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The University of Missouri was established at Columbia in 1839 as the sole public university in Missouri. The University of Missouri-Columbia (UMC) is the oldest state university west of the Mississippi River and the largest of the four campuses of the University of Missouri system. The University of Missouri’s Columbia campus has undertaken its historic mission through a commitment to excellence in instruction, and scholarship and service—both on its residential campus and throughout the state. UMC has a commitment to diversity and comprehensive education at both the undergraduate and graduate level. Within this comprehensiveness in its educational program, the University of Missouri-Columbia remains as the premier public institution for graduate and professional training in selected areas. Within the University of Missouri system, the Columbia campus is the only campus to offer formal programs in agriculture, forestry, fisheries and wildlife, home economics, journalism, veterinary medicine, and library and informational science.

Formal areas of study also are conducted in arts and sciences, business and public administration, accountancy, education, engineering, health related professions (including nursing and medicine), law, public and community services, and social work. UMC is unique in Missouri in comprehensiveness of educational inquiry. It is a campus which provides a rich environment in which both students and teachers can reach beyond traditional fields of study and explore the realm of total intellectual interdisciplinary inquiry.

UMC STUDENTS

The number of UMC students who are National Merit/Achievement Scholars places the University of Missouri-Columbia among the top 10 public institutions nationally. UMC students have received national recognition and honors in virtually every academic field.

More than 76 percent of UMC’s students are undergraduates. Of the total undergraduate enrollment, 33 percent are freshmen, 23 percent are sophomores, 21 percent are juniors, and 23 percent are seniors; 49 percent are women and 51 percent are men.

Because of the comprehensiveness of its educational program, UMC enrolls students from every state in the nation as well as 100 other countries. The majority of out-of-state students come from Illinois and Kansas. More than 85 percent of the total number of UMC students are Missouri residents. Each year, about 30 percent of the undergraduates are new students, freshmen or transfers.

UNIVERSITY SUPPORT

The University of Missouri-Columbia is the largest and most comprehensive institution of higher education in Missouri. Approximately one-half of the campus’s total budget comes from state appropriation. The sources for the remainder of the UMC budget are private gifts, grants and fees. In 1979-80, UMC received more than $35 million in sponsored research funds. In 1980-81, UMC received more than $7.5 million in private gifts.

UMC is further supported by the activities of its Alumni Association. The University of Missouri-Columbia has more than 100,000 living alumni.

PROFESSIONAL SCHOOLS

The University of Missouri is the only state supported institution in Missouri offering professional and doctoral degrees—many of these are available only on the Columbia campus. Students wishing additional information on the schools of medicine or law or the College of Veterinary Medicine should consult the individual school or college catalogs.

The School of Medicine was established at the University in 1845. The Medical School educates physicians and health care professionals of the highest competence through undergraduate, postgraduate and continuing medical education. The University Hospital and Clinics provides general and highly specialized care for patients from every Missouri county. Within the School of Medicine is the undergraduate School of Health Related Professions which is described in this catalog.

The UMC School of Law was established in 1872, and it 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. The majority of Missouri laws that regulate our lives have been written by UMC law faculty and students. The School of Law educates lawyers who practice not only in Missouri but throughout the world.

The College of Veterinary Medicine was established in 1946. While principally serving Missouri, graduates of veterinary medicine are located throughout the United States and the world in a wide variety of fields related to animal health and well being and food production, and activities related to human health.

GRADUATE STUDY

Advanced degrees at the University of Missouri were awarded as early as 1846, and a graduate department was formally organized in 1892. Presently, the Graduate School offers degree-granting programs in 75 departments and areas, and UMC ranks among the nation’s top 35 institutions in the number of doctoral degrees granted. Students wishing additional information on graduate degree programs should consult the UMC Graduate Catalog.

The School of Library and Informational Science, established as a graduate program in 1966, accredited by the American Library Association in 1968 and reaccredited in 1976 and 1982, currently is the only such accredited program in Missouri and one of two in the Big Eight universities. Information on the School of Library and Informational Science is included in the UMC Graduate Catalog.

INTELLECTUAL OPPORTUNITIES OUTSIDE THE CLASSROOM

One of the important advantages offered by a large university is a broad spectrum of intellectual experiences outside of the classroom. Various campus groups, including many student organizations, sponsor programs of interest throughout the year. These programs include such diverse events as highly technical, specialized seminars and colloquia; talks and lectures of broad interest; concerts; and popular musical and dramatic productions.

There is a wide variety of opportunities for growth and intellectual stimulation in a schedule that features many well-known public speakers, and a variety of concerts and other musical and dramatic offerings by student and faculty groups, as well as by touring companies and artists. The cultural base of the University is broadened by its many international students, representing approximately 100 nations, who often present programs highlighting the traditions of their homelands. Throughout the year, several organizations sponsor showings of both American and foreign films where admission generally is free. Numerous open house programs are held by many departments. Some, like the weekly sessions at the University observatory, are held on a regular basis.

In addition to the many cultural and intellectual activities offered by UMC, both Columbia College and Stephens College (located in Columbia) offer a full schedule of cultural events.

All students are urged to take advantage of these programs to broaden and liberalize their educational experiences. In addition, there is opportunity for participation in many of these programs, either in a performing or a supporting role.

FACILITIES

The 692-acre Columbia campus has 233 buildings, including those of the University of Missouri system administration, equine center, Research Park and the health sciences complex.

The 18 schools and colleges of the University of Missouri-Columbia offer the undergraduate a broad spectrum of resources and research facilities.

LIBRARIES

The University library system consists of Ellis Library (the main library) and nine branch libraries: engineering, geology, health sciences, journalism, law, library annex, mathematical,
ics, research park and veterinary medicine. All libraries are open to undergraduates. The University libraries have a collection of more than 2 million volumes, more than 2 million microforms, and currently receive approximately 10,000 magazines and journals. Ellis Library is arranged into seven subject divisional libraries with a reading room, reference collection and staff for each area. Other reader services include the general reference collection, current periodicals reading room, reserve desk, recorded sound collection, special collections (including rare books) and library services for the disabled.

The staff of the general reference area, seven subject divisional units, special collections and branch libraries are available to assist students in finding answers to specific questions as well as to provide advice and instruction on solving research problems. Also available to aid students are library orientation tours and library instruction classes. The libraries offer computer literature searching (for a fee), which provides access to more than 100 databases. Ellis Library and many of the branches maintain photocopy equipment and microfilm readers and printers. In addition, Ellis has a typing room and more than 200 lockers available for student use.

**SPECIAL LIBRARY COLLECTIONS**

The Library of the State Historical Society shares Ellis Library building and has an extensive collection of Missouriana and early West documents and memorabilia.

The Western Americana Collection of the State Historical Society features material on Missourians and the Great Plains. These collections are especially rich in travel narrative and contemporary accounts of life among the pioneers.

The Western Historical Manuscripts Collection of the State Historical Society features material relating to the Missouri River and the Great Plains region.

**COLLECTIONS IN ELLIS LIBRARY:**

The Rare Book Collection emphasizes titles important in the history of books and printing and contains outstanding examples of specific types of illustrated books.

The Newspaper Collection contains microfilmed back issues of more than 1,000 newspaper titles, including a large collection of early American titles. Additionally, numerous current newspapers are available in the Journalism Library in Walter Williams Hall, and Missouri newspapers are available in the State Historical Society Library.

The Microform Collection makes available to users virtually all American publications before 1820 and most British publications before 1700. Also available are numerous archival collections, primary resources in history, and back issues of periodicals.

Federal and State Documents are maintained as separate collections. The library has been a depository for federal documents since 1862, and a depository for Missouri documents since 1977.

**COLLECTIONS IN THE LAW LIBRARY:**

The Lawson Collection of Crime and Criminology houses publications, written in the popular style, on famous trials.

**MUSEUMS AND COLLECTIONS**

Museum of Art and Archaeology collections are representative of all parts of the world and all periods from Paleolithic to the present, including ancient art and archaeology of the Near East, Egypt, Greece and Rome; Oceanic, African and pre-Columbian art; old master paintings (with the Kress Study Collection as its core); South and Southeast Asian art; and drawings and prints. A large amount of material from the Museum’s excavations at Tel Anafa in Upper Galilee is available for archaeology students. The Gallery of Casts of Greek and Roman sculpture exhibits full-size plaster copies of many of the most famous classical statues. The museum also houses a gift shop.

Anthropology Museum contains collections of American Indian archaeological and ethnological materials, as well as anthropological specimens from other areas of the world.

Entomology Museum houses the largest collection of Arthropoda in Missouri; collections are primarily for research and teaching.

Geology Museum contains more than 100,000 specimens including invertebrate and vertebrate collections, mineral and clay collections, and polished fossil woods.

The Herbarium includes a general plant collection, primarily of North America, and also material from South America, Australia, Asia and Africa; as well as tropical and subtropical material from Central America.

Fishery and Wildlife Collections provide a research collection of vertebrate animals of Missouri and surrounding states as well as collections of birds, mammals, waterfowl, freshwater and saltwater fish.

**COMPUTING FACILITIES**

Instruction and research programs, as well as medical and management systems computer processing needs, are supported by the University computer services delivery system, which consists of a communications network and a central facility with an Amdahl 470/V7 and an Amdahl 470/V8 processor computer system.

Several departments and divisions support specialized minicomputers and other computer-based support facilities. The computer science department has a minicomputer; the College of Engineering supports a number of completely equipped minicomputer systems; the College of Business and Public Administration has a computer-based business and social science research support facility—the Research Center; the University libraries conduct online searches of bibliographic and statistical data bases. There also are other small computers on campus for specialized research work and data acquisition in various departmental laboratories.

**RESEARCH CENTERS AND RESOURCES**

Center for Research in Social Behavior, a research and training facility operated by social science faculty, provides facilities and services for social science field and laboratory investigation and sponsors lectures, seminars and visits from social science scholars.

Research Center is a computer-based, research-support facility of the College of Business and Public Administration.

Administrative Behavior and Survey Research Laboratory was established by College of Business and Public Administration for use in instruction and research of individual and small group activities, such as decision making, problem solving, conflict resolution and communication.

Freedom of Information Center, located within the School of Journalism, maintains a day-to-day study of actions by government, media and society affecting the movement and content of information.

Dalton Research Center is a facility for biological research.

Missouri Cultural Heritage Center, a research organization of the Graduate School, conducts and serves as a clearinghouse for multidisciplinary research projects, curriculum development, and outreach programs attending to the sphere of cultural studies in the state and region. The center stresses service to both the campus and community, and encourages research programs that yield versatile end-products such as teacher workshops, exhibitions, scholarly symposia, town meetings, curriculum enrichment in the schools and publications. Through its activities, the center seeks to document, conserve, interpret and celebrate the rich heritage of the region, and to foster a deeper understanding and appreciation of our own cultural history. On campus, the center increases awareness of—and facilitates course work in—cultural studies for students who want a broad experience.

Research Reactor is the highest powered, highest flux university research reactor in the nation.

Sinclair Research Farm is a 560-acre farm which aids research on aging and chronic disease of farm animals.

Missouri Agricultural Experiment Station facilities are part of an agricultural research program coordinated by the U.S. Department of Agriculture with all land grant colleges.

Veterinary Medical Research Farm is a 90-acre pastureage and research facility.

Equine Center, located on a 288-acre farm, offers instructional courses in equine medicine and surgery.

University Forest is 7,300 acres of forest for teaching and research.

Ashland Mo. Wildlife Area is a 2,200-acre reserve for teaching and research.

Low-Level Radiation Laboratory contains a low-level, whole-body radiation counter designed to measure natural and induced radioactivity in animals and humans.

Laws Observatory is open to the public during certain hours and special programs are often offered during academic year.

Columbia Missouri serves as a teaching newspaper and has general circulation for Columbia and mid-Missouri.

KBIA Radio and KOMU-TV. The UMC public FM radio station has a 100,000-watt stereo signal; the UMC television station is an ABC affiliate.
SPECIAL PROGRAMS AND SERVICES

THE LEARNING CENTER

The Learning Center provides free individual/group tutoring and study skills help for eligible undergraduates. (Federal guidelines require that ½ of the students served be first generation college students who are from low income families and the other ½ may be either first generation, low income, or physically handicapped.) In addition, a math program includes structured lab sessions. The writing lab staff will help students with organization, composition and grammar, and will assist students in putting together a paper for any class. The reading and study skills lab offers ideas for studying, note-taking, scheduling and test preparation. The Learning Center, located at 304 Watson Place, also offers preparation sessions for the Graduate Record Exam and the Law School Admission Test.

ROTC

The Army, Navy and Air Force ROTC programs offer college men and women the opportunity to become commissioned officers in the military service of their choice. Upon completing ROTC course requirements and receiving a bachelor’s or advanced degree, the student is commissioned. Active duty commissioned officers earn starting salaries of $19,240 a year and are assigned leadership positions which provide valuable managerial experience. There is no obligation connected with taking ROTC during the freshman and sophomore years. Obligations begin only at the start of a student’s last two years of college, during which the ROTC student is paid $2,500. There are one-, two- and three-year scholarships available to students taking ROTC. These scholarships pay tuition, books and $100 a month.

For program requirements, see Air Force and Army ROTC in the College of Arts and Science, the Navy and Marine ROTC in the College of Engineering sections of this catalog.

HONORS COLLEGE

A variety of special courses and a special honors degree program are offered through the Honors College, located at 612 Kuhlman Court. A description of the program is included in the College of Arts and Science section of this catalog.

GENERAL STUDIES

The general studies degree program offers students the opportunity to explore a wide variety of courses. Each degree is tailored to fit a student’s needs and interests. Additional information is available in the College of Arts and Science section of this catalog.

WOMEN STUDIES

Students can design an interdisciplinary area of concentration in women studies in the College of Arts and Science. Information on current course offerings and programs is available from the Women Studies office, 207 Jesse Hall. A description of the women studies core curriculum and requirements is included in the College of Arts and Science section of this catalog.

BLACK STUDIES

An interdisciplinary area of concentration in black studies can be designed in the College of Arts and Science.

Information on course offerings, Black Theatre Workshop, programming on the black experience, etc., is available at the Black Studies office, 207 Hill Hall, UMC, Columbia, Mo. 65211 or call (314) 882-6229.

STUDY ABROAD

Several academic areas at UMC frequently offer special programs that include studies or tours in other countries and are available to undergraduate students.

Such programs include the following: A year in Japan (general liberal arts curriculum); summer school in Mexico (undergraduate credit available); semester at the University of Reading in England (undergraduate credit from the College of Education); study tours offered in agriculture, music, Asian studies and home economics (optional credit available). UMC students attend programs in Germany, France, Russia, Italy and elsewhere.

For additional information contact the Study Abroad Coordinator, 106 Gentry Hall, UMC, Columbia, Mo. 65211.

MID-MISSOURI ASSOCIATED COLLEGES AND UNIVERSITIES

The University of Missouri-Columbia is one of five institutions in MMACU, formed in 1964 to encourage the sharing of experiences and resources among its members. In addition to UMC, consortium institutions now include William Woods College, Columbia College, Stephens College and Lincoln University. Concerts, lectures, special programs and library resources are available to all students and faculty of the member institutions. Full-time students of the four MMACU institutions may take courses for credit at any of the four campuses. The intent of cross-registration is to facilitate students’ educational needs when a desired course is unavailable at the home institution, or when there are inherent schedule conflicts. In order to qualify for cross-registration, a student must be in good academic standing and enrolled full time at the home institution. (Full time defined by the home institution and varies from a semester semester to a year.) Forms and additional information are available from the MMACU office, 116 Jesse, UMC, Columbia, Mo. 65211.

EASY ACCESS PROGRAM

The Easy Access Program is intended to serve only non-degree-seeking individuals. Community residents may register for any course on a space-available basis without providing previous transcripts. Compliance with course prerequisites is necessary and is the students’ responsibility. Enrollment takes place after regular registration. Students who have completed work at another institution will provide evidence of good standing (or eligibility) to re-enroll at that institution by letter from the institution or complete a provisional form until such time as a letter may be obtained. Students on dismissal status from any institution are not eligible to participate in this program until one year has elapsed since their dismissal. 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 students. Easy Access students may enroll only as part-time students (maximum of six hours a semester or three in summer). If students—enrolled via Easy Access—later desire to become regular students, they must make application to UMC 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.

CENTER FOR INDEPENDENT STUDY

A broad curriculum of 169 college credit courses are available through independent study. The Center for Independent Study offers courses year around, enabling students to maintain continuity and make progress in their education during times when their academic residency is interrupted by vacations, illness or employment. At least 30 semester hours of credit, when earned in correspondence courses or extension courses taken from the University of Missouri, shall be counted toward meeting requirements of undergraduate degrees offered by the various divisions of the University. It is the responsibility of each student to consult their adviser and/or dean’s office concerning independent study courses. A free catalog describing all courses is available from the Center for Independent Study, 400 Hitt St. P.O. Box 891, Columbia, Mo. 65205-0891.

COLLEGE-AT-HOME PROGRAM (Through Video)

Through the use of television, videocassettes, audiocassettes, textbooks, study guides and other printed materials, the University of Missouri’s College-At-Home Program (Through Video) provides individuals with an alternative to campus-based college courses.

HOW THE PROGRAM WORKS: Each course has been approved and is offered by an academic department at one or more of the four University of Missouri campuses: Columbia, Kansas City, Rolla or St. Louis.

Lessons for some of the courses are broadcast over television beginning each February and September. All courses are available for viewing on videocassettes at CAH Learning Centers across the state.

Mentors (instructors) are available one evening a week by phone (students call collect or on a toll-free number) to answer questions and discuss exams.

Students view the lessons, study the textbooks and talk with mentors. After completing the necessary work, exams are administered at CAH Learning Centers or other designated testing areas.

COURSES AVAILABLE: Courses are available in the following areas: accounting and management, computer science, criminology, sociology, economics, education, English, humanities, speech, music, philosophy, religion, and psychology.

All courses offer credit, but their suitability to a particular degree program is subject to the regulations of the institution and department offering the degree. It is urged that students
pursuing a degree ascertain from their academic adviser the applicability of a course to the degree sought before enrolling in a CAH course. Grade reports will be issued and credit awarded by the University of Missouri as regular resident credit and is transferable to other colleges and universities (subject to the regulations of these colleges and universities). If you do not need or want college credit, you may enroll in any course on a non-credit basis.

MORE INFORMATION: If you would like more information about the College-At-Home Program (Through Video) write to: College-At-Home Program, 201 Lewis Hall, University of Missouri-Columbia, Columbia, Mo. 65211.

STUDENT SERVICES

The Office of the Vice Chancellor for Student, Personnel and Auxiliary Services in 211 Jesse Hall provides administrative support and supervision to 12 departments. Among these are residential life, student development, counseling services, student health services, Memorial Union/Brady Commons, financial aid, police department and the Hearnes Multipurpose Building. These departments exist as academic support units of the institution. They are dedicated to actively influencing the University environment and contributing to the total education of UMC students.

DISABLED STUDENTS

The Access Office in 126 Gentry Hall coordinates special services available to disabled students. These include classroom accommodations and testing arrangements, reader and attendant referral, on-campus transportation, and equipment loan and repair. The office works with various services on campus to increase accessibility and enable disabled students to participate in all aspects of student life.

INTERNATIONAL STUDENTS

The Office of International Student Programs in 114 Read Hall provides special services for international students, including advice about legal immigration status. The office coordinates cultural and educational programs and advises international student organizations.

MINORITY STUDENTS

The Office of Minority Student Programs in 101A Read Hall provides academic and personal advisement for members of minority groups and sponsors a series of programs to encourage a sense of community with UMC. Staff members are available on a walk-in basis or by appointment.

The Black Culture Center is designed to promote cultural and cross-cultural learning among UMC students, faculty and staff and Columbia residents. The facility may be reserved for formal/informal meetings and receptions or social events. The center, located at 823 Virginia Ave., contains a library, art and photo exhibits, and piano and television for your convenience.

VETERANS

The Office of Special Services in 221 Jesse Hall provides G.I. Bill information and certification for eligible veterans and dependents. The office also furnishes information on military service educational assistance programs.

HOUSING

For additional information on any of the following, contact the Department of Residential Life, 123 Jesse Hall, UMC, Columbia, Mo. 65211.

RESIDENCE HALL

Residence hall living plays an important part in campus life and helps students in establishing new friendships and lifestyles while they pursue their academic goals. It is the aim of the residence hall staff and student government to create an atmosphere which is conducive to intellectual, social, cultural and personal growth of the residents. Students enter into contracts for room and board in the residence halls for the entire academic year. The Department of Residential Life mails housing information and an application for residence halls accommodations to all applicants accepted for admission to UMC. Applications for residence halls are accepted independently of applications for admission to UMC.

FRATERNITY/SORORITY

National college social fraternities and sororities have had chapters on the Columbia campus since 1869. They offer a variety of social, scholastic, cultural, athletic and leadership opportunities. Most fraternities and sororities also operate chapter houses which serve as the focus for organizational activities. Assistance in the management of Greek houses is provided by university-approved house directors.

FAMILY HOUSING

The University of Missouri-Columbia operates 360 apartments for married students and single parents. Although floor plans vary, all apartments include living room, kitchen, bath and one or two bedrooms. All are unfurnished except for stoves and refrigerators. All utilities are paid by the residents.

