanding of strategic communication and proficiency with skills such as writing, design, oral presentation, strategy development, creativity and critical thinking. Students learn to apply these skills to various forms of communication, which include advertising, public relations and web and interactive programming. Emphasis requirements are described below:

ADVERTISING	30
Emphasis core requirements	12
JOURN 4200: Principles of Strategic Communications	
JOURN 4206: Strategic Writing I	
JOURN 4952: Strategic Communication Research I	
JOURN 4226: Strategic Design and Visual I	

In addition, JOURN 4970: Strategic Campaigns is a capstone course that students should take during their final semester.

Journalism electives	12
Suggested advertising emphasis electives:	
JOURN 4216: Media Sales	3
JOURN 4236: Psychology in Advertising	3
JOURN 4218: Advanced Media Sales	3
JOURN 4238: Broadcast Advertising	3
JOURN 4240: Direct and Mail-Order Advertising	2
JOURN 4220: Creative Portfolio	3
JOURN 4208: Strategic Writing II.....	3
JOURN 4248: Media Planning	3
JOURN 4250: Management of Strategic Communication.....	3
JOURN 4256: Public Relations	3
JOURN 4258: Global Communication	3
JOURN 4260: Impact of Advertising.....	3
JOURN 4228: Strategic Design & Visual II	3
JOURN 4266: Advertising Law & Ethics.....	3
JOURN 4130: Account Services	1
JOURN 4136: Creative Techniques	1
JOURN 4138: Public Relations Techniques	1
JOURN 4140: Interactive Techniques.....	1
JOURN 4146: Strategic Communication Techniques.....	1
JOURN 4268: Strategic Communications Practicum	3

Marketing electives for advertising emphasis requirements

Advertising students must complete 6 credits of upper-division marketing credit. Three of the 6 must be MRKTNG 3000 or its equivalent in transfer. These credits take the place of 6 of the 9 credits of upper-division electives required of all journalism students.

Emphasis in Broadcast News

This program is designed for students who wish to pursue a career in radio or television journalism. Emphasis requirements are described below:

BROADCAST NEWS	24
Emphasis core requirements	9
JOURN 4300: Broadcast News I.....	3
JOURN 4306: Broadcast News II	3
JOURN 4308: Broadcast News III	3

Journalism electives

Students should consult their faculty advisers to select electives that are appropriate to their area of interest, whether within or outside broadcasting.

Capstone course (select one to be taken during the final semester)	3
JOURN 4974: Advanced Internet Applications OR.....	3
JOURN 4976: Seminar in Radio/TV News OR.....	3
JOURN 4978: Media Management and Leadership	3

Emphasis in Photojournalism

This program is designed for students who wish to pursue careers as photographers and picture editors for newspapers and magazines as well as multi-media producers for online publications.

Emphasis requirements are described below:

PHOTOJOURNALISM	27
Emphasis core requirements	12
JOURN 4450: Reporting.....	3
JOURN 4556: Fundamentals of Photojournalism	3
JOURN 4558: Advanced Techniques in Photojournalism	3
JOURN 4560: Staff Photography.....	3

Journalism electives

Suggested Photojournalism electives:

JOURN 4500: Advanced Newspaper Editing and Design	3
JOURN 4566: Electronic Photojournalism	3
JOURN 4568: History of Photojournalism	3
JOURN 4510: Visual Communication.....	3
JOURN 4506: Magazine Design.....	3
JOURN 4670: Newspaper Graphics Desk Management.....	3

Capstone course (select one to be taken during the final semester)	3
JOURN 4980: The Picture Story & Photographic Essay... OR	3
JOURN 4982: Photography in Society	3

Emphasis in News-Editorial

This program is designed for students who are interested in newspaper careers. Emphasis requirements are described below:

NEWS-EDITORIAL	40
Emphasis core requirements	10
JOURN 4400: Editing	3
JOURN 4450: Reporting	3
JOURN 4406: Newspaper Editing	3
JOURN 4120: New Media Basics (1).....	3

One Advanced Course.....

Reporting and Writing Track: JOURN 4460: Advanced Reporting	3
Editing and Design Track: JOURN 4500: Advanced Newspaper Editing and Design	3
Online Media Track: JOURN 4700: Online Journalism	3
Journalism electives	24

Electives suggested for News Editorial emphasis:

JOURN 4460: Advanced Reporting3
JOURN 4430: Computer-Assisted Reporting3
JOURN 4436: Reporting of Public Affairs3
JOURN 4416: Science, Health & Environmental Writing...3
JOURN 4200: Principles of Strategic Communications3
JOURN 4420: Editorial Writing.....3
JOURN 4410: Intermediate Writing3
JOURN 4986: Advanced Writing.....3

Electives suggested for Editing and Design track:

JOURN 4550: Basic Press Photography3
JOURN 4500: Advanced Newspaper Editing and Design ...3
JOURN 4226: Strategic Design and Visual I.....3
JOURN 4326: Visual Communication 2-3
JOURN 4506: Magazine Design.....3
JOURN 4408: Magazine Editing3

Capstone course (Must be taken during the final

semester)3
JOURN 4990: Journalism and Democracy3

Emphasis in Magazine

This program is designed for students who are interested in careers in the magazine world, including writing, editing and designing for consumer, trade, corporate, association and organization publications of all kinds. Emphasis requirements are described below:

MAGAZINE24

Emphasis core requirements12
JOURN 4450: Reporting.....3
JOURN 4410: Intermediate Writing3
JOURN 4506: Magazine Design.....3
JOURN 4408: Magazine Editing3

Journalism electives9

Suggested electives for Magazine emphasis:

JOURN 4550: Basic Press Photography3
JOURN 4460: Advanced Reporting3
JOURN 4500: Advanced Newspaper Editing and Design3
JOURN 4430: Computer-Assisted Reporting3
JOURN 4416: Science Health & Environmental Writing.3
JOURN 4256: Public Relations3
JOURN 4420: Editorial Writing.....3
JOURN 4268: Strategic Communications Practicum3
JOURN 4700: Online Journalism3
JOURN 4418: Critical Reviewing3
JOURN 4508: Information Graphics3
JOURN 4568: History of Photojournalism3
JOURN 4120: New Media Basics (1).....1
JOURN 4566: Electronic Photojournalism3
JOURN 4226: Strategic Visual & Design I.....3
JOURN 4716: Women and the Media.....2
JOURN 4650: International Issues in Reporting3
JOURN 4670: Newspaper Graphics Desk Management ..3

Capstone course (select one to be taken during the final semester)3

JOURN 4986: Advanced Writing.....3
JOURN 4984: Magazine Staff3
JOURN 4988: Advanced Magazine Design.....3
JOURN 4606: Magazine Publishing3

sion 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 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.

Intersession

An intersession is offered as part of the winter semester, beginning and ending prior to the start of other winter courses. Enrollment is limited, and work is in laboratory courses only. Students who wish to do some of their work in winter intersession should make arrangements for enrollment with the instructor of the intersession courses as the fall term begins.

In a term preceding a student's enrollment in intersession, the student must enroll in JOURN 4056: Intersession Colloquium (1) for the lecture portion of the intersession course.

Opportunities for Graduate Study on the MU Campus

The 4+1 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 4+1 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 4+1 program requires students to carry an intensive load (12-15 credits) each semester. Course work in the 4+1 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 4+1 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 (with the possible exception of JOURN 2100) are not journalism skills oriented.

Admissions

JOURN 1000 is open to any MU student in good academic standing. To declare a minor, a student must be in good academic standing at MU and have completed 60 credits.

Prejournalism students who follow the School of Journalism's general education requirements are preferred for admission. Pre-journalism students who complete JOURN 1100 and JOURN

OPTIONS

Summer Session

The School of Journalism offers three summer sessions in which most of its media laboratory courses are offered. The first ses-

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. Prejournalism students who decide to minor after completing JOURN 1100 are ineligible to take JOURN1000.

Other MU students 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's Ethics and Social Responsibilities
JOURN 4200	Principles of Strategic Communication
JOURN 1100	Principles of American Journalism
JOURN 4000	Communications Law
JOURN 3000	History of American Journalism

JOURN 2100: News, is not open to journalism minors. However, prejournalism 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 adviser for minors):

JOURN 4260	Impact of Advertising on American Culture
JOURN 4666	Advertising Law and Ethics
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 US exchange, MU interdisciplinary and general studies majors plus non-degree seeking undergraduate students. These courses are more general education inclined, less 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 adviser or an academic adviser for prejournalism students or majors. 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.