OFF-CAMPUS

The Department of Residential Life operates an off-campus housing referral service. Available rental properties in the Columbia area are listed with this Off-Campus Housing Center. If you want to get involved in a particular organization, or start one of your own, stop by.

HEALTH SERVICE

Access to medical care is available at the Student Health Service outpatient clinic, staffed by eight physicians and located west of the Columns between Francis Quadrangle and South Sixth Street. Students may be seen without an appointment. Special clinics in gynecology, orthopedics, allergies, immunizations, ENT and psychiatry are by appointment. Laboratory, X-ray and pharmacy services also are available. Low-cost charges are made for services. Clinic hours are 8 a.m. to 5 p.m. Monday through Friday, and 8 a.m. to noon Saturday. After clinic hours, emergency care is available at the UMC Hospital and Clinics Emergency Room, where students are responsible for all costs of medical care.

WOMEN'S CENTER

The Women's Center offers a variety of services and programs dealing with issues that affect the changing roles of women and men. Skill groups and discussion groups on assertion training, consciousness raising, sexuality and other topics of interest are conducted for organizations and living units. The Women's Center also maintains a resource library containing articles, books, and research relating to women's lives. The Women's Center is located at 1 Gentry Hall.

PERSONAL COUNSELING

Counseling for individuals with personal, educational or vocational concerns is available from 8 a.m. to 5 p.m. Monday through Friday at the Counseling Center in 220 Parker Hall. No appointment is necessary for initial appointments.

CAREER PLANNING AND PLACEMENT

The Career Planning and Placement Center in 110 Noyes Hall offers a number of services to help students clarify career plans. The center also assists students in identifying internships and in locating part-time employment. The various schools and colleges also provide specialized placement services for students.

TESTING

The Testing Unit within Counseling Services offers placement interest, personality and aptitude tests, and the admission tests for graduate school.

UNIVERSITY BOOK STORE AND MEMORIAL UNION/BRADY COMMONS

In addition to supplying textbooks and other school items, the bookstore in Brady Commons provides check cashing and postal services. Brady Commons also houses bowling lanes, pool tables, snack bar, a candy and newspaper shop and a craft studio darkroom. The Memorial Union serves as a meeting place for student organizations and conferences.

ORGANIZATIONS AND ACTIVITIES

The Office of Student Development in 100 Read Hall offers students a number of programs and activities. Information on all campus student organizations and clubs is kept in 215 Read Hall. If you want to get involved in a particular organization, or start one of your own, stop by.

more information about the College-At-Home Program (Through Video) — it is not for other University programs or departments.
The Missouri Students Association is the undergraduate student government at UMC and every student is a member. If you would like to get involved in student government or student activities (which sponsors the films, concerts, speakers, etc., brought to campus) then drop by the MSA offices in 200 Read Hall.

RECREATION

The Recreation/Intramural Office is located at 106 Rothwell Gymnasium. There are eight activity components of this University department. The components are designed to provide varying degrees of competitive, non-competitive, structured and unstructured activities, and services for participants. Included in the various areas are: intramurals (men’s, women’s and co-rec), open recreation, outdoor recreation, bike shop services, the natatorium, special events, sports clubs, and faculty/staff recreation. There are both indoor and outdoor facilities available. Within the indoor recreation facilities there are racquetball/ handbook courts, weight machines, a wrestling room, an indoor track, volleyball and basketball courts and table tennis tables. Tennis, racquetball and basketball courts are available in the outdoor setting as well as picnic shelters and play fields. For more information call (314) 882-2066.

ADMISSION

Admission procedures are described in Missouri, the catalog for prospective undergraduate students. A summary of the procedures: Complete the application form and send it, along with the $20 application fee to the Director of Admissions, 130 Jesse Hall, University of Missouri-Columbia, Columbia, Mo. 65211. You also will need to have transcripts sent to the same address.

FRESHMEN

Admission to the freshman class is determined by a combination of the applicant’s high school class rank and an ACT, SAT, or SCAT test score. Out-of-state freshman applicants are expected to demonstrate appreciably higher probability of success than Missouri freshman applicants.

TRANSFER STUDENTS

Transfer students must have attained an overall grade point average of 2.0 (4.0 system) in all courses which they attempted at previous institutions. In addition, they must be in good standing and have attained a minimal term grade point average of 2.0 during the last semester. Credit hours in the form of advanced placement may be allowed for work satisfactorily completed in another accredited college or university. Evaluation of course work applicable toward a degree is determined by the dean of the school or college in which the student enrolls. For further information see Transfer Credit in the Academic Regulations section of this catalog and the individual college and school sections.

INTERNATIONAL STUDENTS

More than 1,500 students from 100 countries are enrolled at UMC. All prospective students who are not U.S. citizens must write to Office of International Student Programs, 106 Read Hall, UMC, Columbia, Mo. 65211. This office is responsible for answering all initial inquiries about admission to UMC.

In addition to the English language requirement for admission, all undergraduate international students are required to take the UMC English Language Test prior to registering for courses and submit a $50 non-refundable application fee.

PREVIOUSLY ENROLLED STUDENTS

Students who have not been enrolled within the last semester should contact the Admissions Office in 130 Jesse Hall for a permit to re-enroll.

COLLEGES/SCHOOLS TO WHICH FRESHMEN MAY BE ADMITTED

At the University of Missouri-Columbia, freshmen may enter the Colleges of Agriculture, Arts and Science, Education, Engineering, Home Economics, Public and Community Services, the School of Forestry, Fisheries and Wildlife or the School of Health Related Professions.

COLLEGES/SCHOOLS TO WHICH SOPHOMORES MAY BE ADMITTED

Students may enter the College of Business and Public Administration, the School of Social Work, or the School of Journalism as sophomores.

COLLEGES/SCHOOLS TO WHICH JUNIORS MAY BE ADMITTED

Students, having met their specific entrance requirements, may enter the College of Business and Public Administration, the School of Social Work, or the School of Journalism as juniors.

RECIPROCAL AGREEMENTS

KANSAS-MISSOURI AGREEMENT FOR EXCHANGE OF STUDENTS

By joint agreement of the Board of Regents of the State of Kansas and the Board of Curators of the University of Missouri, qualified students who are Missouri residents may enroll in certain programs at the University of Kansas in Lawrence or Kansas State University in Manhattan and be charged fees at the rate paid by Kansas residents.

The undergraduate programs available at the University of Kansas include: architecture, environmental design, architectural engineering, oriental languages and literature, and Slavic languages and literature (not Russian). The undergraduate programs available at Kansas State University are: architecture, architectural engineering, construction science, landscape architecture, bakery science and management, feed science and management, milling science and management, and horticulture therapy.

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, 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 the University of Missouri 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 agriculture.

For further information, contact the director of admissions at the institution offering the specific program.

UNDERGRADUATE DEGREES

The University of Missouri-Columbia offers the following undergraduate degree programs and emphasis areas (emphasis areas are shown in italic type):

College of Agriculture

- Agricultural Economics (BSAg)
- Agricultural Education (BSAg)
- Agricultural Journalism (BSAg)
- Agricultural Mechanization (BSAg)
- Agronomy (BSAg)
- Animal Science (BSAg)
- Atmospheric Science (BSAg)
- Biochemistry (BSAg)
- Dairy Science (BSAg)
- Food Science and Nutrition (BSAg)
- General Agriculture (BSAg)
- Horticulture (BSAg)
- Pest Management (BSAg)
- Poultry Science (BSAg)
- Rural Sociology (BSAg)

College of Arts and Science

- Anthropology (AB)
- Art (AB, BFA)
- Art History and Archaeology (AB)
- Biological Sciences (AB)
- Chemistry (AB, BS)
- Classics (AB)
- Classical Civilization, Greek Latin Computer Science (AB, BS)
- Economics (AB) Labor Studies
- English (AB)
- French (AB)
- General Studies (BGS)
- Geography (AB)
- Geology (AB, BS)
- German (AB)
- History (AB)
- Interdisciplinary (AB) Black Studies, Film Studies, German Area Studies, Honors Interdisciplinary Studies, Latin American Studies, Peace Studies, Religious Studies, Russian Area Studies, South Asian Studies, Women Studies
- Italian (AB)
- Latin American Studies (AB)
- Library Science (AB)
- Linguistics (AB)
- Mathematics (AB)
- Microbiology (AB)
- Music (AB, BM)
- Philosophy (AB)
- Physics (AB, BS) Health Physics (BS)
- Political Science (AB)
- Psychology (AB)
- Russian (AB)
- Russian Area Studies (AB)
- Sociology (AB)
- South Asia Studies (AB)
- Spanish (AB)
- Speech and Dramatic Art (AB)
- Statistics (AB)

College of Business and Public Administration

- Accountancy (BBA)

Public Administration (BSPA)

College of Education

- Educational Studies (BES), Counseling and Personnel Services, Curriculum and Instruction, Health and Physical Education, Interdepartmental, Practical Arts and Vocational-Technical Education and Special Education
- Elementary Education (BSED) Early Childhood Education, Elementary School Art, Elementary School Music, Elementary School Physical Education
The form to be completed is: Family Financial Statement, sent to American College Testing or Financial Aid Form, sent to College Scholarship Service.

In order to receive full consideration for the following school year, students should complete all forms in time for the Financial Aids office to receive them by April 1. For students who apply at any other time during the year, UMC will process financial aid applications according to the date forms are received and if aid money is available.

The types of financial aid fall into three basic categories: grants, loans and work-study employment. Only the Guaranteed Student Loans and military scholarships are not applied for using the Family Financial Statement or Financial Aid Form. Many of the financial aid programs require that students be enrolled for 12 credit hours or more.

FEES AND EXPENSES 1983-84

INCIDENTAL FEE
All students enrolled in the University are required to pay the incidental fee. Courses taken as a hearer (auditing) and courses taken for reduced credit will be counted at their normal credit value in computing the amount of fees to be paid.

STUDENT ACTIVITIES FEE
Each student registered for resident work on the Columbia campus is required to pay a student activities fee of $33.50 for one semester of 16 weeks. This fee is allocated to the following:

Memorial Union Bond Retirement .......... 11.50
Warren E. Hearnes Multipurpose Bond Retirement ............................... 4.00
Missouri Students Association Student Activities ................................... 9.00
Divisional Student Council Programs ......... 1.00
Student Activities Capital Improvements .............................................. 4.00
Associated Students of the University .............................................. 1.00
Intramural Program ................................................................. 3.00
Total ................................................................. 33.50

For a partial enrollment, the student activity fee will be calculated at a per credit hour or any fraction thereof rate.

For one term of four, six or eight weeks, each student pays a student activities fee of $15.75 for seven or more hours of credit.

No additional student activity fee shall be charged if the student is enrolled simultaneously in a session or semester and in a special intersession.

No student activities fee shall be charged during the period beginning with the close of regular summer session and ending with the beginning of the fall registration.

No student activities fee shall be charged if the student is enrolled for courses which are offered off-campus.

NON-RESIDENT TUITION
In addition to incidental fees, tuition will be charged any student who has not been a Missouri resident for at least one year on Sept.

<table>
<thead>
<tr>
<th></th>
<th>16-week semester</th>
<th>8-week semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incidental Fee</strong> (All students pay an incidental fee)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>$42.50 per hour</td>
<td>$602</td>
</tr>
<tr>
<td><strong>Non-resident Tuition</strong> (Non-resident students must pay non-resident tuition)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>$84.00 per hour*</td>
<td>$1176</td>
</tr>
</tbody>
</table>

Housing
Includes double room in an UMC residence hall, 20 meals per week (no Sunday evening meal) and a $15 social fee. Student activities fees are not required to live in residence halls. Housing fees are refunded according to the housing contract. Summer housing includes 15 meals per week and no social fee.

Academic Year: $1865
8-week session: $443
4-week session: $221.50

Refund of fees

Students who leave the University or drop a course for which they paid, must file a written request with the manager of cashing for a refund. Refunds will, with some exceptions, be paid according to the following schedule. For any session other than the "full refund period" the refund will be calculated in the same way. Deductions may be made from the refund for any money owed the University.

16-week semester
<table>
<thead>
<tr>
<th></th>
<th>90%</th>
<th>70%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Refund</td>
<td>Within 5 days from classes begin</td>
<td>Between 6th and 10 days after classes begin</td>
<td>Between 11th and 25th day after classes begin</td>
</tr>
<tr>
<td>Before classes begin (less $20 for the cost of handling registration)</td>
<td>90%</td>
<td>70%</td>
<td>50%</td>
</tr>
</tbody>
</table>

8-week session
<table>
<thead>
<tr>
<th></th>
<th>90%</th>
<th>70%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Refund</td>
<td>Within 1 week from classes begin</td>
<td>Between 1 week and 3 weeks after classes begin</td>
<td>After 3 weeks</td>
</tr>
<tr>
<td>Before classes begin (less $10 for the cost of handling registration)</td>
<td>90%</td>
<td>70%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Students who drop a class during the "full refund period," will receive a full refund of the fees for the class dropped. The "full refund period" for a 16-week semester is 4 class days starting with the petitioning period. The "full refund period" for a 8-week session is 2 class days starting with the petitioning period. There are no refunds after the 25th day of classes.

1-6 hours - no non-resident tuition charged. $145 per hour for each hour from 7 to 12.
1-3 hours - no non-residence tuition charged. $145 per hour for each hour from 4 to 6.
A $10 per credit hour fee is charged all students enrolled in courses offered by the College of Engineering.

All fees statements are announcements only and are not to be regarded as offers to contract. The University of Missouri-Columbia reserved the right to change any and all fees at any time.
ACADEMIC REGULATIONS

RULES AND REGULATIONS SUMMARY

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 UMC Faculty Council Academic Regulations. The following summaries are intended as a guide for students. Students needing additional information on academic regulations in specific colleges and schools may obtain this information from their dean's 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 or division. A divisional 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 will be 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.

ACADEMIC STANDING AND SATISFACTORY ACADEMIC PROGRESS OF UNDERGRADUATE STUDENTS

A. Definitions

1. Term—The word term as used in these Regulations applies to any semester or summer session.
2. Academic standing—Academic standing refers to the level of the student's academic performance. There are three levels of academic standing: regular standing, academic probation, and ineligible to re-enroll.
3. Satisfactory progress—Satisfactory progress refers to the time progression in meeting the requirements of the student's established educational objective. Typically, the student's educational objective...
is the completion of a degree program.

4. Graded course— Graded course is a course in which a student receives credit if successfully completed. A course in which the student is enrolled as a Hearer is not regarded as a graded course for that student.

5. Completion of a course— A course is completed if the student earns a grade of A, B, C, D, or S for the course. For the purposes of this Article, a course in which the student receives a grade of W, F, WF, or I is not considered a completed course. However, in certain instances a course in which a graduate student receives a grade of I will be considered a completed course as specified below.

B. Academic Standing and Progress—

1. Any beginning student admitted to the University of Missouri-Columbia who does not meet the minimum admission standards as specified in Article II: (Admissions, Advanced Standing, and Classification) will be entered on academic probation.

2. In the application of the regulations in this Article, the faculty of the division concerned will determine how the grade of Incomplete in a course and a grade in a repeated course will be considered in determining a student’s academic standing.

3. Regulations in this Article are the prescribed minimum standards but do not limit the authority of the faculty of any division to adopt and enforce additional regulations affecting students enrolled therein. In the event that a division adopts standards higher than set forth in this Article, the divisional standards will take precedence over the relevant portions of this Article.

4. The dean of the relevant division may, after consulting with relevant faculty, waive any of the regulations in this Article governing a student’s eligibility to re-enroll and in determining if the student is making satisfactory progress toward his/her educational objective. (Note: Satisfactory progress is based on three concepts: (a) minimum number of hours of enrollment each term that are applicable toward the student’s degree program, (b) minimum number of hours completed in a 12-month period of enrollment, and (c) maximum time to complete the degree).

5. 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 which must be maintained by the student. If the student after readmission again becomes ineligible to enroll, his/her ineligibility to re-enroll is normally considered permanent.

D. Satisfactory Academic Progress—

Undergraduate Students

Each student is expected to make satisfactory progress toward achieving his/her educational objective.

Standards for satisfactory academic progress are as follows:

1. Full-time student. A full-time undergraduate student is considered to be making satisfactory academic progress if he/she is enrolled in at least 12 semester hours of graded course work each semester applicable to the student’s degree program, and

(a) completes 24 semester hours of graded course work applicable to the student’s degree program in each 12-month period of enrollment.

(b) The time limit for completion of a baccalaureate degree is five (5) years of enrollment as a full-time student.

2. ½-time student. A ¼-time undergraduate student is considered to be making satisfactory progress if he/she is enrolled in at least 9 semester hours of graded course work each semester applicable to the student’s degree and

(a) satisfactorily completes 18 semester hours of graded course work applicable to the student’s degree program in each 12-month period of enrollment.

(b) The time limit for completion of the baccalaureate degree is seven (7) years of enrollment as a ½-time student.

3. ½-time student. A ½-time undergraduate student is considered to be making satisfactory academic progress if he/she is enrolled in at least six (6) semester hours of graded course work each semester applicable to the student’s degree program, and

(a) satisfactorily completes 12 semester hours of graded course work applicable to the student’s degree program in each 12-month period of enrollment.

(b) The time limit for completion of the baccalaureate degree is ten (10) years of enrollment as a ½-time student.

4. During the student’s freshman year only, the dean of the division in which the student is enrolled may authorize a student to engage in credit or non-credit prerequisite or remedial programs or courses and apply the time spent on remedial work to the minimum semester hour requirement specified in F.1, F.2 and F.3 above.

(Note: The minimum number of semester hours of enrollment per semester in F.1, F.2 and F.3 above are to be adjusted proportionally for terms of enrollment other than a semester.)

The regulations in this Article represent the internal policies of the University. In addition, these regulations are to be used as standards for making certifications to external agencies regarding a student’s academic standing and progress toward his/her educational objective. Typically, such certifications to external agencies have to do with the student’s eligibility for financial aid.

For the purpose of determining eligibility for financial aid, a student will be certified as being in satisfactory academic standing if that student is eligible to re-enroll. A student will be certified as making satisfactory progress toward his/her educational objective if the student meets the standards expressed in Section F above in accordance with the appropriate classification of the student at that time.

Ordinarily, the “12-month period of enrollment” referred to in D.1, D.2, and D.3 above begins at the beginning of the Fall Semester. However, if the nature of the financial aid in question suggests a more appropriate starting time for the “12-month period of enrollment,” that more appropriate starting time will prevail.

For purposes of determining eligibility for financial aid, the time limit for completion of degree determines the total amount of financial aid that a student is eligible to receive while pursuing a given degree.

ADDITION COURSES OR CHANGING SECTIONS (PETITIONING)

The petitioning procedure (changing classes) is initiated by the student and requires the approval of the student’s adviser and dean. Add and drop forms (petitions) are available in the deans’ offices. In a regular semester, a student may not enter a course after the second week of class. An approved petition is the only way a student’s academic record will reflect either a withdrawal from a course or the addition of a course for credit.

AUDITORS (HEARERS)

With the consent of the dean of the school or college in which the student is registered and of the instructor concerned, a student may enroll in a course as a hearer. 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. The student may be dropped from a course for failure to comply with stipulated requirements. An instructor may request the registrar to backdate a hearer’s disenrollment for a course, so that no notation of the student’s enrollment will appear on the student’s permanent record. A hearer will receive no credit toward a degree. Once a student has elected to enroll in a course as a hearer, he/she may not change his/her status to that of a regular student after the fifth day of class. Nor can a student
who is enrolled for credit change his/her status to bearer after the fifth day of class.

CHANGE OF GRADE
If you believe you have been graded unfairly you should:
1. See your instructor.
2. If still dissatisfied, you may appeal to the chairperson of the department. (If the course has a large number of sections, such as Math 10, it may have a course director. If so, you should see the director before appealing the grade to the department chairperson.)
3. The chairperson will conduct an investigation. The chairperson, however, is not allowed to substitute his or her judgment for that of the instructor in regard to the quality of your work.
4. If the instructor of the course also is the department chairperson, the dean of the school or college will handle grade appeals.
5. No one may substitute personal judgment for that of the instructor in regard to the quality of your work. However, mathematical or mechanical errors that may have been made in scoring your 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 on the part of the instructor.

CHANGE OF COLLEGE/SCHOOL
Students may transfer from one UMC division to another in accordance with college and school policies as noted below and in the college and school sections of the catalog. Because of limited enrollment and/or higher minimum standards, general acceptance as a student at the University of Missouri-Columbia does not guarantee acceptance to specialized or professional programs. Currently enrolled students may obtain a transfer of division form for departments with a large number of sections, such as Math 10, it may have a course director. If so, you should see the director before appealing the grade to the department chairperson.

The chairperson will conduct an investigation. The chairperson, however, is not allowed to substitute his or her judgment for that of the instructor in regard to the quality of your work.

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 on the part of the instructor.

COLLEGE AND SCHOOL REGULATIONS FOR TRANSFERRING DIVISIONS
Arts and Science: A student in Arts and Science who has declared the intention to transfer to another division of UMC, but who is denied admission to the other division, is not permitted to continue in the College of Arts and Science more than one full semester following his declaration of intent to transfer unless the student declares intent to pursue a degree program.