Placement 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.

Sample Eight-Semester Programs

Students pursuing each curricular emphasis will follow the eight-semester plan shown below. Check the *Undergraduate Catalog* for course prerequisites.

*Denotes General Education Requirements

^Denotes Degree Program Requirements

Bachelor of Journalism with a major in Journalism and an emphasis in Advertising

Fall I	Winter I
ENGLISH 1000..... 3*	MATH 1120..... 3*
Foreign Lang 1..... 5-6^	Foreign Lang 2..... 5-6^
B/P/M/ Lab Sci..... 3-5*	JOURN 1100..... 3^
Am Hst/Am Gov..... 3*^	ENGLISH..... 3^*
Total..... 14-16	Total..... 14-15

Fall II	Winter II
JOURN 2000..... 3^*	JOURN 2100..... 3^
Foreign Lang 3..... 3^	ECONOM 1015..... 3^*
STAT 1200..... 3^*	Hum St..... 3*
BEH..... 3*	B/P/M Sci..... 3*
ECONOM 1014..... 3^*	Hum St..... 3*
Total..... 15	Total..... 15

Fall III	Winter III
JOURN 4200..... 3^	JOURN 4206..... 3^
JOURN 4952..... 3^	JOURN 3000..... 3^
JOURN 4226..... 3^	JOURN 4000..... 3^
MRKTNG 3000..... 3^	MRKTNG Elect..... 3^
3000+ Science..... 3^	3000+ Hum St..... 3^
3000+ Soc Sci..... 3^	Total..... 18
Total..... 15	

Fall IV	Winter IV
JOURN Elect..... 3^	JOURN 4970 WI..... 3^*
JOURN Elect..... 3^	Capstone
3000+ Elect..... 3^	JOURN Elect..... 3^
3000+ Soc Sci..... 3^	3000+ Hum St..... 3^
Gen Elect..... 3	Gen Elect..... 3
Total..... 15	Gen Elect..... 3
	Total..... 15

Bachelor of Journalism with a major in Journalism and an emphasis in Photojournalism (Editorial Department)

Fall I	Winter I
ENGLISH 1000..... 3*	MATH 1120..... 3*
For Lang 1..... 5-6^	For Lang 2..... 5-6^
B/P/M/ Lab Sci..... 3-5*	JOURN 1100..... 3^
Am Hst/Am Gov..... 3*^	English (A/B Lit)..... 3^*
Total..... 14-16	Total..... 14-15

Fall II	Winter II
JOURN 2000..... 3^*	JOURN 2100..... 3^
For Lang 3..... 3^	Social or BEH..... 3^*
STAT 1200..... 3^*	Hum St..... 3*
BEH..... 3*	B/P/M Sci..... 3*
ECONOM 1014..... 3^*	Hum St..... 3*
Total..... 15	Total..... 15

Fall III
JOURN 4556..... 3^*
JOURN 4000..... 3^
JOURN 4950 OR
JOURN 3000..... 3^
3000+ Elec..... 3^
3000+ Soc Sci..... 3^
Total..... 15

Fall IV
JOURN 4560..... 3^
JOURN Elect..... 3^
3000+ Hum St..... 3^
3000+ Soc Sci..... 3^
Gen Elect..... 3
Total..... 15

Bachelor of Journalism with a major in Journalism and an emphasis in Broadcast News

Fall I
ENGLISH 1000..... 3*
Foreign Lang 1..... 5-6^
B/P/M/ Lab Sci..... 3-5*
Am Hst/Am Gov..... 3*^
Total..... 14-16

Fall II
JOURN 2000..... 3^*
Foreign Lang 3..... 3^
STAT 1200..... 3^*
BEH..... 3*
ECONOM 1014..... 3^*
Total..... 15

Fall III
JOURN 4000..... 3^
JOURN 4950 OR
JOURN 3000..... 3^
3000+ Soc Sci..... 3^
3000+ HumSt..... 3^
Gen Elect..... 3
Total..... 15

Fall IV
JOURN 4308 WI..... 3^*
JOURN Elect..... 3^
3000+ Elect..... 6^
Gen Elect..... 6
Total..... 18

Winter III
JOURN 4450..... 3^
JOURN 4558..... 3^
3000+ Science..... 3^
3000+ HumSt..... 3^
3000+ Elect..... 3^
Gen Elect..... 3
Total..... 18

Winter IV
JOURN 4980..... 3^* OR
JOURN 4982..... 3^*
3000+ Elect..... 3^
Gen Elect..... 6
Total..... 15

Bachelor of Journalism with a major in Journalism and an emphasis in Broadcast News

Winter I
MATH 1120..... 3*
Foreign Lang 2..... 5-6^
JOURN 1100..... 3^
English (A/B Lit)..... 3*
Total..... 14-15

Winter II
JOURN 2100..... 3^
Social or BEH..... 3^*
Hum St..... 3*
B/P/M Sci..... 3*
Hum St..... 3*
Total..... 15

Winter III
JOURN 4306..... 3^
JOURN Elect..... 3^
3000+ Science..... 3^
3000+ Elect..... 3^
3000+ Soc Sci..... 3^
Total..... 15

Winter IV
JOURN 4974 OR
Capstone..... 3*
JOURN 4976 OR
Capstone..... 3*
JOURN 4978
Capstone..... 3*
Gen Elect..... 9
3000+ HumSt..... 3^
Total..... 15

Sample Eight-Semester Programs (Cont.)

Bachelor of Journalism with a major in Journalism and an emphasis in Magazine (Editorial Department)

Fall I

ENGLISH 1000..... 3*
 Foreign Lang 1 5-6^
 B/P/M/ Lab Sci 3-5*
 Am Hst/Am Gov 3*^
Total..... 14-16

Fall II

JOURN 2000..... 3^*
 For Lang 3..... 3^
 STAT 1200 3^*
 BEH..... 3*
 ECONOM 1014 3^*
Total 15

Fall III

JOURN 4450..... 3^
 JOURN 4226..... 3^
 If Design Track
 3000+ Science..... 3^
 3000+ Elect..... 3^
 Gen Elect..... 3
Total..... 15

Fall IV

JOURN 4950
 OR
 JOURN 4000..... 3^
 JOURN 4408 3^
 JOURN Elect 3^
 3000+ Soc Sci 3^
 3000+ Hum St..... 3^
 3000+ Elect..... 3
Total..... 18

Winter I

MATH 1120..... 3*
 Foreign Lang 2 5-6^
 JOURN 1100 3^
 ENGLISH (A/B Lit) 3^*
Total 14-15

Winter II

JOURN 2100..... 3^
 Social or BEH..... 3^*
 Hum St 3*
 B/P/M Sci 3*
 Hum St 3*
Total 15

Winter III

JOURN 4950 OR
 JOURN 4000..... 3^
 JOURN 4410..... 3^*
 JOURN 4506..... 3^
 3000+ Soc Sci 3^
 3000+ Hum St 3^
Total 15

Winter IV

JOURN 4986 OR
 Capstone
 JOURN 4984 OR
 Capstone
 JOURN 4988 OR
 WI-DesignTrack
 JOURN 4606..... 3^
 JOURN Elect..... 6^
 3000+ Elect 3^
 Gen Elect 3
Total 15

Bachelor of Journalism with a major in Journalism and an emphasis in News (Editorial Department)

Fall I

ENGLISH 1000..... 3*
 Foreign Lang 1 5-6^
 B/P/M/ Lab Sci 3-5*
 Am Hst/Am Gov 3*^
Total..... 14-16

Fall II

JOURN 2000..... 3^*
 Foreign Lang 3 3^
 STAT 1200 3^*
 BEH..... 3*
 ECONOM 1014 3^*
Total..... 15

Fall III

JOURN 4400..... 3^
 JOURN 4450..... 3^
 JOURN 4950 OR
 JOURN 3000..... 3^
 3000+ Science..... 3^
 3000+ HumSt..... 3^
 Gen Elect..... 3
Total..... 18

Fall IV

JOURN 4460 OR
 JOURN 4500 OR
 JOURN 4700..... 3^
 JOURN Elect 5^
 3000+ HumSt..... 3^
 3000+ Elect 3^
Total 14

Winter I

MATH 1120..... 3*
 Foreign Lang 2 5-6^
 JOURN 1100 3^
 ENGLISH (A/B Lit) 3^*
Total 14-15

Winter II

JOURN 2100..... 3^
 Social or BEH..... 3^*
 Hum St 3*
 B/P/M Sci 3*
 Hum St 3*
Total 15

Winter III

JOURN 4000..... 3^
 JOURN 4460 3^
 JOURN 4120 1^
 Gen Elect..... 3
 3000+ Soc Sci 3^
 3000+ Elect 3
Total 16

Winter IV

JOURN 4990 3^*
 JOURN Elect..... 3^
 3000+ Soc Sci 3^
 3000+ Elec 3
 Gen Elect 3
Total 15

SCHOOL OF 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 0910—Editing Practicum (1). Instruction in fundamentals of editing for students entering the graduate program without an undergraduate degree in journalism.