Business and Public Administration: Second-semester sophomores in the College of Arts and Science should submit a transfer application to the College of Business and Public Administration as soon as they have started classes in their final pre-B&PA semester. Only those students whose grade point average is 3.0 or higher may preregister for their first semester in the College of Business and Public Administration. The deadline for such applications precedes the preregistration periods by approximately two weeks.

Journalism: Second-semester sophomores in the College of Arts and Science should apply to the admissions office for a change in division as soon as they have started classes in their final prejournalism semester. Only those students whose grade point average is 3.0 or higher may preregister for their first term in the School of Journalism. The deadline for such applications precedes the preregistration periods by approximately two weeks.

CLASSIFICATION OF STUDENTS
Students are assigned to a particular class on the basis of the following credit hour requirements:

Freshman: 0 to 29 semester hours of credit
Sophomore: 30 to 59 semester hours of credit
Junior: 60 to 89 semester hours of credit
Senior: 90 or more semester hours of credit

Classification of students is determined by the number of semester hours earned.

An undergraduate student pursuing a degree program in a minor in addition to that of the major department is allowed to elect courses in the minor department without registering in the major department. The minimum requirement is 18 semester hours in the minor department.
completed in all other UMC divisions may be included in the hours required for graduation.

Note: Other UMC colleges and schools enforce similar limitations, but they do so by prescribing the number of credits that must be completed within their division.

DROPPING A COURSE
(See Withdrawal from a Course)

EMPHASIS AREA OR AREA OF CONCENTRATION
At UMC a student's degree program is comparable to a major at other institutions. The degree programs and emphasis areas offered at UMC are listed in the General Information section of this catalog.

EXAMINATIONS
Semester and final examinations may be held only during the date and time printed in the Examination Schedule and approved by the director of admissions and registrar.

Examinations in courses numbered 400 and above may be conducted at any time agreeable to both the teacher and students. Examination of individual students may be held at the discretion of the instructor. This particular regulation cannot be interpreted to mean that "individual students" constitute an entire class. No student may be re-examined for the purpose of changing a grade after a final grade has been reported to the registrar.

INCOMPLETE GRADES
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 grade of the students, reporting to the registrar the fact that such students' grade is I. 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 time limits previously fixed for the completion of his work.

The time allowed for the removal of an I grade is normally one calendar year from the date of its recording (assuming that that student is in continuous enrollment during the time period). When the incomplete work is accomplished, proper notification of the grade to be assigned will be provided to the registrar and to the student.

MAXIMUM AND MINIMUM ENROLLMENT
The UMC Faculty Council has established 12 semester hours as the minimum number of hours in which a full-time undergraduate student may be enrolled during a regular semester. Normal course load is 13 to 15 hours. Part-time enrollment (less than 12 hours) requires the permission of the dean of the college or school in which the student is enrolled. Students wishing to drop below 12 hours after enrollment must submit a written request justifying the reason(s) to the dean of the college.

College and School Regulations on Maximum and Minimum Enrollment are as follows:

Arts and Science: With the consent of the dean, students with superior scholastic records may be permitted to register for more than 16 hours. Normally, during a regular session, students whose grade point average is 2.75 may enroll for 17 hours; those with 3.0, for 18 hours; and those with 3.5, for 19 hours. During the summer sessions a student may not be enrolled for more than nine hours during the combined two four-week sessions and/or the eight-week session.

Business and Public Administration: A student with a cumulative GPA of 3.0 or higher may register for up to 18 hours with the permission of the dean.

Education: A student new to UMC may enroll for a maximum of 16 hours. Depending on GPA, and with permission from a representative of the dean's office, students previously enrolled at UMC may register for a maximum of 20 hours.

Health Related Professions: A student may enroll for more than 17 hours only with permission from advisor and associate dean.

Home Economics: A student with a cumulative GPA below 3.0 must obtain permission from the adviser and the assistant dean to enroll in more than 17 hours.

Journalism: A student who has established a 3.0 GPA the year before may carry 17 or 18 hours, and one who has established a 4.0 GPA may carry 19 hours. In both instances, special permission of the dean is required.

Nursing: A student with a cumulative GPA below 3.0 must obtain permission from the assistant dean to enroll in more than 16 hours.

Public and Community Services: A student may enroll for more than 18 hours only with permission from the dean's office.

PROBATION
(See Academic Standing of Undergraduate Students)

REQUIRED WORK FOR GRADUATION WITH A BACHELOR'S DEGREE
The requirements for an approved degree are established and monitored by the faculty of the school or college responsible for recommending candidates for the degree. A student may be granted two baccalaureate degrees if all requirements for both degrees have been met and the student has completed at least 12 semester hours of course work beyond that required for the first degree.

REQUIRED WORK IN RESIDENCY
Candidates seeking undergraduate degrees from the University of Missouri must be in residence on the Columbia campus during the senior year as defined by the academic division involved. The specific residency requirements by colleges are as follows:

Agriculture: The last 30 hours must be completed in residence.

Arts and Science: Students must complete six semesters of resident college work. Credit is given for work completed in other institutions and for correspondence or extension course work completed in the University Extension Division. The last two semester (30 hours) must be completed in residence at UMC. Students who are candidates for dual degrees in the Schools of Law or Medicine must complete their junior year in residence at UMC. Students who transfer with senior standing are advised that attendance for two semesters and a summer session may be required to fulfill all specific course requirements for graduation.

Business and Public Administration: The last 30 hours must be completed in residence. Students lacking three hours or less may, with the permission of the dean, complete the requirement by correspondence or transfer credit.

Education: Students must spend senior year on campus.

Engineering: A student transferring from an accredited institution other than the University of Missouri must complete at least 30 upper-division hours, 200 and above or equivalent, in the degree program at University of Missouri campuses. At least 21 of the 30 credit hours must be upper-level engineering courses approved by the department awarding the degree. However, for a student transferring with senior standing from another University of Missouri campus, the last 15 hours must be completed in residence on the campus where the degree program is located; 12 of these 15 hours must be in engineering and approved by the department awarding the degree.

Forestry, Fisheries and Wildlife: For all curricula in Forestry, Fisheries and Wildlife, the last 60 hours must be completed in residence. The faculty may grant an exception under unusual circumstances.

Health Related Professions: Students must take a minimum of 24 hours in residence the last year.

Home Economics: Students must complete a minimum of 45 hours in residence.

Journalism: Students must complete 30 credit hours in professional journalism courses on this campus.

Nursing: Students must complete the last 24 hours in residence.

Public and Community Services: The last two semesters must be completed in residence.

STUDENT ACADEMIC RECORDS
Official academic records including credit, grades and degrees granted by the University of Missouri-Columbia are maintained in the Office of the Registrar. The University does not permit access to, or release of, educational records or personally identifiable information contained in such records (other than directory information) without the written consent of the student.

STUDENT RESPONSIBILITY
Faculty advisers and counselors are available to provide guidance, but students are responsible for checking with their dean's office to ascertain if they are progressing satisfactorily toward a degree. Upperclassmen, who are candidates for degrees, should check with the dean's office no later than the end of the junior year to ascertain if their records are in accord with those maintained in the dean's office.

SATISFACTORY/UNSATISFACTORY GRADING SYSTEM
Students may elect to take courses under the S/U (pass/fail) grading system in several of the UMC 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. S/U status is indicated in the appropriate column on the Course Request Card. Students may change to or from the S/U status only through the sixth 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 registrar. The registrar ascertains which students are enrolled on the S/U system and assigns a grade of U to those reported for grades of D or F, and a grade of S for those reported for 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 University faculty's restrictions, which are:

1. Beginning students (students who have completed fewer than 12 semester hours) are not eligible.
2. Students on scholastic probation are not eligible.
3. Only one course per semester or summer session may be elected under the S/U grading system.
4. Courses completed with a grade of S may constitute no more than 20 percent of the total hours for the baccalaureate degree.
5. Courses completed with a grade of S may be accepted on an area of concentration only with the prior approval of the area adviser.

Additional College and School Regulations on S/U Grading System

Business and Public Administration: The S/U grading system is limited to unrestricted elective courses.

Health Related Professions: A student may select one course outside an emphasis area as S/U per semester in addition to any course so designated by a department.

Journalism: A student may present a maximum of 12 hours of S/U credit for admission to the School of Journalism. After admission to journalism, a student may take, on an S/U basis, up to 12 of the 60 hours required for the B.J. degree. No student may take a course on an S/U basis that is specified as a requirement in an emphasis area.

TRANSFER OF CREDIT

Each fall, approximately 25 to 30 percent of the new undergraduates enrolled at UMC are students who have transferred from other colleges and universities. Because requirements for degrees vary from institution to institution and since each UMC college determines which transfer credits meet the requirements for its degree, a student planning to transfer to UMC should contact the dean's office of the school or college offering study in the student's area of interest.

Course work completed at an accredited institution of higher education and oriented toward a baccalaureate degree will be accepted at UMC if the grade was C or better. However, all credits transferred to UMC fulfill specific requirements for a particular degree.

Official transcripts from each college attended must be mailed to the Director of Admissions, 130 Jesse Hall, UMC, 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 UMC.

Transfer from a Junior/Community College: An Associate of Arts degree (AA) is a two-year degree which 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 a four-year institution. Students transferring to UMC from an accredited Missouri Community/Junior College with an Associate of Arts degree and a certified C average will be accepted as: (1) having junior standing, and (2) having completed General Education Requirements if the AA degree consisted of at least 60 semester hours of college level work. These 60 hours must include no less than 36 semester hours distributed as follows:

- Communication Skills (6 hours)
- Mathematics (3 hours)
- Science—Biological and Physical (9 hours)
- Humanities or Fine Arts (9 hours)
- Social-Behavioral Science (9 hours)

Exceptions to this UMC Faculty Council policy are the College of Business and Public Administration and the Schools of Journalism, Nursing and Health Related Professions. The transfer requirements for these schools may be found in their respective sections of this catalog.

An Associate of Science degree (AS) is a specialized degree and should result from careful planning and agreement between specific two-year and four-year institutions. Students planning to transfer to UMC with an AS degree should consult with the dean's office of the school or college offering study in the student's area of interest as they plan their AS course of study.

Transfer Within the UM System: For students transferring between campuses within the University of Missouri system, the following University of Missouri policy is applicable:

"Any course that leads to an undergraduate degree on any campus of the University of Missouri shall be accepted in transfer toward the same degree on each campus of the University offering said degree."

Appeal. The University of Missouri provides an appeal process for transfer students who wish to appeal decisions on admissions, transfer to credits and grades. Appeals are heard by a faculty committee, the Committee on Entrance and Revision of Records. Appeals may be initiated by writing to the Director of Admissions, 130 Jesse Hall, UMC, Columbia, Mo. 65211.

WITHDRAWAL FROM A COURSE

Students who wish to withdraw from any course in which they are officially enrolled must declare their intentions by processing the petitioning form no later than two weeks before the last scheduled day of class. A student may withdraw from courses as long as the total enrollment does not fall below the 12 hours minimum requirement. The faculty of the student's school or college may establish an earlier deadline. The date for withdrawal from courses is posted in the deans' offices. Withdrawal from a course requires the approval of the student's adviser and dean. Petitioning forms are available in the dean's office.

Before the sixth week of the semester, a student may withdraw from a course with a grade of Withdraw and have no notation of enrollment in that course on the transcript. A student who withdraws from a course after the six-week period receives a grade of W if making a grade of D or higher in the course. If the grade is F, a grade of WF is recorded and is counted as an F in the term grade point average.

ADDITIONAL COLLEGE AND SCHOOL REGULATIONS

Arts and Science: Upper-class degree candidates may not drop a foreign language nor may a student who has completed a foreign language course at UMC interrupt the sequence until the requirement has been satisfied.

Business and Public Administration: Any general education or basic skills requirements not completed at the time of admission to B&PA must be completed as soon as possible. These courses may not be delayed or dropped.

WITHDRAWAL FROM THE UNIVERSITY

Students who wish to withdraw from the University of Missouri-Columbia initiate the withdrawal in the office of the dean of the school or college in which they are enrolled. A withdrawal may not be dated after the last scheduled day of course work.
The College of Agriculture was established at the University of Missouri in 1870 in response to the need for agricultural research and teaching in the state. The three major divisions of the College, the Agricultural Experiment Station, the Resident Instruction Program and the Agricultural Extension Service, have had great influence on Missouri agriculture. Agriculture, a basic industry concerned with food and fiber, has even more need in today’s world for highly trained personnel. The objective of the College of Agriculture is to provide students with the best education possible for service in agricultural business, technology and science.

The UMC College of Agriculture, the eighth largest in the country, has excellent and extensive facilities for instruction, from research farms to highly specialized laboratories. The College is a leader on the UMC campus in providing quality student advisement.

The College is organized into 16 academic departments and the School of Forestry, Fisheries and Wildlife. The main objective of the School of Forestry, Fisheries and Wildlife is to provide a broad range of opportunities for the student who wishes to attain competence in the professional and scientific aspects of resource management.

In the College of Agriculture are the Departments of Agricultural Economics, Agricultural Education, Agricultural Journalism, Agricultural Engineering, Agronomy, Animal Science, Atmospheric Science, Biochemistry, Dairy Science, Entomology, Extension Education, Food Science and Nutrition, Horticulture, Plant Pathology, Poultry Science and Rural Sociology.

ADMISSION

Students who have been admitted to the University of Missouri-Columbia may enter the College of Agriculture and the School of Forestry, Fisheries and Wildlife as freshmen. Preprofessional study for veterinary medicine may be completed either in the College of Agriculture or the College of Arts and Science.

TRANSFER STUDENTS

Students transferring to UMC from another accredited college or university are subject to the regulations established by the UMC Faculty Council concerning transfer of credit. Transfer of credit is described in the Academic Regulations section of this catalog.

STUDENT SERVICES

ADVISEMENT

Each student in the College is assigned a faculty adviser to assist in planning courses, establishing career goals and in fulfilling a study program that leads to graduation.

The academic adviser also serves as a resource person for the student in dealing with personal or other problems. One of a student’s first priorities is to meet and become acquainted with the academic adviser early in the semester. The student should consult with the adviser when planning or changing the academic program because the adviser must approve and sign the study program for graduation.

Advisement for undergraduates in the School of Forestry, Fisheries and Wildlife is concentrated primarily with two academic advisers and four or five faculty members who deal with all aspects of the program. Other faculty members assist as needed or with specific questions related to their areas.

PLACEMENT

The College of Agriculture provides a placement service for graduating seniors, alumni seeking employment and undergraduates wanting part-time and summer employment. The placement office maintains employment opportunity lists, distributes information concerning jobs and schedules interviews. For additional information, contact the Placement Office, 2-64 Agriculture Bldg., UMC, Columbia, Mo. 65211.

Students in the School of Forestry, Fisheries and Wildlife are counseled on employment opportunities. Available positions are called to their attention and arrangements are made for interviews with employers. Students receive instructions regarding Civil Service procedures and are assisted in preparation of resumes and applications for employment. Employment assistance also is given to alumni of the School when requested. They are advised of employment opportunities by letter when appropriate opportunities come to the School’s attention. For additional information on Forestry, contact Lee K. Paulsell, 1-30 Agriculture Bldg. For additional information on Fisheries and Wildlife, contact the faculty at 112 Stephens Hall.

STUDENT ACTIVITIES

The College of Agriculture offers a wide variety of extracurricular student activities. Departmental clubs sponsor activities related to major interests, such as field trips and speakers as well as social events. Students with special interests have formed clubs such as Married Aggies, 4-H and Rodeo Club. Each class and departmental club elects representatives to the Agricultural Divisional Student Council, which sponsors activities such as a leadership conference, a senior yearbook and an Ag student newspaper. 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.

SCHOOL OF FORESTRY, FISHERIES AND WILDLIFE STUDENT ACTIVITIES

Extracurricular activities of forestry students center in the Forestry Club which has regular meetings on alternate weeks. In addition to educational meetings, the club sponsors several social events—initiation, beanfeed, spring banquet and spring barbecue. Prominent people in various lines of forestry work appear on the programs of the Forestry Club. The club sponsors a fourth grade educational program at forestry at schools in the Columbia area, scholarships for deserving students at the forestry summer camp, and an Arbor Day program, including tree planting for fourth graders. It has been very active in the Midwest Forester's Conclave which is attended by forestry students from 12 area universities.

The University of Missouri-Columbia Student Chapter of the Wildlife Society sponsors social, educational and service activities. One outdoor picnic, encompassing a variety of activities, is held each semester. Numerous field trips to state and federal wildlife areas and biweekly meetings with professional speakers provide sound learning opportunities. Members volunteer their services to the Missouri Department of Conservation and other groups for work projects, such as building and maintaining goose nesting tubs, and operating deer hunter check stations. In return, students gain valuable experience and future job contacts. Members donate both time and money to non-profit conservation groups. The chapter annually attends the Midwest Student Wildlife Conclave, a weekend meeting with fisheries and wildlife students from other midwestern universities.

The official publication of student clubs, Environ's, gives students an opportunity to develop their talents in writing, editorial work, business management, art and related fields.

Xi Sigma Pi is the national honorary forestry society. Juniors and seniors with high scholastic achievement and leadership qualities are eligible for the society. Xi Sigma Pi encourages good scholarship by sponsoring the outstanding freshman and senior awards given annually in recognition of scholastic achievement.

The Student Council provides opportunity for participation in both school and campus student government activities. The Council, supported by student fees, provides improved communications between students and faculty and opportunities for implementation of student programming ideas. The Council also organizes the School’s graduation ceremonies, sponsors field trips, provides free camping equipment to School students and selects outstanding students and faculty.

SCHOLARSHIPS IN THE COLLEGE OF AGRICULTURE

Application should be made at 2-64 Agriculture Building. For other and special scholarship information, contact the dean’s office.

Lloyd E. Adams Scholarship in Entomology: Award of $500 annually to a doctoral student in entomology. Selection
Agriculture Department. The fund was established by Mrs. Adams in memory of her husband who earned his bachelor's and master's degrees at UMC.

Ag Club Scholarships: Two scholarships of $250 each for incoming freshman and upperclass students in agriculture. Freshmen entering the college shall be recommended for the scholarship by their high school teacher, character, need and interest in field; may be considered for renewal of scholarship along with new applicants. Established by UMC advertising alumni.

Agricultural Engineering Alumni Association Scholarship: This scholarship is available to students majoring in an area which relates chemistry to agriculture. Students majoring in agricultural chemistry are eligible for this scholarship. Funding is provided by Dr. George A. Gates of Farmland Industries Inc. Scholarships:

-damon award: A 15-day internship with a leading agribusiness in the St. Louis area for junior or senior students in the College of Agriculture. Funds provided by Meyer Dairy, Inc.

-Gamma Sigma Delta Sophomore Award: $100 presented to the highest ranking sophomore in the College of Agriculture.

-Gates Brothers Memorial Scholarship: Provides a scholarship for one or more seniors enrolled in the College of Agriculture majoring in agricultural economics with a specific emphasis in agronomy, crop science, or animal science. Preference is given to students planning for a career in agricultural credit and students who are members of Farmhouse Fraternity. Selection of recipient is made by a committee composed of: a member of the Missouri Farmhouse Foundation board, a member of the agricultural economics faculty, and a representative of the Farm Credit Administration.

-Gates-Ryan Scholarship: $1,000 stipend awarded to student majoring in animal science with an interest in swine production. Recipients are selected by the Department of Animal Sciences in consultation with the Missouri Pork Producers Association with final approval by the College of Agriculture Scholarship and Awards Committee.

-Food Science Freshman Scholarships: Three scholarships of $500 each for incoming freshman students majoring in Food Science and Nutrition. Provided by Meyer Dairy, Inc.

-Gamma Sigma Delta Sophomore Award: $100 presented to the highest ranking sophomore in the College of Agriculture.

-Gates Brothers Memorial Scholarship: Provides a scholarship for one or more seniors enrolled in the College of Agriculture majoring in agricultural economics with a specific emphasis in agronomy, crop science, or animal science. Preference is given to students planning for a career in agricultural credit and students who are members of Farmhouse Fraternity. Selection of recipient is made by a committee composed of: a member of the Missouri Farmhouse Foundation board, a member of the agricultural economics faculty, and a representative of the Farm Credit Administration.

-Ernest L. Garner Memorial Scholarship: Fund: Family and friends of Garner, under the guidance of Garner, who spent most of his professional life as a vocational agriculture teacher and FFA adviser at the Carl Junction, Mo., high school. Awarded annually to Missouri residents from Carl Junction and enrolled in agriculture, secondly, veterinarian medicine; or thirdly, home economics. If no suitable applicant from Carl Junction, the scholarship is available to any student from Jasper County, Mo. Preference should be given to students from the Carl Junction area.

-Gateway NAMA Scholarship in Agricultural Communications/Agrimarketing: Priority given to freshmen, but may be given to students in other classes to fulfill the purpose of the scholarship. Recipient is selected based on interest in agricultural communications and potential for a career in agricultural communications/agrimarketing. Second priority would be for scholarships for travel to attend NAMA chapter or national meetings. Recipient is selected based on interest in agricultural communications and potential for a career in agricultural communications/agrimarketing.