JOURN 1000—The News Media's Ethics and Social Responsibilities (3). This course surveys the major ethical issues that concern journalists and their critics. The course describes the ethical dilemmas that confront broadcast and print journalists. It attempts to link descriptive with normative ethical theory, so course examples can be applied to other disciplines.

JOURN 1100—Principles of American Journalism (3). Introductory 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: 2nd semester freshman (15 hrs) GPA 2.75 and ENGLISH 1000 with grade of B or better or AP/IB credit. Restricted to Pre-Journalism, Journalism and Agriculture Journalism students only. Journalism minors can register on space available basis.

JOURN 1100H—Principles of American Journalism (3). Introductory 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: 2nd semester freshman (15 hrs), GPA 2.75 and ENGLISH 1000 with grade of B or better or

AP/IB credit. Restricted to Pre-Journalism, Journalism, Agriculture Journalism students only. Honors eligibility required.

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: JOURN 1100; GPA 2.8. Restricted to Pre-Journalism, Journalism and Agriculture Journalism students only.

JOURN 2000H—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: JOURN 1100; GPA 2.8. Restricted to Pre-Journalism, Journalism

and Agriculture Journalism students only. Honors eligibility required.

JOURN 2100—News (3). Introduction to fundamentals of newswriting. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several “live” assignments. Prerequisite: JOURN 1100, GPA 2.8.

JOURN 2100H—News (3). Introduction to fundamentals of newswriting. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several “live” assignments. Honors eligibility required. Prerequisite: JOURN 1100, GPA 2.8.

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 3000H—History of American Journalism (3). American mass media from colonial days to present in the context of social, economic and political change. Honors eligibility required.

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.

JOURN 4056—Intersession Colloquium (1). Lecture portion of any course the student plans to take later during an intersession. Prerequisite: Dean’s consent.

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. Prerequisite: junior standing.

JOURN 4100—The Creative Process (1). Gives students the understanding of and appreciation for the creative process. Teaches students techniques for enhancing their own creativity. Encourages students to take intellectual risks, make their own personal explorations and creative journey, and celebrate creativity in others. Prerequisite: junior standing.

JOURN 4106—Media and Art Criticism: The Role of the Critic (1). Gives students the understanding of and appreciation for the creative process. Teaches students the applied techniques of criticism: art, film and media. Prerequisite: junior standing.

JOURN 4108—Writing Long-Form Stories (1). Gives students the understanding of and appreciation for the creative process. Teaches students the applied techniques and structure of long-form writing such as documentaries, short stories, screenplays and novels. Prerequisite: junior standing.

JOURN 4110—Media Management and Leadership Theory (1). Dramatic changes in technology and in the media’s role in converg-

ing 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. Prerequisite: junior standing.

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. Prerequisite: junior standing.

JOURN 4118—Media Strategy (1). Dramatic changes in technology and in the media’s role in converging technologies require 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. Prerequisite: junior standing.

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. Prerequisite: junior standing.

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.

JOURN 4130—Account Services (1). Designed for advanced strategic communications students preparing for careers in account services. Section topics vary.

JOURN 4136—Creative Techniques (1). Designed for advanced strategic communications students preparing for careers in creative work. Section topics vary.

JOURN 4138—Public Relations Techniques (1). Designed for advanced strategic communications students preparing for careers in public relations. Section topics vary.

JOURN 4140—Interactive Techniques (1). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary.

JOURN 4146—Strategic Communications Techniques (1). Designed for advanced strategic communication students. Section topics vary.

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.

JOURN 4196—Careers Seminar (1). Course helps students develop skills for appropriate professional careers, examine media leadership issues, write research paper.

JOURN 4198—Area Seminar (3). Special lectures, readings, discussions relating to the

urban journalism, state government reporting or local public affairs reporting programs.

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. Prerequisite: junior standing.

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: JOURN 4200, 4226, 4952.

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: JOURN 4206/7206.

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: JOURN 4206.

JOURN 4218—Advanced Media Sales (3). Professional sales techniques, account service, advertising production, cooperative advertising, offset techniques, market data. Students assigned retail and classified accounts for which they will prepare, service and sell advertising. Prerequisites: JOURN 4206/7206.

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 JOURN 4208/7208.

JOURN 4226—Strategic Design and Visual I (3). Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts. Prerequisite: junior standing.

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: JOURN 4206.

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: JOURN 4200/7200, 4952/7952, 4226/7226.

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: JOURN 4206/7206.

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: JOURN 4206/7206.

JOURN 4248—Media Strategy and Plan-

ning (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: JOURN 4200/7200, 4952/7592, 4420/7420.

JOURN 4250—Management of Strategic Communication (3). Introduces the managerial aspects of strategic communication as conducted within advertising agencies, corporations, public relations organizations and new media entities.

JOURN 4256—Public Relations (3). Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for-profit organizations. Prerequisite: senior standing.

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: JOURN 4200, 4226, 4952.

JOURN 4260—Impact of Advertising on American Culture (3). Philosophical, political, social roots of advertising. Readings in advertising history and literature. Study of such topical issues as materialism, sexism, racism, stereotyping, etc. Prerequisites: JOURN 4200/7200, 4952/7952, 4226/7226.

JOURN 4266—Strategic Communication Law and Ethics (3). Laws, regulations and codes of conduct that affect the profession. Prerequisites: JOURN 4200/7200, 4952/7952, 4226/7226.

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: JOURN 4206/7206 for Advertising students, JOURN 4306/7306 for Broadcast students, JOURN 4450/7450 for News-Editorial and Magazine students, JOURN 4556/7556 for Photojournalism students.

JOURN 4300—Broadcast News I (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: 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: JOURN 4300/7300.

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: JOURN 4306/7306.

JOURN 4310—News Producing (3). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer. Prerequisite: JOURN 4308/7308.

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 KBI. Prerequisites: JOURN 4308/7308.

JOURN 4326—Issues in Broadcast Management (2-3). Broadcast administration, sales, programming, network, relationships, community involvement, labor, FCC procedures, cable TV and new technologies. Prerequisite: instructor's consent.

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 JOURN 4306/7306.

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.

JOURN 4400—Editing (3). Introduces the fundamentals of copyediting of stories for newspaper publication; emphasizes style and grammar; introduces headline writing. Prerequisite: JOURN 2100.

JOURN 4406—Newspaper Editing (3). Laboratory work on the Columbia Missourian plus lectures on ethics, page design and news decision making. Prerequisite: JOURN 4400/7400.

JOURN 4408—Magazine Editing (3). Review of grammar, punctuation, style rules: measuring articles copy fitting: writing captions, titles; editing, proofreading, condensing, rewriting magazine articles. Prerequisites: JOURN 4450/7450, 4400/7400.

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: JOURN 4450/7450 or equivalent and instructor's consent.

JOURN 4416—Science, Health and Environmental Writing (3). Advanced course in the reporting of science, health and environment. Write for publication. Prerequisite: JOURN 4450/7450 and instructor's consent.

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 Sunday Magazine. Prerequisites: JOURN 0900 or 2100 and instructor's consent.

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: JOURN 4450.

JOURN 4426—Religion Reporting and Writing (3). (same as Religious Studies 4418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture. Prerequisite: JOURN 4450/7450 or its equivalent in professional writing experience and instructor's consent.