-Howard R. Hackler Memorial Scholarship: Scholarship of $500 for senior or graduate student majoring in agriculture and majoring in horticulture with an emphasis on floriculture. Selection is made by the College of Agriculture Scholarship and Awards Committee.

-Harold P. Dugdale Scholarship: A separate scholarship to deserving graduate students majoring in food science with an emphasis in meat science and processing. Based upon academic excellence, leadership potential, and research orientation are three major selection criteria, although academic excellence is of primary importance. Recipient must be a junior or senior student enrolled in the College of Agriculture.

-Damon V. Catron Scholarship: $1,000 stipend in addition to a MS or PhD assistantship is available to graduate students majoring in floriculture who can show personal merit, intellectual capacity, a need for financial aid and a demonstrated interest in a career in floriculture. Applications are to be submitted by October 1st each year to the College of Agriculture Scholarship and Awards Committee.

-Howard R. Hackler Memorial Scholarship: Family and friends of Hackler established an endowment to provide one or more annual scholarships. Preference is given to recipients enrolled in the College of Agriculture or College of Veterinary Medicine who have a background and an interest in floriculture.
Aberdeen Angus cattle. Students from other divisions also are considered. Hackler was a recognized farm leader in Marion County, Mo., president of the Missouri Aberdeen Angus Association, and first president of the Missouri Livestock Council. Selection is made by the College of Agriculture Scholarship and Awards Committee.

Albert R. Hagan Award: The purpose of this award is to recognize notable achievements and contributions in the fields of farm management and agriculture finance. Perpetual funds are provided to support this award as described below. Selection is made by the College of Agriculture Scholarship and Awards Committee.

Carnell W. and Margaret H. Hall Agricultural Journalism Scholarships: Two $500 scholarships are awarded to upperclass students from Missouri majoring in agricultural journalism. Leadership potential, scholarship and promise for an agricultural journalist currently enrolled in the College of Agriculture are considerations for selection. Selection is made by the Department of Agricultural Journalism.

David M. Hardy Scholarship in Cooperative Management: A $500 scholarship is awarded to a graduate student interested in possible employment by a farmer's cooperative marketing, purchasing or credit association. Recipient must be enrolled in a graduate program in the field of farm management and/or agricultural finance. Selection is based on academic excellence and active interest in the field of cooperative management. Recipient also may be given an opportunity for summer employment with a farmer's cooperative marketing, purchasing or credit association. The Farm Credit Board of St. Louis authorized the St. Louis Bank for Cooperatives to establish this scholarship in honor of Hardy, who retired after 30 years of service as president of the bank. Selection is made by the College of Agriculture Scholarship and Awards Committee.

Charles M. Harrold IFT Award: An award of $350 is given to a junior majoring in food science and nutrition and who exhibits a sincere professional interest in food science. Recipient must be awarded on the recommendation of the College of Agriculture faculty. Recipient must be in need of financial assistance, rank in the upper 25 percent of the class, and have involvement in extracurricular activities, and sincerity of purpose in scholarship for students enrolled in the agriculture division of land-grant colleges. Selection is made by the College of Agriculture Scholarship and Awards Committee.

W.H.E. Reid Scholarship in Dairy Technology: A memorial scholarship fund established by family and friends for students majoring in dairy science and nutrition. Recipient must be in need of financial assistance, rank in the upper 25 percent of the class, and have demonstrated qualities of leadership, character, performance, and sincerity of purpose in scholarship for a 4-H member who is a freshman in West Plains (Mo.) High School. Selection is made by the Department of Agricultural Economics.

Raitos-Purina Scholarship: Stipend given an upper-class student from the College of Agriculture faculty. Recipient must be in need of financial assistance, rank in the upper 25 percent of the class, and have demonstrated qualities of leadership, character, performance, and sincerity of purpose in agriculture as a chosen field. Established as one of a group of scholarships for students enrolled in the agriculture division of land-grant colleges. Selection is made by the Department of Agricultural Economics.

R.J. Reynolds "Pride in Tobacco" Scholarship: Scholarship of $1,000 given to seniors to encourage and recognize outstanding students in the College of Agriculture. Recipient must be enrolled in agricultural business management, in two of the following areas: purchasing, credit, or insurance. Selection is based on academic excellence and active interest in the field of agriculture. Recipient also may be given an opportunity for summer employment in the same area. The St. Louis Board of Directors of the Reynolds Tobacco Company, under the St. Louis section of the National Foundation for Infantile Paralysis, authorized the establishment of this scholarship in honor of R.J. Reynolds, who served the nation as president of the Reynolds Tobacco Company. Final selection is made by the Department of Agricultural Economics.

Dwight F. Richards Agricultural Scholarship Award: Stipend given to seniors to encourage and recognize outstanding undergraduate student from West Plains (Mo.) High School.

Robertson's Farm Supply 4-H Scholarship: A $300 scholarship for a 4-H member who is a freshman in agriculture, home economics, engineering (agricultural), or education (vocational home economics).

James S. Rollins Scholarships: Given annually in recognition of merit and character to students in various UMC divisions. Recipient must be a junior in the College of Agriculture. Selection is made by the College of Agriculture Scholarship and Awards Committee.

Santa Fe Scholarship: Two scholarships, established by Santa Fe Railway, are available to FFA members who plan to attend UMC the fall semester following high school graduation. Recipients are chosen by the department of agricultural education, on the basis of their outstanding leadership, scholarship and supervised farming programs.

Elyabeth H. Schell Scholarships: Stipend of $1,000 per year is awarded to students in the College of Agriculture who are majoring in dairy science and farming. Preference is given to students who plan to become dairy stockmen. Selection is made by the College of Agriculture Scholarship and Awards Committee.

Sam B. Shirkey Centennial Scholarship: Stipend of $400 awarded annually to a senior who exhibits a sincere professional interest in the College of Agriculture and school and college academic performance. Selection is made by the College of Agriculture Scholarship and Awards Committee.

George E. Smith Scholarship: Scholarship of $500 for a senior or graduate student in agronomy with interest in soil conservation and/or fertility. Recipient is to be a U.S. citizen and preferably a Missouri resident. Selection is made by the College of Agriculture Scholarship and Awards Committee from nominees provided by the Department of Agronomy.

Granville M. Smith, Jr. Trust: The will of Evelyn D. Smith established an endowment in memory of her husband. Income therefrom to aid worthy students. Preference is given to students from Adair and Sullivan, Mo., counties; assistance is in the form of a grant or loan as determined by UMC. Smith was a well-known farmer in Adair and Sullivan counties. Selection made by the College of Agriculture Scholarship and Awards Committee.

Carroll County Centennial Scholarship: Scholarship of $500 for a senior or graduate student in agronomy is awarded to a graduate student who is a resident of Carroll County, Mo. or Iowa. Selection is made by the College of Agriculture Scholarship and Awards Committee.

Stapner-Kempster Memorial Awards in Poultry: Available each semester for poultry husbandry students employed by the college, graduate and undergraduate students who maintain a grade point average of 2.5 or better. The Mobley, Mo., farm provides these awards.

Philip C. Stone Scholarship in Entomology: Stipend for upper-class students majoring in entomology. The recipient is selected on the basis of academic excellence. Students transferring from other institutions of higher education must have at least two semesters of resident study at UMC to be eligible. Established with a gift from W.R. Hechler, Agr '61.

Helton-Pitts Scholarship: Stipend given to seniors to encourage and recognize outstanding students in the College of Agriculture. Recipient must be enrolled in agricultural business management, in two of the following areas: purchasing, credit, or insurance. Selection is based on academic excellence and active interest in the field of agriculture. Recipient also may be given an opportunity for summer employment in the same area. The St. Louis section of the National Foundation for Infantile Paralysis, authorized the establishment of this scholarship in honor of R.J. Reynolds, who served the nation as president of the Reynolds Tobacco Company. Final selection is made by the Department of Agricultural Economics.

H.H. Krusekopf Alpha Zeta Scholarship: Awarded to an outstanding member of Alpha Zeta fraternity. Selection is made by a committee of Alpha Zeta members and advisors. Established with a gift from H.H. Krusekopf, Agr '33.

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Richard V. Lott Undergraduate Student-Aid Fund in Horticulture: Income is to pay salary or scholarship for horticulture students who have financial need. Recipient
selection and decision on use of income are determined by the Department of Agricultural Engineering and the Dairy Science Department with final approval by the College of Agriculture Scholarship and Awards Committee.

The William Leslie Magruder Memorial Fund for Agriculture Teachers Scholarship: Established by the family and friends of William Leslie Magruder, a member of the Missouri Farm Bureau, $500 income is awarded annually to a faculty member of the College of Agriculture who is involved in agriculture education programs. The recipient is determined by the College of Agriculture Scholarship and Awards Committee.

The Missouri Seedmen's Association Achievement Award: Awarded annually to a junior or senior in the College of Agriculture who is enrolled in fields related to food science. Application can be submitted to the Undergraduate Office, I-74 Missouri Science and Nutrition Scholarship Committee.

The Monsanto Aid To Education Award: Award of $200 is provided annually to students majoring in agriculture in the College of Agriculture who are enrolled in the Missouri Science and Nutrition Scholarship Committee.

The Missouri Farm Bureau Foundation Board of Directors Scholarship: This scholarship is awarded annually to a student attending Missouri State University who is enrolled in a degree program related to agriculture. The recipient is determined by the Missouri Farm Bureau Foundation Board of Directors.

The Missouri Seed Trade Association Scholarship: Awarded annually to a senior majoring in agronomy or soil science. The recipient is determined by the Department of Agronomy.

The Missouri Poll-Ettes and the Missouri Polled Hereford Association Scholarship: Awarded annually to a female student majoring in animal science. The recipient is determined by the Department of Animal Science.

The Missouri Seed Trade Association Scholarship: Awarded annually to a student majoring in soil science. The recipient is determined by the Department of Agriculture.

The Missouri Seed Trade Association Scholarship: Awarded annually to a student majoring in plant science. The recipient is determined by the Department of Agriculture.

The Missouri Seed Trade Association Scholarship: Awarded annually to a student majoring in entomology. The recipient is determined by the Department of Agriculture.

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The Missouri Seed Trade Association Scholarship: Awarded annually to a student majoring in plant science. The recipient is determined by the Department of Agriculture.
products junior or senior who is a Missouri resident.

R.H. Westveld Forestry Fund: Established by friends and associates of R.H. Westveld at the time of his retirement as director, the annual earned income provides scholarships of varying amounts and the Westveld Prize in Forestry.

School of Forestry, Fisheries and Wildlife Development Fund Scholarships: Gifts to the Development Fund for scholarship purposes are made by friends of the School and are awarded as funds permit.

UNIVERSITY CLUB MEMORIAL SCHOLARSHIPS: A number of scholarships are awarded to forestry students each year provided by an endowment established by the Forestry Club and by annual contributions from the club.

William G. Kohner Scholarships: These forestry scholarships vary in amounts and were established through the will of W.G. Kohner, a 1918 UMC forestry graduate.

JAMES W. BAGBY LOAN FUND: Established by Dr. George L. Hawkins Sr. Student Aid Fund: Established by Dr. George L. Hawkins Jr. in honor of his father, this fund provides loans to undergraduate and graduate forestry students who are in need of financial assistance.

Lee C. Fine Memorial Loan Fund: Established by Lee A. Drey and Mrs. Lee C. Fine in memory of the late Lee C. Fine, this fund provides loans to qualified forestry students.

Memorial Loan Fund: This loan fund was established in memory of deceased graduates, friends and associates of the School. The major contributors are members of the Forestry Alumni Association.

SPECIAL PROGRAMS

INTERNSHIPS

College of Agriculture students may participate in one of several cooperative programs between the College and approved government agencies, employers and/or organizations who furnish facilities and instruction where students acquire additional knowledge and skills needed in their chosen career field. Students eligible for internships must be in good standing in a degree program with adequate prerequisite qualifications and approved by the adviser and department chairperson or internship coordinator. Specific departmental requirements may vary within each department for the career fields involved. For specific information, students should consult their adviser.

HONORS PROGRAM

The College of Agriculture Honors Program, designed to provide the academically talented student with greater curriculum flexibility, encourages breadth and depth of study in one or more specific areas.

To qualify, a student must have earned an accumulative GPA of 3.3 or better on 15 or more semester hours while enrolled in a baccalaureate degree program at the University of Missouri-Columbia. An accumulative GPA of 3.0 or better is necessary to remain in the Honors Program.

Students must be admitted to the Honors Program before classes begin the last semester they are enrolled in the College of Agriculture; no student will be admitted retroactively. Graduation through the Honors Program, which is recorded on the transcript, requires an accumulative 3.0 GPA.

If students are eligible for and wish to participate in the program, their advisers should petition the dean with a recommendation for an advisory committee of at least two faculty members, one of whom does not have to be in the major department or in the College of Agriculture. The dean gives the final approval on the advisory committee.

The student and the advisory committee develop a schedule of courses which best meets the educational objectives for the particular student. There are no restrictions on courses, except for the state law requirement of history or political science. The study program signed by the student and the advisory committee must be submitted to the dean by the last day of classes of the semester that the committee was appointed. Upon the dean's approval of the study program, the student is officially admitted to the Honors Program.

The student and the advisory committee must approve and sign changes in the study program; a change becomes effective upon approval of the dean.

Even though students may become ineligible because of GPA, they may continue to be advised by their advisory committee.

NON-TRADITIONAL STUDY PROGRAM

The Non-Traditional Study Program in Agriculture provides an opportunity for interested and qualified individuals to earn a degree in agriculture, even though they cannot return to campus as full-time students.

Primarily, the program is designed for people who:

1. Have interrupted their college career sometime in the past.
2. Find it difficult or impossible to return to campus to complete degree requirements.
3. Have a need and desire for the BS degree in agriculture and the motivation necessary to complete the requirement for the degree.
4. Are engaged in farming or agriculturally related business, or desire to prepare themselves for these occupations.

Applicants to the program should not have been full-time students during the five years preceding enrollment in the program.

The degree awarded and the number of hours required for the degree is the same as for the campus-based program. Credit may be earned through examinations, extension courses, special projects, life-learning experiences and several other avenues.

The course program, designed by the student and adviser, will include suggestions as to acceptable methods of obtaining the required credits. Further information on the program may be obtained by calling the director at (314) 882-6287.

SCHOOL OF FORESTRY, FISHERIES AND WILDLIFE FIELD STUDIES

In the summer between the sophomore and junior years, students in the forest management, recreational forestry, and forest science and specialization curricula attend a field studies session of six weeks at University Forest. A grade point average of 2.0 for all courses completed prior to attendance and the prerequisite for individual courses are required for participation in this session.

Incidental and field studies fees are based on six credit hours. For non-residents, excepting Kansas and Nebraska students, an appropriate non-resident tuition fee is assessed. For information on the current fees, contact the director of Forestry, Fisheries and Wildlife, 1-30 Agriculture Bldg.

RECIPIROAL AGREEMENT

Under reciprocal agreements, students from Kansas who attend the School of Forestry, Fisheries and Wildlife in forestry and students from Nebraska in forestry, fisheries and wildlife are exempt from non-resident tuition.

AGRICULTURAL EXPERIMENT STATION

The Missouri Agricultural Experiment Station, which has made many valuable contributions to agriculture, is part of an agricultural research program coordinated by the U.S. Department of Agriculture with all land-grant colleges.

With few exceptions, faculty members who teach courses in resident instruction also are Missouri Agricultural Experiment Station staff members and have responsibilities for agricultural research as well as for teaching.

PROFESSIONAL OPPORTUNITIES

The demand for graduates from various programs in the College is good. While there has been some slowdown in employment opportunities, some areas including pest management and food lodging are enjoying tremendous increases. Currently, careers in the agribusiness and general business sectors are the most attractive. About 45 percent of the graduates choose careers in those areas. Another 22 percent pursue graduate and professional degrees. The remaining 33 percent work in production agriculture, vocational agriculture education or in government service. In 1982, the average starting salary for our graduates was estimated at $16,500.

Forestry-related employment for graduates of the School of Forestry, Fisheries and Wildlife ranged from 50 to 75 percent from 1980-82. Most positions have been in the private industry sector with a significant number of graduates joining state and federal agencies. Beginning salaries generally have ranged from $13,000 to $18,000. Although some decrease in opportunities has occurred due to budgetary restrictions in the public agency sector as well as the general economy, graduates with sound academic standing who are energetic, willing to work and have no restrictive geographical preference usually will find positions. Wood products majors have been very successful. Temporary employment has often led to permanent positions. Fisheries and wildlife majors with only baccalaureate degrees continue to experience the greatest difficulty since agency programs are not as large and the private industry sector is much less significant.

SUBJECT MATTER AREAS

The teaching, research and extension work of the College of Agriculture includes the School of Forestry, Fisheries and Wildlife, and 21 other subject matter areas. Research work also includes that of the College of Veterinary Medicine.

AGRIBUSINESS

Undergraduate students in the College of Agriculture may elect to enroll in the agribusiness option. They may do this by indicating their interest in the business emphasis in the Departments of Agricultural Economics, Agri-

Students who desire additional information should contact their advisor or associate dean, College of Agriculture, 2-64 Agriculture Bldg., University of Missouri-Columbia, Columbia, Mo. 65211.

AGRICULTURAL ECONOMICS

200 Mumford Hall, (314) 882-2831

DEPARTMENTAL REQUIREMENTS

Professional Emphasis. This course of study is planned for the student who intends to pursue a career such as farming, professional farm management or agricultural credit.

GENERAL REQUIREMENTS FOR BS IN AGRICULTURE

Minimum Credit Hours Required

<table>
<thead>
<tr>
<th>Communications</th>
<th>Professional</th>
<th>Business</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Public Speaking</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Communications Elective</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science &amp; Mathematics</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>College Algebra</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Botany or Plant Science or Zoology or Animal Science</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Science or Math Elective</td>
<td>6-8</td>
<td>6-8</td>
<td>6-8</td>
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<tr>
<td>Total 14 credit hours</td>
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</tbody>
</table>

Business & Economics

Agricultural Economics or General Economics

Economics Elective

Total 8 credit hours

Departmental Requirements

Major field and supporting courses

Natural and Social Sciences, including Math and Statistics

Business and Economics

Total 48 credit hours*

Additional Electives

A minimum of 12 of these 30 credit hours must be taken in courses other than those of the College of Agriculture, with not more than two courses of the 12 credit hours being in any one department.

Total Credit Hours Required for BS degree

Other Requirements

A minimum of 50 credit hours in the total program of 128 must be in courses numbered 100 and above. A minimum of 24 of that 50 credit hours must be in courses numbered 200 and above. A minimum of 32 credit hours in the total program of 128 must be in courses offered by the College of Agriculture. Twelve hours of this requirement may be satisfied by transferring agricultural credit from another institution.

Additional agricultural courses at 100 level or higher (other than agric. economics or rural sociology) (12)

Electives: 26 hours

Business Emphasis. This course of study is planned to prepare the student for a field in agricultural business.

Major Field:

220 General Agricultural Marketing or Marketing 204 (3)
225 Statistical Analysis or Statistics 207 or 234 or 250 (3)
230 Farm Programs or 270 Resources and Economic Development or 271 International Agricultural Development (3)
250 Economics of Agricultural Production and Distribution or Economics 251 (3)
251 Agricultural Prices (3)
260 Farm Management (3)
280 Financing the Farm Business or Finance 203 (3)
299 Senior Seminar (1)
312 Planning the Farm Business or 314 Farm Business Analysis (3)
333 Agricultural Law (3)

Supporting Courses

Economics 229 or 253 (3)
Mathematics 60 or 205 or 207 (3)
Accountancy 37 or 137 (3)
Computer Science 75 or 104 or Accountancy 258 (3)
Agriculture 30 or Biological Science 12 (5)
Agriculture 12 or Biological Science 1 and 2 (5)

This course of study is designed primarily for the student who plans to do graduate work.

Major Field:

220 General Agricultural Marketing or Marketing 204 (3)
225 Statistical Analysis or Statistics 207 or 234 or 250 (3)
230 Farm Programs or 270 Resources and Economic Development or 271 International Agricultural Development (3)
251 Agricultural Prices (3)
260 Farm Management (3)
280 Financing the Farm Business or Finance 203 (3)
290 Marketing Farm Commodities: Theory and Practice (1)
291 or 294 Livestock Marketing or Grain Marketing (2)
299 Senior Seminar (1)
312 Agricultural Business Management (3)
333 Agricultural Law or Management 254 (3)

Electives: 28 hours

Science Emphasis. This course of study is designed primarily for the student who wishes to teach vocational agriculture. Students interested in becoming certified to teach vocational agriculture should enroll in the College of Agriculture. Graduates of the program in agricultural education may be qualified to teach in the following instructional areas: agricultural production, agricultural mechanics, agricultural sales and services, ornamental horticulture and conservation. Students must have at least a 2.5 GPA to enroll for the student teaching sequence of professional courses in the senior year. Programs are planned by the students and their advisers to meet state requirements for certification to teach.