JOURN 4430—Computer-Assisted Reporting (3). How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information. Prerequisite: instructor's consent.

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: JOURN 4450/7450 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: JOURN 4408/7408 and 4410/7410 or 4506/7506

JOURN 4450—Newspaper 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: JOURN 0900 or 2100.

JOURN 4460—Advanced Newspaper 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: JOURN 4450/7450.

JOURN 4500—Advanced Newspaper Editing and Design (3). Continuation of desk editing with emphasis on page design, graphics and typography. Prerequisite: JOURN 4406/7406, 4408/7408 or instructor's consent.

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.

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: JOURN 4450/7450 or the professional equivalent, or instructor's consent.

JOURN 4510—Visual Communications (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 journal-

ism students who are not photographers.

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.

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: JOURN 4550.

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: JOURN 4558/7558.

JOURN 4566—Electronic Photojournalism (3). Digital photography as a medium, including legal, ethical, editing and professional aspects. Prerequisite: JOURN 4550/7550 or 4556/7556 and instructor's consent. f,w.

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 4600—American Magazine History (2). Review of American magazines with the major emphasis on contemporary publications. Project papers present analysis of today's magazines.

JOURN 4606—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.

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: JOURN 4450/7450.

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.

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.

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.

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: JOURN 4558/7558 or 4226/7226 or 4408/7408 and instructor's consent.

JOURN 4700—Online Journalism (3). Examination of the emerging forms of information delivery by computer and related convergence of print and broadcast media. Students gain practical experience in the production of an electronic information delivery product. Prerequisites: JOURN 0900, 2100, 4400/7400, 4450/7450, 4560/7560, 4108/7108 or instructor's consent.

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: JOURN 0900 and 2100.

JOURN 4708—The Suburban Press (2). Examines the operation, management and news practices of America's suburban press. Emphasizes unique qualities, problems and advantages of suburban newspapers and the communities and governments they serve. Prerequisites: JOURN 0900 and 2100.

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 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.

JOURN 4718—Law and the Courts (3). Lectures, readings, discussions, 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: JOURN 0900 or 2100.

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.

JOURN 4726—Creativity and Innovation in Journalism (3). To provide students an appreciation of creative process, to teach students methods to enhance creativity, to provide historical and philosophical background for creative process.

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.

JOURN 4730—Journalism and Conflict (3). (same as Peace Studies 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 4736—Economics and Finance of the Media (3). Analysis of the economic and financial environment of mass media. Examine mass media as they are financed and as they are affected by advertisers, competition, financial markets, etc.

JOURN 4738—General Semantics in Journalism (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.

JOURN 4740—High School Journalism (2). Stresses the topics to be taught at secondary school level and how to teach them. Analysis of problems facing scholastic journalism, resources and aids available to the teacher.

JOURN 4940—Internship (2). Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog.

JOURN 4950—Solving Practical Problems in Journalism (3). Finding solutions to practical problems journalists face by applying insights from communication theory, using on-line secondary and syndicated research and conducting original research. Hands-on experience conducting surveys, experiments and qualitative research. Prerequisites: 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. Prerequisite: junior standing.

JOURN 4970—Strategic Campaigns (3). This course is a capstone course, giving students a hands-on opportunity to apply knowledge and skills gained in previous courses. Taken final undergraduate semester. Prerequisite: JOURN 4206/7206.

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: JOURN 4309/7306.

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. Not for students who have taken JOURN 8096. 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. Prerequisites: instructor's consent.

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: JOURN 4560/7560.

JOURN 4982—Photography in Society (3). Social and political dimensions of still photography with emphasis on critical thinking and analysis in visual communication.

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: JOURN 4410/7410, 4408/7408 and instructor's consent.

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: JOURN 4450/7450, 4410/7410 and instructor's consent.

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: JOURN 4506.

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: 4450/7450 and second-semester senior standing. Undergraduates only.

School of Nursing

School of Nursing

DEGREE OFFERED

Bachelor of Science in Nursing (BSN)

FACULTY

PROFESSOR V. S. Conn, L. H. Ganong, M. K. Libbus,
E. W. Porter, R. T. Porter, M. J. Rantz

ASSOCIATE PROFESSOR J. M. Armer, J. Banks-Wallace,
L. F. C. Bullock, D. Finfgeld, R. A. Johnson, K. S. Marek,
R. W. McDaniel, D. D. Wipke-Tevis

ASSISTANT PROFESSOR M. A. Aud, K. Burks, J. Lee,
C. L. Russell, J. R. Scott, D. Williams

CLINICAL ASSISTANT PROFESSOR C. Bausler,
S. Brier-Mackie, J. E. Bostick, C. W. Brooks,
D. A. Gayer, E. Kraatz, L. Miller,
G. M. Oliver

CLINICAL INSTRUCTOR T. Eddy, L. K. Evans, P. Evans-
Smith, V. Gorseigner, C. Grider, B. M. Hanson, A. G. He-
ine, D. Ketter, E. D. Kilburn, S. E. Kist, L. S. Kolostov,
D. L. Mendenhall, A. J. Merrell, K. Metcalf-Wilson,
K. A. Moore, G. Nickell, D. C. Otto, D. Pennington,
S. M. Revelle, M. B. Traudes, K. Waganer,
M. M. Whitman

PROFESSOR EMERITUS E. Geden, S. Taylor

ASSOCIATE PROFESSOR EMERITUS A. Kuehn, P.
LeMone, V. Rhode

INSTRUCTOR EMERITUS C. A. Yonkman

The nursing program at UM-C 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.

ADMINISTRATION

Rosemary T. Porter, Dean
Roxanne McDaniel, Associate Dean and Director of
Undergraduate and MS Programs
Vicki Conn, Associate Dean for Research

Office of Student Affairs

S235 Nursing School Bldg.
(573) 882-0277

ADMISSIONS

Generic Option

The freshman and sophomore years are designated as the "pre-nursing" years. The junior and senior years are designated as the "clinical nursing" years.

Nursing students are admitted to the clinical nursing phase on a competitive and space-available basis when prerequisite courses have been completed. Approximately 45–60 credits in prerequisite course work are required before the student may expect to gain admission to the clinical nursing phase leading to the Bachelor of Science in Nursing. Minimum requirements for application include the following:

- Minimum cumulative GPA of 2.5 for all course work
- At least 45 graded credits in required prerequisite courses
- Successful completion of two upper-level science courses with lab
- Minimum GPA of 2.5 for any nursing prerequisite courses
- Evidence of capacity to uphold the practice standards and ethical codes of the nursing profession

Special Admission of Disadvantaged and Rural Students

The MU School of Nursing recognizes the need for increased representation of minority groups in the nursing profession. It welcomes applications from disadvantaged groups, which include racial and ethnic minorities.

For special admission, the school considers those students who have demonstrated unusual motivation toward a nursing career and whose backgrounds demonstrate substantial economic or cultural disadvantages.

Admission is based on socioeconomic background, deprivation of equal education opportunity, work or other experience indicating the capacity for sustained effort, personal recommendations or other indications that traditional academic criteria do not accurately reflect the student's ability and potential.

Because MU has a special commitment to rural health care, the School of Nursing strives to admit students from rural areas. Efforts are made to ensure that the student body includes qualified students who are minorities, non-traditional students and students who live in rural areas.

Licensed Registered Nurses (RNs)

RN/BSN and RN/BSN/MS programs are for registered nurses who have earned a diploma or associate 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 except that RNs are exempt from the biology, anatomy and chemistry requirements. They must be currently licensed to practice nursing.

The length of the program for registered nurse students varies, depending on the number of credits previously earned and the successful completion of advanced-standing credit examinations. The program requires 120 credits, including 63 in foundation courses and 27 in nursing courses.

For information on these programs, call (887) 687-6276 or consult the School of Nursing web site.

BSN Accelerated Option

The accelerated BSN option requires four consecutive semesters. It is designed for individuals who hold non-nursing degrees at the baccalaureate level or higher. Before admission to the program, an individual must complete prerequisite courses, have an individualized transcript review and complete the admissions process. 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
- Approval from the associate dean's 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 550 (paper-based) or 213 (computer-based)
- English Language Support Program Test taken with success

ACADEMIC REGULATIONS

Credit by Examination

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.