DEPARTMENTAL REQUIREMENTS

Professional Emphasis

Education: 29 hours

Educational Psychology A205 Psychology of Learning (2)
Education B350 or B351 or B352 Historical Foundations of Education (2-3)
Education T316 Teaching Reading (3)
Special Education L339 Education of Exceptional Children (3)
fers the agricultural mechanization program through the College of Agriculture. The department also offers an agricultural engineering program through the College of Engineering. Curriculum details for the latter are given in the College of Engineering section of this catalog.

DEPARTMENTAL REQUIREMENTS

General: Required by all areas of emphasis are the following:

Agriculture 30 or Animal Science 12 (5)
Agronomy 100 (5)
Library Science 105 (1)
Computer Use Course (3)
Agricultural Engineering Department courses (22)
Electives, including 12 hours outside Agriculture (enough hours to total 128 hours)

Supporting Courses: For students preparing for farm management/agriculture.
Select 16 hours minimum from the following:
Accountancy 36
Agricultural Economics 260, 312, 333
Agronomy 302, 303, 304, 306
Animal Science 20, 202, 313, 321, 341

Supporting Courses: For students preparing for agricul
ture careers.
Select 16 hours minimum from the following:
Accountancy 36, 37
Finance 123
Management 202
Marketing 204

Agricultural Economics 220, 225, 280, 312, 333

Supporting Courses: For students preparing for a
tecanical career in a company which provides
services to the farmer (such as soil conserva
tion service, extension service, electric power
companies and agricultural equipment manu
facturers).
Select a minimum of 16 hours from the following:
Physics 11
Mathematics 9
Engineering 30
Agricultural Chemistry 110
Agricultural Economics 225
Agronomy 23, 307, 308

AGRONOMY

135 Mumford Hall, (314) 882-2801
Study in agronomy may be directed to give a
greater emphasis in either the area of crop
science or soil science. At the undergraduate
course, many courses satisfy the needs of either
area. This allows a single listing of courses from
which a student may choose. Many
variations may be developed to fit individual
needs. The student interested in weed science
should refer to that section. All agronomy
majors upon graduation may be certified by the
American Registry of Certified Professionals in
Agronomy, Crops, and Soils.

DEPARTMENTAL REQUIREMENTS

General Requirements
Agronomy majors are required to take
10 hours of Chemistry with Chemistry 11 and
12 required for the science option, Biological
Science 12, 5 hours of Math (9 or higher) and
a computer course. The science option requires
Physics 11.

Professional Emphasis: This curriculum is for
those students who expect to engage in farming
or agricultural advisory services with emphasis
on agronomic production.
Major Field: 48 hours
Agronomy 30 (5)
Agronomy 100 (5)
Agronomy 130 (1)
Agronomy 225 (3) or Geology 1 (5)
Agronomy 230 (3)
Agronomy 315 (3)
1 course in Soil Fertility (or related field)
1 course in Weed Science
business-related courses. Students and their faculty advisers select those courses that fit the students' needs, interest and objectives. The greatest amount of specialization occurs at the advanced degree (MS and PhD) levels.

DEPARTMENTAL REQUIREMENTS

In addition to the College of Agriculture general requirements, students in the animal sciences must take the following Animal Science core courses:

- Animal Science 11
- Animal Science 21
- Animal Science 30
- Animal Science 40
- Animal Science 50
- Animal Science 60
- Animal Science 70

The four program emphasis areas are (1) nutrition, (2) genetics, (3) physiology, and (4) production and management. Requirements in each area are described below:

NUTRITION

- Required courses: 31 hours
  - 212 Applied Nutrition (3)
  - 302 Monogastric Nutrition (3)
  - 213 Nutrition Technology Lab (2)
  - 122 Nutrition Technology Lab (2)
  - 172 Nutrition Technology Lab (2)
  - 175 Nutrition Technology Lab (2)
  - 177 Nutrition Technology Lab (2)

- Elective courses: 15 hours
  - 212 Applied Nutrition (3)
  - 302 Monogastric Nutrition (3)
  - 213 Nutrition Technology Lab (2)
  - 122 Nutrition Technology Lab (2)
  - 172 Nutrition Technology Lab (2)
  - 175 Nutrition Technology Lab (2)
  - 177 Nutrition Technology Lab (2)

- Additional Electives: 8 hours
  - 100 level or above.

GENETICS

- Required courses: 17 hours
  - 202 Applied Animal Genetics (3)
  - 203 Breeding (3)
  - 301 Introduction to Animal Genetics (3)
  - 302 Introduction to Animal Genetics (3)

- Elective courses: 15 hours
  - 202 Applied Animal Genetics (3)
  - 203 Breeding (3)
  - 301 Introduction to Animal Genetics (3)
  - 302 Introduction to Animal Genetics (3)

- Additional Electives: 8 hours
  - 100 level or above.

PHYSIOLOGY

- Required courses: 39 hours
  - 214 Animal Physiology of Domestic Animals (4)
  - 202 Principles of Nutrition (3)
  - 213 Genetics of Livestock Improvement (3)
  - 304 Physiology of Reproduction (4)
  - 119 Biochemistry 1 or 205 Organic Chemistry (5)

- Elective courses: 15 hours
  - 214 Animal Physiology of Domestic Animals (4)
  - 202 Principles of Nutrition (3)
  - 213 Genetics of Livestock Improvement (3)
  - 304 Physiology of Reproduction (4)
  - 119 Biochemistry 1 or 205 Organic Chemistry (5)

- Additional Electives: 8 hours
  - 100 level or above.

PRODUCTION AND MANAGEMENT

- Required courses: 18 hours
  - 315 Introductory Dairy Science (3)
  - 316 Introductory Dairy Science (3)
  - 317 Introductory Dairy Science (3)
  - 318 Introductory Dairy Science (3)

- Elective courses: 15 hours
  - 315 Introductory Dairy Science (3)
  - 316 Introductory Dairy Science (3)
  - 317 Introductory Dairy Science (3)
  - 318 Introductory Dairy Science (3)

ATMOSPHERIC SCIENCE (METEOROLOGY)

- Required courses: 39 hours
  - 214 Animal Physiology of Domestic Animals (4)
  - 202 Principles of Nutrition (3)
  - 213 Genetics of Livestock Improvement (3)
  - 304 Physiology of Reproduction (4)
  - 119 Biochemistry 1 or 205 Organic Chemistry (5)

- Elective courses: 15 hours
  - 315 Introductory Dairy Science (3)
  - 316 Introductory Dairy Science (3)
  - 317 Introductory Dairy Science (3)
  - 318 Introductory Dairy Science (3)

- Additional Electives: 8 hours
  - 100 level or above.

BIOCHEMISTRY

- Required courses: 39 hours
  - 214 Animal Physiology of Domestic Animals (4)
  - 202 Principles of Nutrition (3)
  - 213 Genetics of Livestock Improvement (3)
  - 304 Physiology of Reproduction (4)
  - 119 Biochemistry 1 or 205 Organic Chemistry (5)

- Elective courses: 15 hours
  - 315 Introductory Dairy Science (3)
  - 316 Introductory Dairy Science (3)
  - 317 Introductory Dairy Science (3)
  - 318 Introductory Dairy Science (3)

- Additional Electives: 8 hours
  - 100 level or above.

DAIRY SCIENCE

- Required courses: 39 hours
  - 214 Animal Physiology of Domestic Animals (4)
  - 202 Principles of Nutrition (3)
  - 213 Genetics of Livestock Improvement (3)
  - 304 Physiology of Reproduction (4)
  - 119 Biochemistry 1 or 205 Organic Chemistry (5)

- Elective courses: 15 hours
  - 315 Introductory Dairy Science (3)
  - 316 Introductory Dairy Science (3)
  - 317 Introductory Dairy Science (3)
  - 318 Introductory Dairy Science (3)

- Additional Electives: 8 hours
  - 100 level or above.

ENTOMOLOGY

- Required courses: 39 hours
  - 214 Animal Physiology of Domestic Animals (4)
  - 202 Principles of Nutrition (3)
  - 213 Genetics of Livestock Improvement (3)
  - 304 Physiology of Reproduction (4)
  - 119 Biochemistry 1 or 205 Organic Chemistry (5)

- Elective courses: 15 hours
  - 315 Introductory Dairy Science (3)
  - 316 Introductory Dairy Science (3)
  - 317 Introductory Dairy Science (3)
  - 318 Introductory Dairy Science (3)

- Additional Electives: 8 hours
  - 100 level or above.

ENVIRONMENTAL SCIENCE EMPHASIS

- Required courses: 39 hours
  - 214 Animal Physiology of Domestic Animals (4)
  - 202 Principles of Nutrition (3)
  - 213 Genetics of Livestock Improvement (3)
  - 304 Physiology of Reproduction (4)
  - 119 Biochemistry 1 or 205 Organic Chemistry (5)

- Elective courses: 15 hours
  - 315 Introductory Dairy Science (3)
  - 316 Introductory Dairy Science (3)
  - 317 Introductory Dairy Science (3)
  - 318 Introductory Dairy Science (3)

- Additional Electives: 8 hours
  - 100 level or above.
Poultry Science and Rural Sociology are participating in offering programs with an environmental emphasis.

Elect one or more courses from each of the three groups listed below and additional courses from the list of general environmental courses to total at least 24 hours.

Socially Oriented Courses
- Agricultural Economics 333 (3)
- Anthropology 250 (3)
- Community Development 190 (3)
- Rural Sociology 120 (2)
- Sociology 216 (3)

Resource Oriented Courses
- Agricultural Economics 270 (3)
- Agricultural Economics 386 (3)
- Atmospheric Science 50 (3)
- Entomology 101 (3)
- Entomology 204 (3)
- Food Science and Nutrition 30 (5)
- Forestry, Fisheries and Wildlife 195 (2)
- Forestry, Fisheries and Wildlife 202 (3)
- Horticulture 254 (3)
- Plant Pathology 304 (3)
- Engineering and Technology Courses
  - Agricultural Engineering 201 (3)
  - Agricultural Engineering 202 (3)
  - Atmospheric Science 316 (3)
  - Physics 205 (2-3)

General Environmental Courses
- Agronomy 100 (4 or 5)
- Agronomy 308 (3)
- Atmospheric Science 303 (3)
- Atmospheric Science 366 (3)
- Agriculture/Biosciences 6 (3)
- Biological Sciences 362 (5)
- Entomology 319 (3)
- Forestry, Fisheries and Wildlife 322 (3)
- Forestry, Fisheries and Wildlife 553 (2)
- Horticulture 10 (3)
- Plant Pathology 307 (4)
- Community Development 360 (3)
- Rural Sociology 304 (3)

**EXTENSION EDUCATION**

103 Whitten Hall, (314) 882-4517

More than 3,000 extension offices throughout the nation make up the vast facility for extending knowledge to Americans. In Missouri, there are 117 centers and a professional extension staff of more than 385 people.

Extension education provides a graduate program to develop the competencies needed to effectively extend the educational resources of the University to the people.

Students interested in extension are advised to complete the undergraduate degree in the discipline of their choice, and then complete a master’s degree in a discipline with supporting extension education courses as electives, or enroll for a master of science in extension education. Many professional positions in extension require a master’s degree.

**FOOD SCIENCE AND NUTRITION**

103 Eckles Hall, (314) 882-2639

Three career opportunity areas are (1) food science—the basic studies which aid our understanding of food and its functions; (2) food business—supplying and distributing food to the market; and (3) food service and lodging management—food service and hospitality. In the food science area, the student may select the science or professional option, while food business and food service and lodging management areas are only a business option. Career opportunities related to such functions as food distribution and service, the hotel and restaurant industry, research and product development, products production, and safety and environmental quality control are available. The following examples illustrate departmental programs designed to provide competency for these different career opportunity areas.

**FOOD SCIENCE DEPARTMENTAL REQUIREMENTS**

**Science Option** must include at least 32 hours of the courses listed below:

- Major Field: 32 hours
  - Food Science and Nutrition (5)
  - Physical Principles for Food Processing (3)
  - Food Analysis (3)
  - Food Chemistry I (5)
  - Food Processing (5)
  - Food Quality and Sanitation (3)
  - Food Microbiology (3)
  - Food Microbiology Lab (2)
  - Sensory Analysis of Food (3)

- Science and Mathematics: 16 hours
  - Additional Requirements: 30 hours
  - At least one additional food processing course must be completed from the following: FSN 304, 307 and 335.

The above science option is in compliance with the Institute of Food Technology Science requirement.

**Professional Option**

- Major Field: 32 hours of courses in Food Science and Nutrition
  - Supporting courses: 16 hours including at least 6 hours in business management.
  - Additional Requirements: 30 hours
  - Food Service and Lodging Management
  - Departmental Requirements
    - 30 Food Science and Nutrition (5)
    - 40 Fundamentals of Food Service and Lodging Industry (3)
    - 50 Attributes of Food Quality (3)
    - 135 Production Technology for Food Services (5)
    - 145 Food and Beverage Management (3)
    - 150 Food Service and Lodging Industry Operations Management (3)
    - 224 Meat Selection and Identification (3)
    - 240 Operational Management in Food Service (3)
    - 255 Management and Training of Personnel (3)
    - 340 Case Studies and Research in Food Service Management (3)
  - 345 Advanced Food Production Technology for Food Service (3)
  - 360 Food Sanitation (3)
  - 500 Internship (4-6)

**Business and Economics: 25 hours**

- Select from the following: accounting, economics, management, labor economics, corporation finance, data processing, statistics and marketing.
  - Additional Requirements: 21 hours
    - May include microwave heating of foods, sensory analysis, organizational behavior and other economic and business courses.

**Food Business Option**

- Major Field: 32 hours
  - 75 Attributes of Food Quality (3)
  - 360 Food Quality and Sanitation (3)
  - 21 additional hours in Food Science and Nutrition or closely related areas.

- Business and Economics: 16 hours
  - Additional Requirements: 30 hours

**GENERAL AGRICULTURE**

Students may choose to major in general agriculture rather than a specific subject area. Students in general agriculture must meet the general requirements and additional electives outlined, but instead of meeting the departmental requirements may complete 48 semester hours offered by departments in the College. Agriculture courses used to meet general requirements count toward this total. Fifteen semester hours must be in one department in the College and eight semester hours must be in each of two additional departments in the College.

**HORTICULTURE**

1-40 Agricultural Bldg., (314) 882-7511

Horticulture is a diverse field, encompassing the areas of ornamental plants such as flowers, ground covers, lawn and turf grasses, shade and flowering trees, shrubs, and food plants such as fruits and vegetables. Horticulture requires highly trained persons with varying combinations of professional, business and scientific skills.

The student and faculty adviser develop an individualized curriculum that is designed to prepare the student to fulfill individual objectives.

Departmental requirements are subdivided into major field requirements and emphasis area requirements. Students majoring in horticulture must meet major field requirements as well as the requirements of one of the emphasis areas. These emphasis areas include flower crops production, retail floristry, nursery crops production, landscape design, fruit and vegetable crop production, turf management and horticulture science. Emphasis area requirements include appropriate courses in horticulture and its supporting fields.

- Major Field: 37 hours
  - 20 Basic Home Horticulture (3)
  - 160 Garden Flowers (3)
  - 201 Ornamental Woody Plants I (3)
  - 203 Plant Propagation (3)
  - 204 Plant Environments (3)
  - 205 Plant Nutrition (3)
  - 206 Plant Protection (3)
  - 207 Plant Origin and Development (3)
  - 340 Advanced Food Production Technology for Food Service (3)
  - 360 Food Sanitation (3)
  - 500 Internship (4-6)

- Business and Economics: 25 hours
  - Select from the following: accounting, economics, management, labor economics, corporation finance, data processing, statistics and marketing.

- Additional Requirements: 21 hours
  - May include microwave heating of foods, sensory analysis, organizational behavior and other economic and business courses.

**Food Business Option**

- Major Field: 32 hours
  - 75 Attributes of Food Quality (3)
  - 360 Food Quality and Sanitation (3)
  - 21 additional hours in Food Science and Nutrition or closely related areas.

**PEST MANAGEMENT**

47 Agricultural Bldg., (314) 882-7871

The pest management curriculum is interdisciplinary in nature and includes courses designed to give the student broad experience in areas associated with plant and animal protection. Pest management graduates are required to have knowledge in many fields of agricultural science, with special expertise in entomology.
ogy, plant pathology, weed science and animal damage control. The courses of study in these disciplines emphasize the biological principles behind the management of pest populations. Moreover, students are presented a holistic view of biological and environmental interactions. At UMC, the emphasis in teaching is placed on the system approach in which all control procedures are unified to manage the pest species, while taking into consideration the long-term preservation of the environment.

At present, most professional opportunities in this area are related to agricultural production. In the near future, many pest management specialists will be involved in the solution of wide-range problems related to urban, rural, aquatic and forest environments.

CURRICULUM REQUIREMENTS

Major Field: 23 hours

Agriculture 306 Weed Control (3)
Plant Pathology 305 Introduction to Plant Pathology (3)
Entomology 312 Biometrics of Insect Pests (3)
Pest Management 180 Principles of Pest Management (3)
Entomology 181 Insect Behavior (3)
Agricultural Engineering 198 Pesticide Application Equipment (3)

Summer Internship (2)

Computer Science 104 Computers and Programming I (3)

Supporting Courses: 25 hours

Select from the following courses or others with advisor's approval.

Agronomy 100 Soil Systems (5)
Agronomy 225 Basic Plant Genetics (3)
Agronomy 230 Crops and Soils Management (3)
Agronomy 302 Fertilizers (2)

Horticulture 201 Plant Propagation (3)
Horticulture 204 Plant Environments (3)
Entomology 101 Insects in the Environment (3)
Entomology 214 Limnological Entomology (3)
Entomology 315 Medical and Veterinary Entomology (3)
Entomology 319 Insect Ecology (3)
Entomology 322 Biological Control of Insects (3)
Entomology 405 Toxicology of Invertebrates (3)

Forestry, Fisheries and Wildlife 60 Ecology of Wildlife and Man (3)

Forestry, Fisheries and Wildlife 202 Environmental Quality in Forest Systems (3)

Plant Pathology 307 Mycology (4)
Plant Pathology 361 Insects in Relation to Plant Diseases (3)
Plant Pathology 391-392-393 Clinical Plant Pathology 2(1)

Meteorology 30 Introductory Meteorology (3)

Biological Science 12 General Botany (5)
Biological Science 212 Basic Microbiology (4)
Biological Science 214 Plant Taxonomy (4)

Mathematics 207 Calculus for Social and Natural Sciences I (3)

Statistics 31 Elementary Statistics (3)

Additional Electives: 30 hours

RURAL SOCIOLOGY

102 Sociology Bldg., (314) 882-6085

DEPARTMENTAL REQUIREMENTS

Subject Matter Core. In all of the following alternative programs of study, a core of six courses, consisting of 18 credit hours, provides the general substantive foundation upon which the unique features of each program are built. This core is selected from the following list. Each program is planned by an adviser working with the student; certain substitutions are permitted.

Rural Sociology Department is abbreviated RS and Sociolog- y SQ.

RS 155 Agriculture in Communal Settings
RS 175 Corporate Farms vs. Family Farms
RS 180 Social Research I
RS 185 Contemporary Social Problems
RS 268 Population and Ecology
RS 299 Recent Theories in Sociology
RS 310 Rural Social Organization
RS 340 Community Social Structure

Science Emphasis. This course of study is designed for those students who plan to do graduate work in sociology or rural sociology. In addition to the six core courses, the student's program, would include Rural Sociology 375, Social Statistics, (also Sociology 180, if not included in the core) and additional courses in sociology/rural sociology and/or related disciplines, to make up the 48 hours of departmental requirements required by the College of Agriculture.

It is recommended that courses in symbolic logic and/or philosophy of science be used to satisfy the humanities studies elective of the general education requirements.

Business Emphasis. The following program is suggested for students who plan to enter the business world. In addition to the rural sociology core, the student should take 201, Organization and Leadership in Modern Society, and nine other courses, either from the remaining courses offered by the Departments of Sociology and Rural Sociology, or from the following courses offered by other departments: Accountancy 37 Accounting II

Agricultural Economics 220 General Agricultural Marketing
Agricultural Economics 250 Economics of Agricultural Production and Distribution
Economics 251 Theory of the Firm
Economics 253 Macroeconomic Policy
Agricultural Economics 230 Farm Programs
Agricultural Economics 241 Cooperative Business Organizations
Agricultural Economics 251 Agricultural Prices
Agricultural Economics 290, 291, 292, and/or 294 Marketing Farm Commodities
Agricultural Economics 344 Management of Cooperative Firms
Family Economics and Management 175 The Consumer in our Society
Finance 203 Corporation Finance
Management 202 Fundamentals of Management
Marketing 204 Principles of Marketing
Marketing 312 Marketing Management
Marketing 316 Sales Management

It is assumed that the student will use Agricultural Economics 50 (or general economics) and Accounting I to satisfy the business and economics general education requirement of the College.

Professional Emphasis. The following programs are designed to provide students with the foundations for a saleable body of knowledge skills for various types of careers, such as research technicians, demographic analyst, youth work, Peace Corps, community development, social service agencies, etc.

Demographic Analyst or Research Technician. In order to the six core courses and 290 Practicum, a block of 27 additional hours are necessary to complete the departmental requirements.

The following courses should be included:

RS 375 Social Statistics
RS 376 Advanced Social Statistics
RS 184 Social Impact Analysis
RS 311 Applied Sociology
S 305 Dynamics of Population

Additional Electives: 29 hours

PREVETERINARY MEDICAL PROGRAM

Students wishing to prepare for application to the College of Veterinary Medicine may enroll in the College of Agriculture under the science emphasis programs. In satisfying the requirements of the science program, the requirements for entering veterinary medicine also may be satisfied. However, before applying to the College of Veterinary Medicine, a student should make certain that the following requirements have been satisfied.

A minimum of 64 semester hours, exclusive of ROTC and physical education, is required for admission to the College of Veterinary Medicine. Credit received in the CLEP exams or for testing out of a course may be counted in total hours, but will not be counted as part of the required hours below. The 64 semester hours must include the following or equivalent:

Animal Science 12 (5)
Animal Science 202 (3)
English: 6 hours
College Algebra: 3 hours
Inorganic Chemistry: 8 hours
Organic Chemistry: 2 hours
Physics: 5 hours
Biological Science: 10 hours

Electives: Select courses toward the BS degree of your choice.

23
FOREST, FISHERIES
AND WILDLIFE CURRICULA

BACHELOR OF SCIENCE

For all curricula in Forestry, Fisheries and Wildlife, the last 60 hours must be completed in residence. The faculty may grant an exception under unusual circumstances.

Satisfactory completion of 135 hours in the forest management and recreational forestry curricula, 130 hours in wood products, forest science and specialization, and 125 hours in fisheries and wildlife is required for graduation. Course work taken at the University must be completed with an average of C (2.0 GPA; A = 4.0.)

Elective courses must be approved by the student’s adviser. A maximum of 18 credit hours in ROTC courses (Air Force, Army or Navy) is permitted to count as elective credit toward the degree of which six hours may be substituted for social science and humanities electives. Only four credit hours in physical education courses may be used in calculating the grade point average and toward credit for graduation.

Core Content

Four curricula in forestry and one in fisheries and wildlife are offered at the undergraduate level—forest management, recreational forestry, wood products, forest science and specialization, and fisheries and wildlife. All curricula are based on a common foundation of physical, biological and social sciences, plus humanities. This background provides not only essential material prerequisite to professional course offerings but also gives the student a basic liberal education.

The general education core includes the following groups of courses:

- Communications (writing, speech) 9 to 12 hours
- Mathematics (statistics, calculus, computer science) 9 to 12 hours
- Natural Sciences (botany, chemistry, physics, geology, etc.) 22 to 28 hours
- Social Sciences and Humanities (economics, American history, or political science, plus student’s selection from 16 fields) 17 hours

Students who qualify on Freshman Placement Tests in mathematics will be awarded advance credit for Math 10. Students scoring in the lower range in English on FPT will need to pass English 1 during their freshman year and English 60 after their freshman year. If placed in English 60 on FPT, an elective may be taken.

The student is expected to have a working knowledge of trigonometry and college algebra. A student without adequate mathematical background may take trigonometry and college algebra as electives.

Required courses in mathematics (exclusive of computer science and statistics), chemistry and physics should be completed in the first 60 hours of college work. Transfer students should complete them in the first possible semester after transfer.

MASTER OF SCIENCE

The master of science programs in forestry are available in ecology, economics, entomology, hydrology, mensuration, photogrammetry, physiology, policy, recreation, silviculture, soils, timber management, wood science and wood technology. The MS programs in fisheries and wildlife are offered in areas of ecology, reproduction, animal behavior, limnology and water quality, wildlife management, fishery biology and management, and population dynamics.

DOCTOR OF PHILOSOPHY

The doctor of philosophy programs in forestry are available in ecology, economics, entomology, hydrology, physiology, policy, recreation, silviculture, soils and wood science. The program areas for the PhD in fisheries and wildlife are the same as the program areas for the MS.

FOREST MANAGEMENT

The forest management curriculum is designed to prepare the student for varied types of land management work in forestry. It includes professional courses relating to the multiple-use aspects of forestry—timber, recreation, wildlife, water and range—and to forest administration, forest measurements and engineering, and forestry as affected by human institutions.

FRESHMAN

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
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<tbody>
<tr>
<td>English 1 Composition or Elective (3)</td>
<td>College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Geology 2 Physical Geology (3) or Geology 1 Principles of Geology (5)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
</tr>
<tr>
<td>Biological Science 12 General Botany (5)</td>
<td>Mathematics 10 College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Forestry Orientation (1)</td>
<td>Statistics 31 Elementary Statistics or Statistics 207 Statistical Analysis (5)</td>
</tr>
<tr>
<td>Mathematics 10 College Algebra or Elective (3)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
</tr>
<tr>
<td>Total: 15-17 hours</td>
<td>Total: 16 hours</td>
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JUNIOR

<table>
<thead>
<tr>
<th>Fall Semester</th>
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<tbody>
<tr>
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<tr>
<td>English I Composition or Elective (3)</td>
<td>College Algebra or Elective (3)</td>
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<tr>
<td>Geology 2 Physical Geology (3) or Geology 1 Principles of Geology (5)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
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<tr>
<td>Biological Science 12 General Botany (5)</td>
<td>Mathematics 10 College Algebra or Elective (3)</td>
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<tr>
<td>Forestry Orientation (1)</td>
<td>Statistics 31 Elementary Statistics or Statistics 207 Statistical Analysis (5)</td>
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<tr>
<td>Mathematics 10 College Algebra or Elective (3)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
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<td>Total: 15-17 hours</td>
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SOPHOMORE

<table>
<thead>
<tr>
<th>Fall Semester</th>
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<tbody>
<tr>
<td>Civil Engineering 20 Surveying (3)</td>
<td>College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Mathematics 207 Calculus for Social and Natural Sciences I (3)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
</tr>
<tr>
<td>151 Dendrology (4)</td>
<td>Mathematics 10 College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Elective (3)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
</tr>
<tr>
<td>Total: 16 hours</td>
<td>Total: 16 hours</td>
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</table>

WINTER SEMESTER

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
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<tbody>
<tr>
<td>Speech and Dramatic Art 75 Introduction to Speech Communication (3)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
</tr>
<tr>
<td>Agronomy 100 Soil Systems (4)</td>
<td>Engineering 153 Forest Inventory (2)</td>
</tr>
<tr>
<td>Physics I Elementary College Physics (5)</td>
<td>Mathematics 10 College Algebra or Elective (3)</td>
</tr>
<tr>
<td>154 Forest Graphics (2)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
</tr>
<tr>
<td>English 60 Exposition (3)</td>
<td>Total: 16 hours</td>
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<tr>
<td>Total: 17 hours</td>
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<tr>
<td><strong>Summer Session—Field Studies</strong></td>
<td>Fall Semester</td>
</tr>
<tr>
<td></td>
<td>207 Forest Fire Control and Use (2)*</td>
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<td>211 Resource Measurements (3)</td>
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<td></td>
<td>302 Silvics (3)</td>
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<td>306 Forest Vegetation (2)</td>
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<td>309 Watershed Management (3)</td>
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<td>318 Forest Economics (3)</td>
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<td>Total: 6 hours</td>
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<td>Winter Semester</td>
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<td></td>
<td>203 Forest Inventory (2)</td>
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<td></td>
<td>Entomology 210 Forest Entomology (3)*</td>
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<td></td>
<td>295 Forest Products Utilization (3)</td>
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<td></td>
<td>303 Practice of Silviculture (2)</td>
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<td></td>
<td>Elective (6)</td>
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<td>Total: 16 hours</td>
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SENIOR

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
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</thead>
<tbody>
<tr>
<td>English 161 Technical Writing (3)</td>
<td>College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Plant Pathology 305 Introduction to Plant Pathology (3)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
</tr>
<tr>
<td>314 Timber Management (3)</td>
<td>Mathematics 10 College Algebra or Elective (3)</td>
</tr>
<tr>
<td>322 Range and Wildlife Habitat Management (3)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
</tr>
<tr>
<td>Electives (4)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
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<tr>
<td>Total: 16 hours</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
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RECREATIONAL FORESTRY

Recreational forestry places particular emphasis upon the amenity and environmental values of forests and tree plantings. As in the forest management curriculum, considerable time is devoted to forest biology, but several additional social science courses are included to emphasize the interface between recreationists and the forest resource.

FRESHMAN

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
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<tbody>
<tr>
<td>English I Composition or Elective (3)</td>
<td>College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Geology 2 Physical Geology (3) or Geology 1 Principles of Geology (5)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
</tr>
<tr>
<td>Biological Science 12 General Botany (5)</td>
<td>Mathematics 10 College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Forestry Orientation (1)</td>
<td>Statistics 31 Elementary Statistics or Statistics 207 Statistical Analysis (5)</td>
</tr>
<tr>
<td>Mathematics 10 College Algebra or Elective (3)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
</tr>
<tr>
<td>Total: 15-17 hours</td>
<td>Total: 16 hours</td>
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</table>

WINTER SEMESTER

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
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<tbody>
<tr>
<td>Civil Engineering 20 Surveying (3)</td>
<td>College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Mathematics 207 Calculus for Social and Natural Sciences I (3)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
</tr>
<tr>
<td>151 Dendrology (4)</td>
<td>Mathematics 10 College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Elective (3)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
</tr>
<tr>
<td>Total: 16 hours</td>
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JUNIOR

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
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<tbody>
<tr>
<td>Speech and Dramatic Art 75 Introduction to Speech Communication (3)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
</tr>
<tr>
<td>Agronomy 100 Soil Systems (4)</td>
<td>Engineering 153 Forest Inventory (2)</td>
</tr>
<tr>
<td>Physics I Elementary College Physics (5)</td>
<td>Mathematics 10 College Algebra or Elective (3)</td>
</tr>
<tr>
<td>154 Forest Graphics (2)</td>
<td>Calculus for Social and Natural Sciences I (3)</td>
</tr>
<tr>
<td>English 60 Exposition (3)</td>
<td>Total: 16 hours</td>
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<tr>
<td>Total: 17-18 hours</td>
<td>JUNIOR</td>
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<tr>
<td><strong>Summer Session—Field Studies</strong></td>
<td>Fall Semester</td>
</tr>
<tr>
<td></td>
<td>140 Basic Forest Measurements (1)</td>
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<td>141 Forest Ecology and Silviculture (2)</td>
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<td></td>
<td>143 Forest Utilization (1)</td>
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<td>144 Forest Engineering (2)</td>
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<td>Total: 6 hours</td>
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<td>JUNIOR</td>
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<td></td>
<td>211 Resource Measurements (3)</td>
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<td>302 Silvics (3)</td>
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<td></td>
<td>306 Photogrammetry (2)</td>
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<td></td>
<td>Computer Science 104 Computers and Programming I or Agriculture III Computing and Programming Concepts I (3)</td>
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<td></td>
<td>Recreation or Shade Tree Management (3)**</td>
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<td></td>
<td>Elective (3)</td>
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<td>Total: 17 hours</td>
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WINTER SEMESTER

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
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<tbody>
<tr>
<td>Entomology 210 Forest Entomology (3)</td>
<td>College Algebra or Elective (3)</td>
</tr>
<tr>
<td>Speech and Dramatic Art 75 Introduction to Speech Communication (3)</td>
<td>Biological Agriculture 203 Forest Inventory (2)</td>
</tr>
<tr>
<td>320 Recreational Land Management (3)</td>
<td>Total: 16 hours</td>
</tr>
<tr>
<td><strong>Recommended, but not required.</strong></td>
<td>Total: 16 hours</td>
</tr>
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</table>
SENIOR
Total: 15 hours

English 161 Technical Writing (3)
Plant Pathology 305 Introduction to Plant Pathology (3)
340 Advanced Recreation Land Management (3)
314 Timber Management (3), 353 Public Resource Policy (2), 391 Land Use Planning (2) (2 of 3 courses required)
Recreation or Shade Tree Management Course (3)**
Total: 17 hours

Winter Semester
361 Recreational Forestry Trip (1)
Recreation or Shade Tree Management courses (6)**
Sociology 260 Social Psychology (3)*
Electives (6)
Total: 16 hours

Total hours required for degree: 135
*Sociology 1 and 260 are specified in addition to the 13 hours of social science/humanities electives.

**Three courses from one of the following groups and two from the other must be completed.

Recruitment and Park Administration 111 Introduction to Planning and Evaluating Recreation Environments (3)
Recreation and Park Administration 212 Planning Recreation and Leisure Environments (3)
Recreation and Park Administration 231 Principles of Interpretive Outdoor Recreation (3)
Recreation and Park Administration 331 Outdoor Recreation—Education (3)
Recreation and Park Administration 316 Administration of Leisure Services (3)
Recreation and Park Administration 333 Park Management (3)
Shade Tree Management (6-9 hours)
Horticulture 201 Ornamental Woody Plants I (3)
Horticulture 202 Ornamental Woody Plants II (3)
Horticulture 203 Plant Propagation (3)
Horticulture 204 Plant Environments (3)
Horticulture 205 Plant Nutrition (3)

WOOD PRODUCTS
In the wood products curriculum, the student must complete a minimum of 21 hours in any one of three areas of specialization. Specialization areas include science, utilization and management and are directed toward research or teaching, wood manufacturing or product sales, and managing a wood-based enterprise, respectively. At least 12 hours of the specialization program must be in courses numbered 200 or above.

The science specialization includes courses in the physical and biological sciences. It emphasizes knowledge of wood's chemical and physical properties. The primary objective is to train students for careers in teaching or research.

The utilization specialization includes courses in manufacturing or structural design. It emphasizes engineering as applied to the manufacture and use of wood products. Graduates with a degree in utilization probably will find their best opportunities in manufacturing and sales in the wood industry.

The management specialization includes courses in industrial organization and control. It emphasizes the decision making aspects of operating a forest- or wood-based enterprise. Graduates normally find career opportunities in industrial sales, management and administrative positions.

FRESHMAN
Fall Semester
English I Composition or Elective (3)
Geology 2 Physical Geology (3) or Geology 1 Principles of Geology (5)
Biological Science 12 General Botany (5)
Forestry Orientation (1)
Mathematics 10 College Algebra or Elective (3)
Total: 15-17 hours

Winter Semester
Chemistry I Introductory Chemistry or Chemistry 11 General Chemistry (5)
Statistics 31 Elementary Statistics or Statistics 207 Statistical Analysis or Agricultural Economics 225 Statistical Analysis (3)
Economics 51 General Economics or Agricultural Economics 50 Agricultural Economics (5)
Elective (3)
Total: 16 hours

Sophomore
Fall Semester
204 Wood Technology (3)
253 Light Construction (3)
Agroonomy 100 Soil Systems (4)
Computer Science 104 Computers and Programming I or Agriculture III Computing and Programming Concepts I (3)
Elective (3)
Total: 16 hours

Winter Semester
JUNIOR
Fall Semester
206 Wood Engineering (3)
211 Resource Measurements (3)
Mathematics 207 Calculus for Social and Natural Sciences I or Mathematics 60 Finite Mathematics or Mathematics 155 The Mathematics of Finance (3)
302 Silvics (3)
Elective (3)
Total: 15 hours

Winter Semester
JUNIOR
Fall Semester
207 Wood Technology (3)
254 Wood Processing (3)*
295 Forest Products Utilization (3)
Specialization (6)
Elective (3)
Total: 18 hours

Senior
Fall Semester
Specialization (9)
Elective (8)
Total: 17 hours

Winter Semester
245 Wood Science (4)*
255 Wood Seasoning and Preservation (3)** Specialization (3)
Elective (6)
Total: 16 hours

Total hours required for degree: 130
*Course can be taken either junior or senior year. Offered winter semester, odd years.
**Offered winter semester, even years.

FOREST SCIENCE AND SPECIALIZATION
Students aiming toward graduate study or who wish to specialize in a particular narrow field at the undergraduate level should seriously consider enrolling in forest science and specialization. This curriculum offers maximum flexibility to the student with well-defined goals not accommodated in other curricula. The procedure detailed below should be followed.

Admittance to the Curriculum. To qualify for admission into the forest science and specialization curriculum, the student must submit to the Undergraduate Programs Committee a detailed typewritten application outlining reasons for selecting the desired area of specialization and a career objective. The Undergraduate Programs Committee, following consultation with the student, forwards the application to an adviser.

With the aid of the adviser, the student develops an individualized program of study. The curriculum should include at least 40 additional credit hours directed toward the desired specialization.

The application and proposed curriculum are circulated to the entire faculty for information and suggestions and are submitted to a committee of three forestry, fisheries, and wildlife faculty members (including the adviser) selected by the student and adviser. This committee reviews the application, makes recommendations and grants final approval of the student’s program. Changes must be approved by the entire faculty.

Students may make application for inclusion under this option at any time. However, in order to take full advantage of the flexibility and opportunities available, they should make this decision as early in their undergraduate career as possible.

FRESHMAN
Fall Semester
English I Composition or Elective (3)
Geology 2 Physical Geology (3) or Geology 1 Principles of Geology (5)
Biological Science 12 General Botany (5)
Forestry Orientation (1)
Elective (3)
Total: 15 hours

Winter Semester
Chemistry I Introductory Chemistry or Chemistry 11 General Chemistry (5)
Statistics 31 Elementary Statistics or Statistics 207 Statistical Analysis or Agricultural Economics 225 Statistical Analysis (3)
Economics 51 General Economics or Agricultural Economics 50 Agricultural Economics (5)
Elective (3)
Total: 16 hours

Sophomore
Fall Semester
204 Wood Technology (3)
253 Light Construction (3)
Agroonomy 100 Soil Systems (4)
Computer Science 104 Computers and Programming I or Agriculture III Computing and Programming Concepts I (3)
Elective (3)
Total: 16 hours

Winter Semester
JUNIOR
Fall Semester
206 Wood Engineering (3)
211 Resource Measurements (3)
Mathematics 207 Calculus for Social and Natural Sciences I or Mathematics 60 Finite Mathematics or Mathematics 155 The Mathematics of Finance (3)
302 Silvics (3)
Elective (3)
Total: 15 hours

Winter Semester
JUNIOR
Fall Semester
207 Wood Technology (3)
254 Wood Processing (3)*
295 Forest Products Utilization (3)
Specialization (6)
Elective (3)
Total: 18 hours

Senior
Fall Semester
Specialization (9)
Elective (8)
Total: 17 hours

Winter Semester
245 Wood Science (4)*
255 Wood Seasoning and Preservation (3)** Specialization (3)
Elective (6)
Total: 16 hours

Total hours required for degree: 130

FISHERIES AND WILDLIFE
The fisheries and wildlife curriculum is designed to provide the essential biological and management background necessary to the student planning entrance into wildlife management or fisheries biology. It also may be selected by students having a concern for the effect of man’s environmental modifications upon animal species.

FRESHMAN
Fall Semester
English I Composition (3)
Geology 1 Principles of Geology (5)
70 Ecology and Renewable Resource Management (3)
Biological Science 12 General Botany or Biological Science 21 General Biology (5)

Total: 16 hours

Winter Semester
Chemistry 144 Introductory Chemistry or Chemistry 11 General Chemistry (5)
Mathematics 10 College Algebra (3)
Biological Sciences 11 Introductory Zoology or Biological Sciences 25 General Biology (5)
History 11 Themes in American History or Political Science 11 Introduction to Political Science (3)

Total: 16 hours

SPRING SEMESTER
Fall Semester
Agricultural Economics 50 Agricultural Economics or Economics 51 General Economics (5)
Mathematics 207 Calculus for Social and Natural Sciences (3)

English 60 Exposition (3)
120 Colloquium in Fisheries and Wildlife (1)
Elective (3)
Total: 15 hours

Winter Semester
Physics 11 Elementary College Physics (5)
150 Ornithology (3)*
Speech and Dramatic Arts 75 Introduction to Speech Communication (3)
Biological Science 214 Plant Taxonomy (4)

Total: 15 hours

JUNIOR
Fall Semester
307 Mammalogy or Elective (304)*
311 Ichthyology or Elective (4)*
Biological Science 202 Genetics or Biological Science 302 Evolution (3)
Statistics 150 Introduction to Probability and Statistics I (3)
English 161 Technical Writing (3)
Total: 16-17 hours

Winter Semester
333 Animal Population Dynamics and Management (3)
Biological Science 362 General Ecology (5)
Statistics 250 Introduction to Probability and Statistics II (3)
Agricultural Economics 333 Agricultural Law (3)
Entomology 204 General Entomology (3)*
Total: 17 hours

SENIOR
Fall Semester
Physiology 401 Elements of Physiology or Biological Science 270 Physiological Zoology (5)
327 Principles of Wildlife Management or Elective (3)
Electives (7)
Total: 15 hours

Winter Semester
328 Fisheries Management or Elective (3)
353 Public Resource Policy (2)
391 Land Use Planning (2)
Electives (8)
Total: 15 hours

Total hours required for degree: 125
*These of the following are required: 150 Ornithology (3)
307 Mammalogy (3-4)
311 Ichthyology (4)
Entomology 204 General Entomology (3)
Biological Science 325 Herpetology (4)
**One of the four is required:
FFW 322 Range and Wildlife Habitat Management (3)
FFW 323 Wildlife Management Techniques (3)
FFW 324 Limnology, (3-4)
FFW 328 Fisheries Management Techniques (3)
Student desiring to complete the educational requirements for certification as an associate wildlife biologist should complete FFW 322 or FFW 323 to have at least 6 hours in principles and practices of wildlife management.