Maximum Credits Enrolled

A student with a cumulative GPA below 3.0 must obtain permission from the associate dean to enroll for more than 16 credits.

Correspondence Courses

Certain courses offered by the University's Center for Distance and Independent Study 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	2.3
Freshman	2nd semester	16-30 credits	2.5
Sophomore	3rd semester	31-45 credits	2.5
Sophomore	4th semester	46-60 credits	2.5

- A 2.0 average or better is required for anatomy, biology, chemistry, ENGLSH 1000, human development, microbiology, nutrition, pharmacology, physiology, zoology, nursing courses and Writing Intensive courses.
- Students may repeat a course in which an unsatisfactory grade was earned. If less than a 2.0 is earned on repetition of a course, students are ineligible to continue enrollment in the School of Nursing.
- Students who are in the generic option and withdraw in good standing for any reason must contact the director of undergraduate program for readmission.

Clinical Nursing Years

- Progression into the next semester's nursing courses is contingent on the completion, with a 2.0 average 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 2.0 average or better is required for all nursing courses. One repetition of each nursing course is permitted. Students who earn less than a 2.0 average 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 director of undergraduate program 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 above, within two semesters or they are ineligible to re-enroll in the School of Nursing. This constitutes dismissal from the School of Nursing.
- A student whose semester GPA falls below 1.0 is ineligible to re-enroll at MU.

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 requirements58-59

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 courses24

ENGLISH 1000: Exposition and Argumentation	3
HIST: American history or American government	3
Humanities/fine arts	9
College Algebra	3
Upper-level behavioral science	3
STAT 1200: Introduction to Statistics (MP)	3
MATH 1100/1120 required if ACT math sub score is 25 or less. MATH 0110 required prior to MATH 1100/1120 if ACT math sub score is 17 or less.	

Foundation courses 34-35

BIO SCI 1010: General Biology	3
CHEM 1100: Atoms and Molecules or	
CHEM 1310: General Chemistry I	2-3
PTH&AS 2201 & 2203: Elementary Anatomy Lecture and Elementary Anatomy Laboratory	5

MPP 3202: Elements of Physiology	5
MICROB 3200: Fundamentals of Medical and Public Health Microbiology	4
H D FS 2400: Principles of Human Development (WI)	3
NUTR S 2380: Diet Therapy for Health Professionals	3
MPP 3204: Elements of Pharmacology	3
PSYCH 1000: General Psychology	3
SOCIOL 1100: Introduction to Sociology	3

Clinical nursing requirements - professional courses

NURSE 2000: Nursing as a Profession	3
NURSE 2900: Introduction to Nursing: Theory/Research	3
NURSE 3170: Methods of Assisting I	3
NURSE 3570: Methods of Assisting II	2
NURSE 3200: Pathology and Therapeutics	5
NURSE 3270: Foundations for Nursing: Physical Assessment and the Nursing Process	6
NURSE 3770: Nursing of Women and Newborns	5
NURSE 3670: Nursing of Adults I	6
NURSE 3870: Gerontological Nursing Care	3
NURSE 4270: Nursing of Children	5
NURSE 4370: Mental Health Nursing	5
NURSE 4200: Nursing Ethics and the Law	3-4
NURSE 4300: Nursing Issues/Leadership/Management	2
NURSE 4870: Nursing of Adults II	7
NURSE 4970: Nursing in Communities	5
Total for BSN	121-123

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

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 write 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 adviser'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 adviser 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://www.muhealth.org/~studenthealth/>.

Sample Eight-Semester Program

Students will follow the eight-semester plan shown below. Check the *Undergraduate Catalog* for course prerequisites.

*Denotes University General Education Requirements

^Denotes Degree Program Requirements

Bachelor of science in Nursing

Fall I

^Biological sciences..... 3
 ^CHEM 1100 or 1310 ..2-3
 *HIST 1100,
 1100H, 1200,
 1200H or POL SC
 1100, 1100H, 1700
 or 1700H 3, 3
 *Humanity/fine art
 elective 3
Total 14-15

Fall II

^ PTH&AS 2201 and
 2203..... 5
 ^NURSE 2000..... 3
 ^SOCIO 1000 3
 ^H D F S 2400 3
 *Humanity/Fine Art
 elective 3
Total 17

Winter I

^ MICROB 3200 4
 *ENGLSH 1000 3
 ^PSYCH 1000 3
 ^STAT 1200, 1300 or
 1300H 3
 *Humanity/Fine Art
 elective 3
Total 16

Winter II

^MPP 3202 5
 ^NUTR S 2380..... 3
 ^NURSE 2900..... 3
 *Behavioral Science
 elective 3
Total 14

Fall III

^NURSE 3170..... 3
 ^NURSE 3200..... 5
 ^NURSE 3270..... 6
 ^MPP 3204..... 3
Total 17

Fall IV

^NURSE 4270..... 5
 ^NURSE 4370..... 5
 ^NURSE 4200..... 3-4
 ^NURSE 4300..... 2
Total 15-16

Winter III

^NURSE 3570 2
 ^NURSE 3770 5
 ^NURSE 3670 6
 ^NURSE 3870 3
Total 16

Winter IV

^NURSE 4870 7
 ^NURSE 4970 5
Total 12

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.

NURSE 2900—Introduction to Nursing Science (3). Introduces nursing as a science from the perspective of knowledge development. Structures nursing knowledge from a selfcare deficit nursing theory perspective. Presents nursing research as a method of knowledge development and validation. Prerequisite or

concurrent: Statistics.

NURSE 3001—Special Topics in Nursing (1-3). Specialized topics in nursing not available through regularly offered courses. Any semesters, no prerequisites. Course can 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: NURSE 3670 and instructor's consent. Graded on S/U basis only.

NURSE 3080—Communication and Computer Skills (1). 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 3170—Methods of Assisting I (3).

Introduces methods of assisting. Focuses on application of therapeutic interventions and technologies to provide direct care in selected nursing situations. Co-requisite: 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: NURSE 3080.

NURSE 3200—Pathophysiology and Therapeutics (5). 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 & 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: NURSE 2000, 2900, 3170, 3200, pharmacology.

NURSE 3350—Individual Study (cr.arr.). Independent study for qualified students in specific areas of interest in nursing under faculty guidance. Prerequisite: instructor's consent. f,w,s.

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: NURSE 3170, corequisite: clinical course.

NURSE 3670—Nursing of Adults I (6). Application of nursing process to care for adults with chronic physiological health deviations. Psychosocial health factors developmental states will be incorporated in designing individualized nursing systems in various settings. Prerequisites: NURSE 3270; Pre/corequisite 3570.

NURSE 3760—Family-Child Nursing (7). Focuses on care of newborn and pediatric patients, women's reproductive through postreproductive health, and health deviation concerns. Emphasizes development, implementation, and evaluation of nursing systems for families. Prerequisite: NURSE 3570, 3260, 3270.

NURSE 3770—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: NURSE 3270.

NURSE 3870—Gerontological Nursing Care (3). Emphasis on normal aging processes, health promotion, disease prevention, and management of acute and chronic health problems to the older adult. Prerequisite: NURSE 3270.

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 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: NURSE 3670 and 3770.

NURSE 4300—Nursing Issues/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. Pre/Corequisite: NURSE 3670 or prerequisite NURSE 3080.

NURSE 4370—Mental Health Nursing (5). Behavioral, social, interpersonal, and systems dimensions of nursing. Emphasis is on therapeutic use of self in designing and implementing nursing systems for clients throughout the life cycle with mental health deviations. Prerequisite: NURSE 3270.

NURSE 4380—Health Assessment and Pathophysiology (4). Examines biologic basis for selected commonly occurring diseases throughout the life-span. Study and performance of health assessments with application of findings to adults and children. Prerequisites: NURSE 4950.

NURSE 4580—Evidence-Based Nursing Practice (4). Concepts of evidence-based nursing practice are applied to selected clinical situations. Care of aging person and patient safety issues are included. Clinical application experiences are designed to translate research to practice. Pre/Corequisite: NURSE 4380.

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: 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 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: NURSE 3080.

NURSE 4970—Nursing in Communities (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: 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: NURSE 4875; RN license and employed in Public Health in Missouri. Course may be repeated for credit. Graded on A/F basis only.

Student Success Center

Student Success Center

ADMINISTRATION

Michael W. Prewitt
128 Jesse Hall
(573) 882-1620

Below are undergraduate courses offered through the Student Success Center. For an explanation of services and programs, see pg. XX in this catalog.

STUDENT SERVICES COURSES

SSC 1020—University Freshmen Seminar (1). (same as Interdisciplinary Studies 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 AGRIC 1115, INTRDS 1001, IS< 1110, ELPA 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 SSC 1020 and SSC 1150 in the same semester.

SSC 1150—Learning Strategies for College Students (2). 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 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.

Graduate School

Graduate School

Nuclear Science and Engineering Institute

Wynn A. Volkert, Director
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

CURATORS' PROFESSOR S. K. Loyalka, W. A. Volkert
PROFESSOR J. Gahl, T. K. Ghosh, S. S. Jurisson, W. H. Miller, M. A. Prelas, J. D. Robertson
ASSOCIATE PROFESSOR P. F. Miceli, R. V. Tompson, Jr.
RESEARCH ASSISTANT PROFESSOR M. D. Glascock
PROFESSOR EMERITUS R. M. Brugger, R. L. Carter,
A. H. Emmons, J. F. Kunze

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*):

ENGR 2300: Engineering Thermodynamics* (3)
NU ENG 2201: Applications of Nuclear Technology to Society (3)
NU ENG 4303: Radiation Safety (3)

NU ENG 4315: Energy Systems and Resources* (3)
NU ENG 4330: Scientific & Technological Aspects
Terrorism & Counter Terrorism (3)
NU ENG 4346: Introduction to Reactor Engineering* (3)
NU ENG 4353: Introduction to Fusion (3)
NU ENG 4391: Nuclear Radiation Detection*
(*co-taught 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: Applications of Nuclear Technology to Society (3)
NUCMED 3256: Clinical Nuclear Medicine I (3)
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)
BIO EN 4570: Biomedical Imaging (3)
NU ENG 4391: Nuclear Radiation Detection*
(*co-taught 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: Applications of Nuclear Technology to Society (3)
NU ENG 4303: Radiation Safety* (3)
NU ENG 4328: Introductory Radiation Biology* (3)
NU ENG 4330: Scientific & Technological Aspects
Terrorism & 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*
(*co-taught with Chem 4600*) (3)
CHEM 3300: Fundamentals of Physical Chemistry (3)
CHEM 4280: Environmental Chemistry (3)
CV ENG 3200: Fundamentals of Environmental
Engineering (3)
CV ENG 4220: Hazardous Waste Management (3)
CV ENG 4250: Environmental Regulation and
Compliance (3)

NUCLEAR ENGINEERING COURSES

NU ENG 2201—Topics in Nuclear Engineering (3). Current and new developments in nuclear engineering. Prerequisites: sophomore standing; PHYSCS 1210 and 1220 and MATH 1100 or 1120 or instructor's consent.

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). 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 MATH 4100.

NU ENG 4306—Advanced Engineering Math (3). (same as Chemical Engineering 4306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques. Prerequisite: MATH 4100.

NU ENG 4315—Energy Systems & Resources (3). (same as Electrical and Computer Engineering 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: ENGINR 2300 or equivalent.

NU ENG 4319—Physics and Chemistry of Materials (3). (same as Physics 4190 and Nuclear Science & Engineering Institute 4319). 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 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 4328, Radiology 4328, Veterinary Medicine & Surgery 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 Counterterrorism (3). (same as Peace Studies 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 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 4030). Engineering principles of nuclear power systems, primarily for the production of electrical energy. Prerequisites: 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 Methods in Bioenvironmental Studies (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: NSENIN 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: ENGINR 2300.

NU ENG 4369—Principles of Direct Energy Conversion (3). Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells. Prerequisites: ENGINR 2300, MAE 3400, or equivalent.

NU ENG 4375—Introduction to Plasmas (3). (same as Electrical and Computer Engineering 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: CH ENG 3234 or MAE 4300 or equivalent.

NU ENG 4382—Lasers and Their Applications (3). (same as Electrical and Computer Engineering 4570). 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 class-room hours of laboratory work with lasers. Prerequisites: PHYSCS 2760 and MATH 4100.

NU ENG 4391—Nuclear Radiation Detection (3). 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.

PUBLIC AFFAIRS COURSES

PUB AF 4001—Topics in Public Affairs (3). Selected topics in public administration.

**College of
Veterinary Medicine**

College of Veterinary Medicine

ADMINISTRATION

Dr. Joe Kornegay, Dean
W-203 Veterinary Medicine
(573) 882-3768

Advising Contact

Dr. David Cross
W-228 Veterinary Medicine
(573) 882-3200
crossdt@missouri.edu

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 and as partial requirements in the Pre-veterinary Medicine and Agriculture Scholars programs.

FACULTY

PROFESSOR M. H. Laughlin

ASSOCIATE PROFESSOR Ross P. Cowart, C. Hale

ASSISTANT PROFESSOR B. T. Beernsten, K. Branson,
T. Reilly

CLINICAL ASSISTANT PROFESSOR D. T. Cross,
C. Datz

VETERINARY BIOMEDICAL SCIENCE COURSES

V BSCI 2085—Problems in Veterinary Biomedical Science (cr.arr.). Assignment of problems for training in research.

V BSCI 3326—Veterinary Pharmacology (3). General principles of pharmacodynamics in domesticated animals.

V BSCI 4333—Veterinary Cell Biology (4). (same as Veterinary Biomedical Science 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: instructor's consent.

VETERINARY MEDICINE AND SURGERY COURSES

V M&S 1010—Biomedical Career Explorations (1). An introduction to the variety of career possibilities within the growing field of biomedical sciences. Speakers from various aspects of biomedical sciences will be invited to present opportunities within their respective disciplines. Graded on S/U basis only.

V M&S 2140—Companion Animals (3). (same as Animal Science 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.

V M&S 2230—Animal Sanitation and Disease Prevention (3). Preventative measure for diseases and parasites of farm Animals.

V M&S 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.

V M&S 3219—Elements of Veterinary Anatomy (4). Introductory comparative gross anatomy for agriculture and other students desiring a basic knowledge of functional comparative anatomy of domestic animals. The dog and goat will be used in laboratory systems to represent monogastric and ruminant anatomical differences. Supplementary gross anatomical specimens will be occasionally available from the veterinary diagnostic laboratory. The dissection models selected will serve to acquaint animal science, wildlife biology and biological sciences students with the various animals they would encounter in graduate or professional school or in a career setting. The course will rely on lecture materials, projection slides, computer based models and specimens for instruction. Graded on A/F basis only. Prerequisites: five hours of biological science or zoology or equivalent and instructor's consent.

V M&S 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.

V M&S 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: AN SCI 4977 or equivalent or instructor's consent. Graded on A/F basis only.

VETERINARY PATHOBIOLOGY COURSES

V PBIO 2085—Problems in Veterinary Pathobiology (cr.arr.). Assignment of special topics for research training in veterinary pathobiology. Prerequisite: departmental consent.

V PBIO 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: CHEM 15 or equivalent and instructor's consent. Graded on A/F basis only.

V PBIO 3085—Problems in Veterinary Pathobiology (cr.arr.). Prerequisites: D.V.M. and departmental consent.

V PBIO 3250—Parasitology (4). (same as Biological Science 3250). Parasitism is considered as a fundamental type of interspecies interaction. Principles of parasitism that apply to animals are presented with emphasis on parasitic morphology, biology and host-parasite relationships. Prerequisites: 8 hrs of biology.

V PBIO 3335—Techniques in Pathology (cr.arr.). Methods and techniques in fixing, preparing, staining pathological specimens.

V PBIO 3345—Veterinary and Human Parasitology (4). Protozoa and helminths of veterinary and human importance; 3 one-hour lectures, 1 two-hour lab per week. Advanced undergraduate or graduate standing in biological, veterinary or medical sciences. Prerequisites: BIO SC 3250 or equivalent and instructor's consent.

V PBIO 3347—Clinical Epidemiology and Environmental Health (1-10). Ecologic basis of health and disease and cause-effect relationships. Evaluation of control programs. Includes epidemiology of important acute and chronic animal diseases.