FACULTY

ADMINISTRATION
Roger L. Mitchell, dean and professor, PhD, Iowa State University

David E. Baker, associate professor, MS, Illinois State University
Donald B. Brookner, professor, MS, University of Missouri-Columbia

R. H. Currence, associate professor, PhD, Iowa State University
C. Leroy Day, professor, PhD, Iowa State University
James R. Fischer, associate professor, PhD, University of Missouri-Columbia

James C. Friley, professor, PhD, Iowa State University
Charles Fulhage, associate professor, PhD, University of Missouri-Columbia

Albert Garcia III, instructor, MS, San Jose State University
Maurice R. Gebhardt, professor, PhD, University of Missouri-Columbia
Robert M. George, associate professor, PhD, University of Illinois

James M. Gregory, assistant professor, PhD, Iowa State University
Franklin D. Harris, professor, PhD, University of Arkansas
Allen R. Helmjeff Jr., professor, PhD, Northwestern University

William G. Hires, associate professor, PhD, University of Missouri-Columbia

Emilie L. Iannotti, associate professor, PhD, University of Maryland
Alvin Larke, assistant professor, PhD, University of Missouri-Columbia

Thomas R. McCartney, professor, PhD, Cornell University

Kenneth L. McFate, professor, MS, University of Missouri-Columbia

Richard E. Phillips, professor, PhD, Michigan State University

Donald Pfost, associate professor, PhD, The Ohio State University

Milton D. Shanklin, professor, PhD, University of Missouri-Columbia

Dennis M. Sievers, associate professor, University of Missouri-Columbia

David B. Smith, professor, PhD, University of Missouri-Columbia

AGRONOMY
Richard J. Aldrich, professor, PhD, The Ohio State University

Sajish C. Anand, associate professor, PhD, University of Wisconsin

Laurel Anderson, professor, PhD, University of Minnesota

Jack B. Beckett, assistant professor, PhD, University of Wisconsin

Paul Beuselinck, assistant professor, PhD, Oregon State University

Robert W. Blanchar, professor, PhD, University of Minnesota

Dale G. Blevins, associate professor, PhD, University of Kentucky

James R. Brown, professor, PhD, Iowa State University

Daryl D. Buchholz, assistant professor, PhD, Kansas State University

Lloyd E. Cavanaugh, professor, MS, University of Missouri-Columbia

Edward H. Cow Jr., professor, PhD, University of Illinois

Larry L. Durrah, associate professor, PhD, Iowa State University

Gregory G. Doyle, associate professor, PhD, University of Illinois

O. Hale Flecthall, professor, PhD, University of Missouri-Columbia

Homerc C. Folks, professor, PhD, Iowa State University

Clark J. Genter, associate professor, PhD, University of Minnesota

J. Perry Gustafson, associate professor, PhD, University of California

Roger G. Hanson, associate professor, PhD, University of Minnesota

Diana G. Helsel, assistant professor, PhD, Iowa State University

Zane R. Helsel, assistant professor, PhD, Iowa State University

Luther B. Hughes, associate professor, PhD, Purdue University

C. J. Johannessen, professor, PhD, Purdue University

Norman E. Justus, professor, PhD, Oklahoma State University

Harold D. Kerr, associate professor, PhD, Washington State University

Gordon Kimmer, professor, PhD, University of Manchester (England)

Gary F. Krause, professor, PhD, Virginia Polytechnic Institute and State University
FORESTRY
Donald P. Duncan, professor and director, PhD, University of Minnesota
Hardeep S. Bhullar, associate professor, PhD, University of Georgia
Merton F. Brown, professor, PhD, University of Iowa
Gene S. Cox, professor, PhD, Duke University
Bruce E. Cutter, assistant professor, PhD, University of Missouri-Columbia
Alan R. Everson, associate professor, PhD, Texas A&M University
John P. Dwyer, instructor, MAS, Southeastern Oklahoma State University
H. Eugene Garrett, professor, PhD, University of Missouri-Columbia
Milton F. George, assistant professor, PhD, University of Minnesota
Gray S. Henderson, associate professor, PhD, Cornell University
William B. Kurtz, professor, PhD, University of Arizona
Marc J. Limit, assistant professor, PhD, University of Arkansas
E. Allen McGinnis Jr., professor, PhD, New York State College of Forestry
Kenneth E. Moore, associate professor emeritus, MF, Yale University
Ralph A. Musbach, associate professor, MS, University of Missouri
Andrew J. Nash, professor, PhD, New York State College of Forestry
J. Milford Nichols, associate professor emeritus, MS, University of Missouri-Columbia
Stephen G. Pallardy, assistant professor, PhD, University of Wisconsin
William C. Parker, instructor, MS, University of Missouri-Columbia
James P. Pastoret, associate professor, MWT, University of Michigan
Lee K. Paulsell, professor, MS, University of Missouri-Columbia
R. Brooks Polk, associate professor emeritus, MS, Montana State University
Carl D. Settergren, professor, PhD, Colorado State University
John P. Slusser, professor, MS, Kansas State University
Richard C. Smith, professor emeritus, DF, Duke University
Rutland H. Westveld, professor emeritus, PhD, Michigan State University
PLANT PATHOLOGY
Victor H. Droplkin, professor and chairman, PhD, University of Chicago
Merton F. Brown, professor, PhD, University of Iowa
Oscar H. Calvert, professor, PhD, University of Wisconsin
Robert N. Goodman, professor, PhD, University of Missouri-Columbia
Arthur L. Karr, associate professor, PhD, University of Colorado
Daniel F. Millikan, professor, PhD, University of Missouri-Columbia
Anton J. Novacky, professor, PhD, Czechoslovak Academy of Science
Einar W. Palm, professor, PhD, North Dakota State University
Jim P. Schaal, professor, PhD, University of Wisconsin
Jack R. Wallin, professor, PhD, Iowa State University
J. Allen Whetter, assistant professor, PhD, University of Missouri-Columbia
Thomas D. Wylie, professor, PhD, University of Minnesota
HORTICULTURE
D.D. Hemphill, professor and interim chairman, PhD, University of Missouri-Columbia
Diane G. Adams, instructor, MS, University of Missouri-Columbia
John H. Dunn, professor, PhD, Rutgers University-New Brunswick
A.E. Gaus, professor, PhD, University of Missouri-Columbia
V.N. Lambeth, professor, PhD, University of Missouri-Columbia
L.S. Lockshin, instructor, MS, Cornell University
Gary G. Long, associate professor, PhD, Michigan State University-East Lansing
N.J. Natarella, associate professor, PhD, Michigan State University-East Lansing
M.N. Rogers, professor, PhD, Cornell University
R.R. Rothenberger, professor, PhD, University of Missouri-Columbia
L.C. Snyder Jr., associate professor, MLA, University of Michigan-Ann Arbor
C.J. Starbuck, assistant professor, PhD, Oregon State University
R.E. Taven, professor, MS, University of Minnesota
D.H. Trinklein, assistant professor, PhD, University of Missouri-Columbia
B.W. Zeecklein, instructor, BS, Fresno State University
POULTRY SCIENCE
James E. Savage, professor and chairman, PhD, University of Missouri-Columbia
Harold V. Bieller, professor, PhD, University of Missouri-Columbia
Glenn S. Geiger, associate professor, MS, University of Missouri-Columbia
Joe M. Vanderzouw, associate professor, PhD, University of Florida
RURAL SOCIOLOGY
Michael F. Nolan, associate professor and interim chairman, PhD, The Pennsylvania State University
J. Kenneth Benson, professor, PhD, University of Texas
Rex K. Campbell, professor, PhD, University of Missouri-Columbia
Jere L. Gilles, assistant professor, PhD, Cornell University
Joel A. Hartman, associate professor, PhD, The Pennsylvania State University
Edward W. Hassing, professor, PhD, University of Minnesota
William D. Heffernan, associate professor, PhD, University of Wisconsin
Daryl J. Hobbs, professor, PhD, Iowa State University
John S. Holik, associate professor, PhD, University of Wisconsin
James R. Pinkerton, associate professor, PhD, University of Wisconsin

COLLEGE OF ARTS AND SCIENCE

The College of Arts and Science was established in 1841. It is the oldest and largest academic division in the University. It provides a wide range of high-quality undergraduate and graduate degree programs in humanities, arts, social sciences and sciences, while at the same time offering a solid foundation in basic studies for students in professional and specialized programs in other colleges.

The College of Arts and Science provides the broadest range of educational opportunities in the University in fine and performing arts, humanities, and natural and social sciences.

The College serves a variety of educational functions:

1. To prepare students with a broad, liberal education, one which exposes them to a variety of ways of approaching the world, its history, its present and its future.
2. To provide an education which will allow students to become more effective participating members of society.
3. To furnish within the framework of that education the opportunities for intellectual and social growth which come through close daily contact with faculty and other students.
4. To provide students with preprofessional education.

The Departments of Aerospace Studies (Air Force ROTC) and Military Science (Army ROTC) are in the College of Arts and Science.

The College offers the student a liberal education which is a foundation of study in many disciplines and is designed to enable the students to serve any of several roles in society—whether in business, government or social service—or to continue their education with advanced academic study. To these ends, the College encourages excellence in both teaching and scholarship among its faculty, seeks to provide traditional and innovative undergraduate curricula of the highest quality, and allows a flexibility in individual courses of study which enables its students to take the best advantage of the many resources at their disposal.

Many students who enroll in the College during their first two years at the University have not yet determined what their particular major field of study will be. The structure of the College is such that students need not commit themselves to any particular major until the sophomore year. This allows students time to explore various possibilities, consider likes and dislikes and career and professional objectives.

ADMISSION

The majority of UMC undergraduates are enrolled in the College of Arts and Science. Students who have met the admission requirements to the University of Missouri-Columbia may enroll in the College. Freshman and sophomore students comprise 64 percent of the College's total enrollment.

Students planning to enter the Colleges of Business and Public Administration or Veterinary Medicine or the Schools of Journalism, Law, Medicine or Nursing usually spend the 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 prior to enrolling in the Schools of Law or Medicine. Preprofessional study for veterinary medicine may be completed either in the College of Agriculture or the College of Arts and Science.
CREDIT BY EXAMINATION

Students planning to enter the College as freshmen may apply to take advanced standing examinations in several subject matter fields. Those who pass the examinations with sufficiently high grades receive credit toward the bachelor's degree and may apply it toward professional schools on the Columbia campus except for completion of advanced courses, requirements, credit by examination and advanced placement examinations by the University of Missouri's advanced placement examinations, and (2) some of the advanced placement examinations given by the College Entrance Examination Board of Princeton, N.J.

This program is designed exclusively for entering freshmen. Students who have completed any previous college work are not eligible.

The College of Arts and Science does not award credit for the successful completion of the College Level Entrance Program (CLEP) General Examinations. (The same policy exists in the College of Business and Public Administration and the School of Journalism.) However, the College does accept all of the CLEP subject matter examinations.

University Examinations. An application to take an advanced placement examination must be made before enrollment in the class. Applications normally are made to the departments indicated; however, during the summer preregistration period, examinations in those subjects followed by an asterisk can be taken at the examination administered by Counseling Services.

Examinations accepted for advanced placement include (1) most of the University of Missouri's advanced placement examinations, and (2) some of the advanced placement examinations given by the College Entrance Examination Board.

Applications normally are made to the departments indicated; however, during the summer preregistration period, examinations in those subjects followed by an asterisk can be taken at the examination administered by Counseling Services.
SCHOLARSHIPS IN THE COLLEGE OF ARTS AND SCIENCE

Recipients of all scholarships are selected by the departments’ scholarship committee. Head of the department: Alberth Allen, MD; establishment: Family and friends of the late H.E. Allen, MD, established an endowment to provide an annual scholarship in music for an undergraduate or graduate student of wind instruments, strings, or piano; selection is based on high scholastic ability, character and contribution to the activities of the music department. It was established in recognition of Dr. Allen’s lifetime interest and participation in music activities at UMC. Additional $25,000 is diverted from endowment carrying a stipend equal to applied music fees for a semester, are available. Need, as well as musical talent, is an important consideration. Established by the Board of Curators and awarded on the basis of music ability.

Jan Blankenship Memorial Scholarship in Piano: Endowment established by family and friends of the deceased provides an annual scholarship for a pianist majoring in music or participating in musical activities. Recipients are recommended by the music department and approved by the Board of Curators. Thirty-five scholarships are available. Applications are due January 15. Applications are submitted as an application to the office of financial aid. Selection is made by music faculty.

Philip L. Blazer Memorial Scholarship: Endowment is awarded annually to a student in Arts and Science or the School of Journalism. Recipient must be a Missouri resident, a worthy graduate of a Missouri high school, with outstanding scholarship, and in need of financial assistance. Available to an entering freshman; renewable for three additional years. Scholarship study is as long as recipient meets qualifications and high standards. For applications, contact the Horrors College, 612 Kuhlman Court, UMC, Columbia, Mo. 65211.

Walter J. Brumfield Memorial Scholarship: Family and friends of W.L. Bradshaw, former professor of political science and former dean of the College of Business and Public Administration, established an endowment in his memory. The scholarship provides Eligible students majoring in political science and former dean of the College of Business and Public Administration, established an endowment in his memory. The scholarship provides an annual stipend for students majoring in political science.

Rhodes Clay Scholarship: Stipend awarded to a freshman on the basis of academic excellence, character and financial need. Applications are submitted as a regular assignment by any resident student enrolled in an upperclass course in English. Established by Harriet C. Hulick in memory of Kuntz. Recipients recommended by the department.

Paul and Gertrude Mathews Scholarship in Music Education: Funds established by the will of Paul W. Mathews, former UMC music professor, provides a scholarship for a junior, senior or graduate student majoring in music education. Preference is given to students in the first year to a junior or senior majoring in music education. Selection is made by the department.

Mary Margaret McCarty Scholarship: Established by Mary Margaret McCarty, gifts are offered to students possessing outstanding teaching ability and after graduation teach music education in a public or private school or college for at least two years. Recipients recommended by music department to the Scholarship Committee on Aids and Awards.

McAnally Medal: Awarded annually for the best essay submitted as a regular assignment by any resident student enrolled in an upperclass course in English. Established by David R. McCauley.

Mary Margaret McCarty Scholarship: Endowment fund income provides stipends for students studying biology. Recipients selected on basis of both academic standing and need. Education: Recommended by the department.

Paul and Gertrude Mathews Scholarship in Music Education: Funds established by the will of Paul W. Mathews, former UMC music professor, provides a scholarship for a junior, senior or graduate student majoring in music education. Preference is given to students in the first year to a junior or senior majoring in music education. Selection is made by the department.

Michigan Federation Women's Clubs, Pearl Boucher Matthews Scholarship in Music: An annual scholarship, preferably for a junior or senior who is a serious student of music and has an excellent academic record in all phases of music. Recipients are selected on the basis of academic ability and character. Applications are submitted as a regular assignment by any student enrolled in the first year to a junior or senior majoring in music education. Selection is made by the department.

Mary Margaret McCarty Scholarship: Established by Mary Margaret McCarty, gifts are offered to students possessing outstanding teaching ability and after graduation teach music education in a public or private school or college for at least two years. Recipients recommended by music department to the Scholarship Committee on Aids and Awards.

McAnally Medal: Awarded annually for the best essay submitted as a regular assignment by any resident student enrolled in an upperclass course in English. Established by David R. McCauley.

Mary Margaret McCarty Scholarship: Endowment fund income provides stipends for students studying biology. Recipients selected on basis of both academic standing and need. Education: Recommended by the department.

Paul and Gertrude Mathews Scholarship in Music Education: Funds established by the will of Paul W. Mathews, former UMC music professor, provides a scholarship for a junior, senior or graduate student majoring in music education. Preference is given to students in the first year to a junior or senior majoring in music education. Selection is made by the department.

Mary Margaret McCarty Scholarship: Established by Mary Margaret McCarty, gifts are offered to students possessing outstanding teaching ability and after graduation teach music education in a public or private school or college for at least two years. Recipients recommended by music department to the Scholarship Committee on Aids and Awards.

McAnally Medal: Awarded annually for the best essay submitted as a regular assignment by any resident student enrolled in an upperclass course in English. Established by David R. McCauley.

Mary Margaret McCarty Scholarship: Established by Mary Margaret McCarty, gifts are offered to students possessing outstanding teaching ability and after graduation teach music education in a public or private school or college for at least two years. Recipients recommended by music department to the Scholarship Committee on Aids and Awards.

McAnally Medal: Awarded annually for the best essay submitted as a regular assignment by any resident student enrolled in an upperclass course in English. Established by David R. McCauley.
University Concert Band. The band organization serves athletic, military and concert functions. Scholarships established by the Board of Curators.

University Essay Prizes: A first and a second prize offered for the best original essays written and submitted by any resident student.

University Singers Voice Scholarship: Members of the staff and others interested in vocal music contribute to a fund to provide scholarships from time to time for students participating in vocal music. Apply to the Department of Music.

Jonas and Ruth H. Viles Memorial Scholarship: Given to a graduate student in the field of American history who, by achievement, promise, character and interest in scholarly endeavor, has proved worthy. Established by a gift of Philip H. Viles in memory of his parents. His father was a former honors graduate of the university.

Jonas Viles Jr. Scholarships: Stipend awarded to a student chosen by the biological sciences division for study at the Maine Biological Laboratory or some similar institution. Established by Dr. and Mrs. Viles in memory of his son.

J.G. Heinberg Award: Established by family and friends of Heinberg, a former political science professor, to be given to an undergraduate or graduate student of political science. Scholarship of approximately $750 usually awarded for excellence (GPA 3.4 or better).

Waterton Conway Curtis Scholarship: Awarded to a student majoring in biological sciences.

Maurie G. Mehle Scholarship: Awarded each spring to a student majoring in geology.

A.F. Green Scholarship: Awarded each spring to a student majoring in geology.

E.B. Branson Memorial Fund: A scholarship is awarded each spring to a student majoring in the field of American history who, by achievement, promise, character and interest in scholarly endeavor, has proved worthy. Established by a gift of Philip H. Viles in memory of his parents. His father was a former honors graduate of the university.

E.B. Branson Memorial Scholarship: Given to an undergraduate or graduate student of political science. Established by Mrs. Viles in memory of her son.

R.G. Peek Prize: A scholarship is awarded periodically to a student majoring in geology.

Friedel C. Maasdorf Foreign Language Education Scholarship: A scholarship is awarded each spring to a student (at least junior standing) pursuing an undergraduate degree which will lead to a career to foreign language education.

Elia Nagel Memorial Fund: A scholarship is awarded each spring to a student majoring in German or Spanish.

T.A. Brady Scholarship in Ancient History: A scholarship is awarded each spring to a history student with special emphasis given to students specializing in ancient history.

J.C. Rainbolt Scholarship: A scholarship is awarded each spring to a doctoral candidate specializing in history.

A.C. White Jr. Fellowship: A scholarship is awarded each spring to a student specializing in history.

L.E. Atherton Research Fund: A scholarship is awarded each spring to a graduate student specializing in history.

A.F. Vander's Arts and Science Scholarship: A scholarship is awarded each spring to a student majoring in Arts and Sciences. Application materials available at 612 Kuhlman Court.

J. Warshaw Scholarship in Spanish: A scholarship is awarded each spring to a junior or senior specializing in Spanish.

Friends of Music Scholarship: Scholarships averaging $800 are awarded each year through contributions provided by the Friends of Music.

L. Milgram Band Scholarship: Annual awards averaging $400 are awarded each year to participants in the band program.

SPECIAL PROGRAMS

GENERAL STUDIES

@ General Classroom Bldg., (314) 882-6060

The General Studies degree program gives students a large amount of freedom, flexibility and accountability in designing educational programs to meet needs not met by traditional departmental programs. A student admitted to the College of General Studies must have elected a team of two or three faculty advisers. Students and their advisers plan a program consisting of a minimum of 120 hours of courses. Upon completion of the program students are awarded a bachelor of general studies degree. Each degree is tailored to fit each student's needs and interests. Students are encouraged to explore a wide variety of courses (chosen from any department or college) while, at the same time, satisfying their own educational goals.

The qualifications for admission to the program are a high degree of educational motivation and independence and a set of educational goals which cannot be reached in some regular University program. The College of General Studies is interested in adults returning to school and students with specific but unusual interests. To gain admission to the program, a student must have at least one semester of regular college work or its equivalent. To apply for admission to the program, students present a personal statement of their educational goals and a transcript of previous college work to a selection committee which reviews them for evidence of individual initiative, responsible maturity and self-direction.

THE HONORS COLLEGE

612 Kuhlman Court, (314) 882-2893

All students with a cumulative GPA of 3.3 and above are automatically eligible for Honors courses and sections. In addition, students whose cumulative GPA falls between 3.0 and 3.29 may petition into an Honors course, section, or degree program by presenting a current transcript to the Honors College for evaluation. Freshmen who enter the University as National Merit/National Achievement, Curators or Huggins Undergraduate Scholars are automatically eligible to enroll in Honors courses or sections during their first semester. Other freshmen are eligible if they ranked in the upper 15 percent of their high school classes and scored in the upper 15 percent on the Freshman Placement Tests.