School of Medicine

School of Medicine

Judy Nolke
Coordinator of Admissions and Recruitment
School of Medicine
Office of Admissions
Room MA213-215
Columbia, MO 65212
(573) 882-9219
nolkej@health.missouri.edu

The following undergraduate courses are offered through the School of Medicine. For complete information on admission, degrees, and course offerings, see the web site <http://www.hsc.missouri.edu/~medicine/>

HEALTH MANAGEMENT AND INFORMATICS COURSES

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.

MEDICAL PHARMACOLOGY AND PHYSIOLOGY COURSES

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 3204—Elements of Pharmacology (4). Survey of drugs commonly used in clinical medicine with mechanistic explanations of drug actions and therapeutic uses. Also general principles of pharmacology and therapeutics. Designed for nursing, physical therapy, premedical students and other health related professionals. Prerequisite: MPP 3202 or equivalent.

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 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.

RADIOLOGY COURSES

RADIOL 4328—Introductory Radiation Biology (3). (same as Biological Sciences 4328, Nuclear Science and Engineering 4328, Veterinary Medicine and Surgery 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.

Molecular Microbiology and Immunology

School of Medicine
M616 Medical Science Building
(573) 882-8152
<http://www.missouri.edu/~mmiwww>

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. A degree in Microbiology can be obtained through the Biological Science Department, their requirements are listed below our courses.

FACULTY

PROFESSOR M. A. McIntosh, M. L. Misfeldt, D. J. Pintel,
K. S. Wise, H. Zaghouni
JOINT PROFESSOR H. Mullen, J. D. Wall
ASSOCIATE PROFESSOR K. L. Bennett, J. F. Cannon,
D. R. Lee, L. S. Thai
JOINT ASSOCIATE PROFESSOR K. L. Fritsche,
W. J. Mitchell
ASSISTANT PROFESSOR D. Duan
JOINT ASSISTANT PROFESSOR B. Beerntsen,
C. R. Brown, M. J. Calcutt, C. L. Lorson

Degree BA in Microbiology

The Division of Biological Sciences in the College of Arts and Science, in cooperation with the colleges of Agriculture, Food and Natural Resources and Veterinary Medicine and the School of Medicine, offers an area of concentration with emphasis in microbiology.

MICROBIOLOGICAL SCIENCES COURSES

MICROB 3200—Introduction to Medical Microbiology and Immunology with Lab (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). Mechanisms of pathogenesis pertaining to bacterial, parasitic, and fungal infections

of humans and animals. Prerequisites: BIO SC 3750 and BIOCHM 4270 or equivalent, or instructor's consent. Undergraduate credit only. Graded on A/F basis only.

MICROB 4303—Medical Virology (3). Classification of viruses, life cycles, genome organization and expression, host virus interactions, oncogenes and cellular transformation, strategies for anti viral therapy, recombinant vaccines and viruses as vectors for gene therapy. Prerequisite: MICROB 3200 or 4300 or equivalent or instructor's consent.

MICROB 4304—Immunology (3). Covers immunocytology and immunochemistry of antigens, immunoglobulins, and the complement system, serologic reactions, immunoglobulin and T cell mediated allergy, tumor and

transplantation immunology and autoimmune disease, also laboratory demonstrations. Prerequisites: MICROB 3200 or BIOCHM 4270 or 4272 recommended or instructor's consent.

MICROB 4305—Honors Microbial Pathogenesis (3). Mechanisms of pathogenesis pertaining to bacterial, parasitic, and fungal infections of humans and animals. In addition, students will be assigned a topic in pathogenesis to be literature-researched; a written essay will be required to demonstrate mastery. Prerequisite: instructor's consent. Undergraduate credit only. Graded on A/F basis only. Honors eligibility required.

Graduates of the program often obtain employment in industrial and academic research laboratories.

The following courses are required to receive the undergraduate degree in microbiology.

Major core requirements (Microbiology)	46
BIO SCI 1500: Introduction to Biological Systems.....	5
BIO SCI 2300: Introduction to Cell Biology	5
CHEM 2120: Organic Chemistry II	5
BIO SCI 3750: Basic Microbiology.....	4
BIO SCI 2200: General Genetics	4
CHEM 1310 (2) and 1320 (3): General Chemistry I, II.....	5
CHEM 1330: General Chemistry III	3
CHEM 2100: Organic Chemistry.....	3
PHYSICS 1210 and 1220: College Physics	8
MATH 1400 and 2100: Calculus for social and Natural Sciences I and II.....	6
(MATH 1500 and 1700 may be substituted for a total of 10 credits)	

Electives 18-24

The following courses are suggested as appropriate electives:

BIO SCI 3780: Genetics Laboratory (2)
BIOCHM 4270: Biochemistry (3)
BIOCHM 4272: Biochemistry (3)
BIOCHM 4974: Biochemistry Laboratory (3)
MICROB 4300: Microbiology Pathogenesis (3)
MICROB 4305: Honors Microbial Pathogenesis (3)
MICROB 4304: Immunology (3)

Other courses in biochemistry, microbiology, veterinary microbiology, food sciences and human nutrition, and engineering are recommended based on discussions between the student and the undergraduate microbiology adviser.

Pathology and Anatomical Sciences

Douglas Anthony, Chair
School of Medicine
MA263 Medical Science Building
(573) 882-1201
<http://www.pathology-missouri.org>

FACULTY

PROFESSOR D. Anthony, C. Caldwell, W. Krause II
ASSOCIATE PROFESSOR E. Adelstein, J. Bickel,
A. Diaz-Arias, G. Dunkerly, F. Gibbs, T. Loy, A. Luger,
R. Mitra, V. Rao, C. Ward
ADJUNCT ASSOCIATE PROFESSOR T. Scanlon,
L. Spollen
RESEARCH ASSOCIATE PROFESSOR R. Little, H. Shi
CLINICAL ASSOCIATE PROFESSOR A. Havey, E.
Ingram, D. Smith
CLINICAL INSTRUCTOR S. Frazier, K. Rider
PROFESSOR EMERITUS M. Rosenholtz

PATHOLOGICAL & ANATOMICAL 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 PTH&AS 2201.

PTH&AS 2201—Elementary Anatomy Lecture (3). Basic microscopic and gross human anatomy for Nursing, and Health Profession students.

PTH&AS 2203—Elementary Anatomy Laboratory (2). Laboratory. Study of human microscopic and gross anatomical materials. Concurrent registration or passing grade (C) in 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 3400.

PTH&AS 3415—Fundamentals of Medical Technology III (3). Continuation of Pathology and Anatomical Sciences 3400 and 3410.

PTH&AS 3420—Clinical Practicum (3). Presentation and application of concepts and laboratory method used in areas of immuno-

chemistry, 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: 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 gastroin-

testinal 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 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 & 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: 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: 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).

PTH&AS 4222—Gross Human Anatomy (The Health Professions) (7). Gross structure and neuroanatomy 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.

Faculty

Faculty

- Abbott, Carmen Casanova**, clinical associate professor, physical therapy; MA, University of Missouri-Columbia
- Abell, Sandra K.**, professor, learning teaching and curriculum; PhD, University of Iowa
- Aberbach, Ian M.**, professor, mathematics; PhD, University of Michigan-Ann Arbor
- Adams, Brian T.**, assistant professor, biological engineering; PhD, University of Illinois
- Adelstein, Edward**, associate professor, department of pathology and anatomical sciences; MD, DVM, University of Missouri-Columbia
- Adams, Johanna**, extension assistant professor, rural sociology; PhD, University of Missouri-Columbia
- Adams, John E.**, professor, chemistry; PhD, University of California-Berkeley
- Agashe, Amod**, assistant professor, mathematics; PhD, University of California-Berkeley
- Akers, Lex A.**, professor, electrical engineering; PhD, Texas Tech University
- Alexander, Hannah**, research associate professor, biological science; PhD, University of Missouri-Columbia
- Alexander, Stephen**, professor, biological science; PhD, Brandeis University
- Allee, Gary L.**, professor, animal science; PhD, University of Illinois at Urbana-Champaign
- Allen, Danita J.**, professional practice professor, editorial; MA, University of Missouri-Columbia
- Allen, William**, assistant professor and coordinator, agriculture journalism; MS, University of Illinois at Urbana-Champaign
- Almarza, Dario Jose**, assistant professor, learning teaching and curriculum; PhD, University of Iowa
- Amerman, James D.**, clinical professor, communication science and disorders; PhD, University of Illinois at Urbana-Champaign
- Anand, Satish Chandra**, professor emeritus, agronomy; PhD, University of Wisconsin-Madison
- Anderson, Carol E.**, associate professor, history; PhD, Ohio State University
- Anderson, Kim Marie**, assistant professor, social work; PhD, University of Kansas
- Anderson, Stephen H.**, professor, soil, environmental and atmospheric sciences; PhD, North Carolina State University at Raleigh
- Anderson, Wayne**, professor emeritus, psychological sciences; PhD, University of Missouri-Columbia
- Anthony, Douglas**, chair, professor, department of pathology and anatomical sciences, PhD, Duke University
- Antoniou, Eric**, assistant professor, animal science; PhD, University of Limoges
- Arbaugh, E. Frances**, assistant professor, learning teaching and curriculum; PhD, Indiana University Bloomington
- Armer, Jane M.**, associate professor, nursing; PhD, University of Rochester
- Arndt, Jamie L.**, assistant professor, psychological sciences; PhD, University of Arizona
- Arunachalam, Vairam**, professor, accountancy; PhD, University of Illinois at Urbana-Champaign
- Ashbaugh, Mark S.**, professor, mathematics; PhD, Princeton University
- Ashby, Wendy**, visiting assistant Professor, German and Russian Studies; PhD, University of Arizona
- Asmar, Nakhle**, professor, mathematics; PhD, University of Washington
- Athanassiou, Alexandra**, adjunct instructor, mathematics; MA, University of Missouri-Columbia
- Atkinson, Warren Patrick**, professor, theatre; MFA, Illinois State University
- Atwood, Jerry L.**, curators professor, chemistry; PhD, University of Illinois at Urbana-Champaign
- Aubrey, Jennifer Stevens**, assistant professor communication; PhD, University of Michigan
- Aud, Myra A.**, assistant professor, nursing; PhD, Saint Louis University
- Aura, Saku Petteri**, assistant professor, economics; PhD, Massachusetts Institute of Technology
- Bailey, Wayne C.**, associate professor, entomology; PhD, Iowa State University
- Bajpai, Rakesh K.**, professor, chemical engineering; PhD, Indian Institute of Technology, Kharagpur India
- Baker, David E.**, associate professor, biological engineering; MS, Illinois State University
- Baker, Elizabeth A.**, associate professor, learning teaching and curriculum; EDD, Vanderbilt University
- Baldwin, Diana J.**, instructor, occupational therapy; MA, University of Missouri-Kansas City
- Ball, Steve**, assistant professor, nutritional sciences; PhD, Arizona State University
- Ballenger, Erma**, assistant professor, social work; PhD, University of Nebraska
- Banaszynski, Jacqueline M.**, professor, editorial; BS, Marquette University
- Banerji, Shankha Kumar**, professor emeritus, civil/environmental engineering; PhD, University of Illinois at Urbana-Champaign
- Bank, Barbara**, professor emeritus, sociology; PhD, University of Iowa
- Banks Wallace, Joanne**, associate professor, nursing; PhD, University of Washington
- Banks, William D.**, associate professor, mathematics; PhD, Stanford University
- Barabtarlo, Gene**, professor, German and Russian studies; PhD, University of Illinois at Urbana-Champaign
- Bardone Cone, Anna Marie**, assistant professor, psychological sciences; PhD, University of Wisconsin
- Barham, Mary E.**, assistant professor, rural sociology; PhD, Cornell University
- Barrett, Bruce Allen**, associate professor, entomology; PhD, Washington State University
- Barriuso, Carlos**, assistant professor, romance languages-spanish; PhD, Princeton University
- Barrow, Lloyd H.**, professor, learning teaching and curriculum; PhD, University of Iowa
- Bartholow, Bruce**, assistant professor, psychological sciences; PhD, University of Missouri-Columbia
- Basker, Emek Meira**, assistant professor, economics; PhD, Massachusetts Institute of Technology
- Bauer, Robert L.**, associate professor, geological sciences; PhD, University of Minnesota
- Bausler, Cheryl**, clinical assistant professor, nursing; PhD, University of Missouri-Columbia

- Beamer, Lisa**, associate professor, biochemistry; PhD, Johns Hopkins School of Medicine
- Beckman, Patricia Z.**, assistant professor, religious studies; PhD, University of Chicago
- Beerntsen, Brenda**, assistant professor, veterinary pathobiology and molecular microbiology and immunology parasitology; PhD, University of Wisconsin-Madison
- Bell, Debora Jeneen**, associate professor, psychological sciences; PhD, West Virginia University
- Bell, Jacquelyn Sue**, professional practice assistant professor, editorial; MS, Ohio University
- Belyea, Ronald Leslie**, professor, animal science; PhD, Cornell University
- Benner, Kalea E.**, clinical instructor, social work; MSW, University of Missouri-Columbia
- Bennett, Karen L.**, associate professor, molecular microbiology and immunology; PhD, Oswell Park Memorial Institute State University of New York-Buffalo
- Bennett, Linda**, assistant professor, learning teaching and curriculum; EDD, University of Northern Colorado
- Benoit, Pamela**, professor, communication; PhD, Wayne State University
- Benoit, William**, professor, communication; PhD, Wayne State University
- Benson, Jerry Kenneth**, professor, sociology; PhD, University of Texas at Austin
- Bentley, Clyde**, associate professor, editorial; PhD, University of Oregon
- Berg, Eric**, assistant professor, animal science; PhD, Purdue University
- Bergee, Martin**, associate professor, music; PhD, University of Kansas
- Bergin, David**, associate professor, education, school and counseling psychology; PhD, Stanford University
- Berneche, Jerry D.**, professor, art; MFA, Ohio University
- Bettencourt, B. Ann**, associate professor, psychological sciences; PhD, University of Southern California
- Bickel, John**, associate professor, department of pathology and anatomical sciences; MD, University of Missouri-Columbia
- Biddle, Bruce**, professor emeritus, psychological sciences; PhD, University of Michigan
- Bien, Joseph Julius**, professor, philosophy; PhD, University of Paris
- Bienvenu, Richard Thomas**, professor, history; PhD, Harvard University
- Biers, William Richard**, professor emeritus, art history and classical archaeology; PhD, University of Pennsylvania
- Birchler, James A.**, professor, biological science; PhD, Indiana University Bloomington
- Bird, Christine Ann**, clinical instructor, occupational therapy; MA, New York University
- Black, Cheryl D.**, assistant professor, theatre; PhD, University of Maryland College Park
- Black, Lillian Wilkins**, professor, broadcast news; PhD, University of Oregon
- Blakely, Mary Kay**, associate professor, editorial; MA, Northern Illinois University
- Blevins, Dale Glenn**, professor, agronomy; PhD, University of Kentucky
- Bloch, Peter H.**, professor, marketing; PhD, University of Texas at Austin
- Blow, Constance A.**, clinical instructor, physical therapy; MS, University of North Carolina at Chapel Hill
- Bluedorn, Allen C.**, professor, management; PhD, University of Iowa
- Boggs, Kathleen**, extension associate professor, educ, school, and counseling psychology; PhD, University of Utah
- Bolch, Dorothy H.**, professor, editorial; MA, University of North Carolina at Chapel Hill
- Bolls, Paul**, assistant professor, advertising; PhD, Indiana University
- Bondeson, William Blaine**, distinguished teaching professor, philosophy; PhD, University of Chicago
- Borcherding, Sharon Young**, clinical associate professor, occupational therapy; MA, George Peabody College for Teachers
- Borduin, Charles M.**, professor, PhD, Memphis State University
- Borgelt, Steven C.**, associate professor, biological engineering; PhD, Texas A&M University
- Bostick, Jane E.**, clinical assistant professor, nursing; PhD, University of Missouri-Columbia
- Bowders Jr., John J.**, professor, civil/environmental engineering; PhD, University of Texas at Austin
- Boyd, Michael Lynn**, research assistant professor, entomology; PhD, University of Tennessee-Knoxville
- Boyle, Diane M.**, adjunct instructor, editorial
- Bradley, Kevin W.**, assistant professor, agronomy; PhD, Virginia Tech
- Brale-y-Mullen, Helen**, professor, internal medicine and molecular microbiology and immunology; PhD, Purdue University
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File type	pdf