Honors courses fall into three categories: (1) General Honors, (2) Honors sections of basic courses (History 20GH is the Honors section of History 20), and (3) departmental Honors courses designed primarily for students planning to graduate with Honors in their major.

Honors courses and Honors sections of multisectioned courses are listed at the conclusion of the Schedule of Courses under the heading of the department offering the course. The Honors College courses are listed under the heading "General Honors." They include a humanities program (GH 101-104) which provides a unified introduction to western cultural and intellectual history from ancient to contemporary times; discussion groups, colloquia and seminars at various levels (GH 35, 50, and 100); independent readings and independent study (GH 25 and 125); and credit for assisting a professor in research (GH 150).

Exceptional circumstances will allow a student to apply some credit earned at other institutions during the final 60 hours to the record which will be evaluated for Honors designations; in these cases, the grade point requirements noted above will be enforced both with reference to work done elsewhere and with reference to work done at UMC.

The General Honors Certificate. Honors students can earn a general Honors certificate by participating in the General Honors program. The certificate requires a minimum of 20 hours in Honors courses. Of the 20 credit hours necessary, no more than six hours of General Honors electives (50GH or 100GH) and/or departmental Honors courses in work toward a departmental Honors degree may be counted toward a certificate.

Any Honors student may apply for a General Honors certificate. Successful completion of the requirements is accompanied by both a certificate and formal notation on the transcript.

Graduation with Honors. A student who has completed the last 60 semester hours at UMC may graduate with Honors with the following minimum grade point averages: 3.7, cum laude; 3.8, magna cum laude; and 3.9, summa cum laude. The cumulative GPA necessary for these designations is subject to change, however, since the number of students qualifying for each designation is limited to a certain percentage of the graduating class.

DUAL DEGREES

LAW OR MEDICINE

The College has a special dual degree program with the Schools of Law and Medicine. To enroll in these programs, the student must have completed all of the specific requirements for the bachelor of arts degree prior to admission to one of these professional schools and also must have completed the junior year in residence in the College of Arts and Science at UMC.

OTHER DUAL ENROLLMENTS

An increasing number of candidates enrolled in undergraduate professional schools enhance their career opportunities by qualifying for both a professional school degree and a bachelor of arts degree.

In order to receive two baccalaureate degrees, a student must complete a minimum of 132 semester hours 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 particular professional school and in the department of major interest in the College. A candidate in the dual enrollment program in the College of Arts and Science and in the College of Engineering should note that if the area of concentration in arts and science is centered in a department other than chemistry, mathematics or physics, additional hours may be required to obtain both degrees.

Graduate School. A final-semester senior who needs fewer than 15 hours for completion of the baccalaureate degree and who ranks in the upper half of the class 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 baccalaureate degree. Application forms for dual enrollment in these two schools may be obtained from the Graduate School dean in 205 Jesse Hall.

Teaching Certificate. A student who plans to receive a degree from the College of Arts and Science and who also wishes to receive a teaching certificate awarded by the Missouri Department of Elementary and Secondary Education, is required to complete 25-26 hours of secondary professional education requirements for the College of Education in addition to completing the requirements for the degree in the College of Arts and Science.

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Students should consult the College of Education section of this catalog for information regarding its admission policy and specific requirements for general education courses, preprofessional, area of specialization and professional course work.

Prior to enrollment in any professional education course, students must formally apply for admission to the program.

PREPROFESSIONAL STUDY PRELAW

The prelaw program is designed for students planning to enter law school. Students who have not been through a prelaw program, however, are not precluded from making application to law school. Prelaw students are encouraged to consider and prepare for alternative careers based on their personal interests and abilities, should circumstances prevent them from pursuing a legal education. The prelaw program is designed to provide maximum opportunity for preparation of skills determined to be necessary for success in law school.

Students entering law school must have completed at least 90 hours in residence of approved college work acceptable for a baccalaureate degree, must present a grade point average meeting the existing law school requirements, and must have received a satisfactory score on the Law School Admissions Test, which should be taken in the fall semester of the last undergraduate year. When there are more qualified applicants than places to be filled, only the best qualified applicants are accepted for admission to law school.

Admission to the UMC School of Law is based on the criteria given above regardless of the applicant's enrollment in a prelaw, dual-degree or other area of concentration. Applicants from other schools, colleges and universities are given equal consideration.

Students entering without a baccalaureate degree must receive an undergraduate degree before or concurrently with graduation from law school.

The following courses may not be used to satisfy the 90-hour admission requirement: correspondence courses, non-theory courses in ROTC, hygiene, domestic arts, physical education, vocal and instrumental music, practice teaching, teaching methods and techniques, and similar non-theory courses.

Prelaw students should particularly emphasize English and other courses which require written papers. Facility of expression is prerequisite to successful work in law schools. A course in logic also is highly recommended.

Prelaw students should be aware that a baccalaureate degree is required for admission to some law schools, and a few states (but not Missouri) do not recognize the dual degree program for bar admission purposes.

Prelaw students are invited to discuss any problems as to prelaw programs of study or admission and pick up the School of Law Catalog and application forms for the Law School Admissions Test in 14 Tate Hall.

The program of study outlined below is a suggested guide to students planning to become candidates for dual degrees in the College of Arts and Science and the School of Law. Students who complete their freshman or sophomore or both years at another institution should plan their programs of study accordingly. In order to avoid having to spend additional time to complete the requirements for the undergraduate degree, candidates for dual degrees must restrict their enrollment to only those courses that fulfill specific requirements for the bachelor of arts degree.

FRESHMAN YEAR
First Semester 12-16 hours
- English Composition or Elective (3)
- Foreign Language (3-5)
- American Government or American History (3-5)
- Humanities or Social Studies (3)

Second Semester 14-16 hours
- Foreign Language (3-5)
- Science (5)
- Humanities or Social Studies or English Composition (6)

SOPHOMORE YEAR
First Semester 16 hours
- Foreign Language (3)
- Science (5)
- Economics (5)
- Elementary Accounting** (3)
- Second Semester 15-16 hours
- Exposition (3)
- Elementary Accounting** (3)
- Science, Mathematics or Foreign Language (3)
- Humanities or Social Studies (2-3)
- Area of Concentration Courses* (4)

JUNIOR YEAR
First Semester 16 hours
- Upperclass Humanities or Social Studies (3)
- Area of Concentration Courses* (13)

Second Semester 16 hours
- Upperclass Humanities or Social Studies (3)
- Area of Concentration Courses* (13)
* At least 20 hours must be upperclass courses.
**Optional, but recommended.

PREMEDICAL

Medical schools recognize the value of general education. Premedical students may choose to center the area of concentration in any department, provided they also fulfill admission requirements for medical schools. A specific area of concentration in the natural sciences should be chosen only because of interest. Those who concentrate in the sciences are strongly encouraged to elect additional courses in the humanistic studies and social sciences.

Students planning to study medicine should be aware of the competition involved in gaining admission and, consequently, should plan to apply to several institutions. The book Medical School Admission Requirements, published yearly by the Association of American Medical Colleges, gives concise information concerning premedical curricula planning, medical training, and internship and residency training. In addition, it describes educational programs and admission requirements at each medical school. Those interested in the medical areas also should keep alternate careers in mind. Among these are medical social work, medical education, hospital administration, health administration, sanitary engineering, nursing, dentistry, pharmacy, clinical psychology, medical technology, physical therapy and graduate work in the various biological and physical sciences. Also, programs have been established for some years to train physician's assistants.

Credits required for admission to medical school are: English composition and literature, two semesters; general zoology or biology (including laboratory), one semester; additional biological sciences work—may include comparative anatomy, embryology, or genetics—the best semesters; mathematics (algebra, calculus, statistics, or trigonometry), two semesters; general physics, two semesters; inorganic chemistry (including laboratory), two semesters; and organic chemistry (including laboratory), two semesters.

Questions concerning required admission credits should be directed to the School of Medicine. To the extent possible, the Pre-Med Club will serve as an important communication link between interested undergraduates and the School of Medicine.

As explained under the dual degree program for the AB degree, there is an arrangement between the School of Medicine and the College of Arts and Science which permits students who have completed all specific requirements in three years in the College to receive a bachelor of arts degree after completing the first year of medicine. This arrangement applies only to students who complete the junior year in the College of Arts and Science and who attend the School of Medicine at UMC. Premedical students who wish to take advantage of this special degree program must plan their programs of study carefully in order to complete all of the requirements for the AB degree within three years. In planning to undertake such a three-year program, potential applicants should understand that acceptance prior to the senior year is extremely competitive.

There are health professions advisers in the dean's office and in the Biological Sciences Division and the Departments of Chemistry and Physics.

PREPROFESSIONAL STUDY FOR VETERINARY MEDICINE

A minimum of two years of preprofessional study is required before a student may be admitted to the professional program leading to the doctor of veterinary medicine degree in the College of Veterinary Medicine. Preprofessional requirements may be completed at any accredited college or university where the course work is offered.

Students interested in completing the preprofessional requirements at UMC should address inquiries to the Office of Admissions, 130 Jesse Hall, UMC, Columbia, Mo. 65211.

Students must complete at least 64 semester hours of college work by the end of the winter semester (spring quarter) of the year in which admission is sought. However, the average semester hours presented usually is over 100. Students admitted with only two years of preprofessional work are usually those with exceptionally good scholastic achievement records and aptitude scores.

Students should incorporate the preprofessional curriculum into a degree program other than veterinary medicine, since only a limited number of applicants can be admitted into the College of Veterinary Medicine. The UMC courses listed fulfill the requirements. Equivalent courses at other accredited colleges or universities are accepted. If a student has
credit by examination, a more advanced course in the same discipline must be taken. No credit is awarded for CLEP General Examinations. Courses taken on the satisfactory/unsatisfactory grading system are not counted for admission to the College of Veterinary Medicine.

**English or Communication:** 6 hours

- English Composition: 50
- Creative Writing: 161
- Technical Writing or more advanced courses.

**Speech and Dramatic Art:** 75

- Introduction to Speech Communication or more advanced courses.

**Mathematics:** 3 hours

- Math 10 College Algebra or more advanced courses.

**Inorganic Chemistry:** 8 hours

- Organic Chemistry: 11 General Chemistry; 12 General Chemistry or more advanced courses.

**Organic Chemistry:** 8 hours

- Chemistry 210 Organic Chemistry; 211 Organic Chemistry Laboratory; 212 Organic Chemistry or more advanced courses. Biochemistry cannot be substituted for organic chemistry.

**Physics:** 5 hours

- Physics 11 Elementary College Physics or more advanced courses.

**Biological Science:** 10 hours

- Biological Sciences 11 Introductory Zoology and 12 General BotANY or more advanced courses or 21 General Biology and 22 General Biology or more advanced courses.

**Mathematics or Advanced Mathematics:** 10 hours

- Can include courses from history, economics, political science, geography (except those in cartography, meteorology and climatology), fine arts, classical and foreign languages, literature, mythology and philosophy.

**Animal Science:** 5 hours*

- Dairy Science 12 Poultry Science 12 or Animal Science 12 or more advanced courses.

**Animal Nutrition:** 3 hours*

- Principles of Animal Nutrition 202 or more advanced courses.

**Electives:** 6 hours

- May be taken in any area. Students, again, are encouraged to pursue a degree program.

**Total:** 64 hours

For additional information concerning admission guidelines and application procedures, contact the Assistant Dean and Student Affairs, W203 Veterinary Medicine, UMC, Columbia, Mo. 65211.

**Other Preprofessional Programs**

Students planning to enroll in other professional programs not available at UMC frequently complete their requirements for admission to the professional school of their choice in the College of Arts and Science. Among the preprofessional students enrolled in the college are those who are planning to study dentistry, pharmacy, optometry, osteopathy, theology and mortuary science. Students completing preprofessional requirements in the College should obtain a catalog from the professional school of their choice to insure completion of all admission requirements.

**Professional Opportunities**

Because employment opportunities in the various disciplines of the liberal arts vary greatly, it is impossible to enumerate these opportunities within the confines of this catalog. Most departments in the College have printed information available describing employment opportunities. The Career Planning and Placement Center helps students determine career plans and assists college graduates with job placement.

**SUMMARY OF REQUIREMENTS FOR BACHELOR OF ARTS DEGREE**

(Effective for freshmen entering college May 1, 1983)

I. Must be regularly admitted to the college.

II. **Hours and Points:** 120 hours passed with an overall average grade of at least 2.0. Last 60 hours must be completed with grade point average of at least 2.0.

III. **Residence:** Last 30 hours, including at least 12 hours in the area of concentration in residence.

IV. **200-Level Requirement:** 30 hours in courses numbered 200 or above, including courses in the area of concentration.

V. **Basic Skills:**

- **ENGLISH COMPOSITION**
  - (3 to 6 hours)
  - English 1 (if required on basis of English placement test) and English 60; English 60 only, if exempted from English 1 on basis of placement test; OR English 65GH, if eligible for Honors Exposition.

- **MATHEMATICS**
  - 2½ units of mathematics in high school (including 1½ units of algebra and excluding general mathematics); demonstration of proficiency by examination; OR satisfactory completion of a course in college algebra.

- **FOREIGN LANGUAGE:**
  - 1. Attainment of proficiency equivalent to the completion of at least 12 hours of college-level work in a single language;
  - 2. Four units of high school credit in a single language;
  - 3. Satisfactory completion of appropriate examinations in foreign language departments.

**N.B.** Courses used as partial fulfillment of general education requirements may not be used also to fulfill General Education requirements.

VI. **General Education Requirements:**

- **Biological and Physical Sciences:** 9 hours, including at least one course with laboratory. At least two of the three areas must be represented.
- **Behavioral Sciences:** 5 or 6 hours in anthropology, theoretical courses in linguistics, psychology and/or sociology.
- **Social Sciences:** 9 hours taken in at least two of the following fields: history, economics, political science, or geography.
- **Humanities and Fine Arts:** 12 hours in no fewer than three of the following areas: appreciation of art and music; foreign civilizations, literature and linguistics; courses concerned with the history of public speaking, the theater, or broadcasting; philosophy; upperclass courses in the creative and performing arts; the humanities sequence—101, 102, 103 and 104; religious studies.

A further note: A candidate must pass a minimum of three courses numbered 100 or above, distributed among at least two of the four areas described above.

**N.B.** Courses used as partial fulfillment of general education requirements may not be used in the area of concentration. Additionally, courses used to fulfill these requirements may not be selected from the departments in which the student's area of concentration is centered.

VII. **State Requirement:** At least one course in American history or American government.

VIII. **Area of Concentration:** A program of related courses consisting of 32 hours or more with at least eight hours outside major department, and including a minimum of 20 hours of upperclass course work completed with grades of A, B or C. At least 12 hours of upperclass course work appearing on the area must be completed in residence at UMC in the department in which the area is centered. Upperclass courses completed with grades of D may not be included in the area of concentration without the approval of the adviser and the dean. A cumulative grade point average of 2.0 must be earned in all course work attempted in the major field.

IX. **Scholastic Standing:** At the time of graduation, all candidates must be in good scholastic standing.

**REQUIREMENTS FOR GRADUATION**

(For first time Freshmen admitted prior to May 1, 1983)

**BACHELOR OF ARTS**

In order to receive the bachelor of arts degree, a candidate must complete the following requirements. General Honors courses numbered 100, which vary in subject matter, usually may be applied toward fulfillment of these requirements.

I. **Admission**

A candidate must have been regularly admitted to the College.

II. **Hours and Grade Points**

A candidate must pass 120 semester hours of credit with an overall average grade of C. Courses completed at UMC with a grade of D may not be counted toward graduation unless balanced by A or B grades earned in residence at UMC. A student dually enrolled in the College and in either the School of Medicine or the School of Law may not apply D grades in professional school course work toward the degree.

A candidate must pass a minimum of 30 hours in upperclass courses accepted for credit in the College of Arts and Science, excluding advanced ROTC courses. At least three of the upperclass courses must be distributed among at least two of three fields: (1) behavioral sciences, (2) social sciences, (3) humanistic studies and fine arts. At least 20 of the upperclass hours completed with a grade of C or higher, must be in the area of concentration. The last two semesters, which must include at
dent whose education has been interrupted for more than one semester may not count toward 40 hours from any one department may be least 12 hours in the area of concentration, must be completed in residence at UMC.

Time Limitation on Degree Credit. A student whose education has been interrupted for more than one semester may not count toward graduation credit earned eight years prior to the resumption of progress toward the degree.

III. Basic Skills

Course requirements in the following basic skills are determined for each student either on the basis of the level of attainment in proficiency tests given at the beginning of the freshman year or by the number of high school units in particular fields presented for admission. Courses used to fulfill basic skills requirements may not be used for the student’s area of concentration.

English Composition. Entering freshmen who score in the lowest range on the Missouri College English Test, a freshman placement examination, are required to pass English 1 Composition in the freshman year and also English 60 Exposition in the sophomore or junior year. Students scoring in the middle range will be required to pass English 60 Exposition in the sophomore or junior year. Those scoring in the upper range may fulfill requirements by passing English 65 GH Honors Exposition. Transfer students who receive credit for six or more hours of freshman composition are not subject to any additional basic skills requirement in English composition.

Mathematics. A student may satisfy the requirement in mathematics by:

1. Presenting 2½ high school units in mathematics, including 1½ units of algebra and excluding general mathematics.
2. Demonstrating proficiency in mathematics by examination.
3. Passing the equivalent of a course in college-level algebra—i.e., at UMC, Mathematics 10 College Algebra; 12 Basic Concepts of Modern Mathematics; 14 Algebra and Trigonometry; or 15 Elementary Functions.

Courses taken to fulfill this requirement may not be applied toward partial fulfillment of the general education requirement in biological, physical and mathematical sciences.

Foreign Language. Each student is required to attain the degree of proficiency equivalent to the completion of 12 or 13 hours of college-level work in a single foreign language.

A student who presents four units of high school credit in a single language and who elects to take a lower-level course in that same language automatically negates the option of completing the language requirement on the basis of high school units and must, therefore, continue that language through the complete sequence of 3 or 4, 106 or 109.

A student who has had some language study in high school, but not enough to satisfy the college requirement, may enroll for full credit in any lower-level college language course suited to the individual’s level of skill. The following scale of placement is recommended for most cases.

<table>
<thead>
<tr>
<th>Romance and Classical Language Courses</th>
<th>If students present:</th>
<th>They should enroll in:</th>
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<tbody>
<tr>
<td>1 high school unit</td>
<td>Course 1</td>
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<tr>
<td>2 high school units</td>
<td>Course 2</td>
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<tr>
<td>3 high school units</td>
<td>Course 2 or Course 3</td>
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Germanic and Slavic Language Courses

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<th>If students present:</th>
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<td>1 high school unit</td>
<td>Course 2</td>
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<td>2 high school units</td>
<td>Course 3</td>
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<td>3 high school units</td>
<td>Course 4</td>
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Students who have not had sufficient course work in high school to meet the foreign language requirement but who think their knowledge of a language is at such a level may partially or completely satisfy the requirement by passing an appropriate examination in one of the foreign language departments.

Students transferring from other colleges or universities who have not completed the equivalent of the Missouri requirement must complete the requirement after entering UMC. Once a student has completed a course in a foreign language in residence, he may not interrupt the sequence until the requirement has been satisfied.

A student who completes German 21GH, 22GH and 23GH is considered to have fulfilled the equivalent of German 4.

International students are exempt from the foreign language requirement but may not receive credit for basic skills courses in their native languages. Others with native competence in one or more foreign languages offered by UMC may, at the discretion of the language department(s) concerned, be granted advanced standing for basic skills courses. In no case can the maximum amount of credit granted exceed that which would be earned by a student in fulfilling minimum arts and science language requirements by taking regularly scheduled University courses in a language not previously studied: under current requirements, 12 or 13 hours.

Enrolling on the S/U basis in a foreign language in order to establish advanced standing risks failure to complete the course successfully if the grade is D, because D is reported as U under the S/U system.

IV. General Education Requirements

Courses used as partial fulfillment of general education requirements may not be used in the area of concentration. A student from an accredited community or junior college in Missouri whose associate of arts degree requires 60 hours of college-level work oriented toward the baccalaureate degree will be regarded as having fulfilled the requirements for the AB degree so long as the requirements have not been fulfilled through CLEP General Examinations but, rather, completion of specific courses.

Biological, Physical and Mathematical Sciences. A student must complete at least nine hours in the biological, physical and mathematical sciences, including at least one course with laboratory work. The nine hours must be derived from courses in at least two of the following three areas:

1. Biological sciences (general biology, genetics, animal biology, microbiology, and plant biology; Anthropology 150 if preceded by Biological Science 1 or equivalent).
2. Physical sciences (astronomy, chemistry, physics and geology).
3. Mathematical sciences (mathematics, statistics and computer science). (Math 10, 12, 14 or 15 may not be used in partial fulfillment of this requirement).

Behavioral Sciences. A student must complete five or six hours of work in anthropology, theoretical courses in linguistics, psychology and/or sociology. Research and methods courses may not be used.

Social Sciences. A student must complete nine hours in two of four fields: history, economics, political science or geography. A student in cartography, meteorology or climatology should choose nine hours in two of three fields: history, economics or political science. Research and methods courses may not be used. One-hour topics courses may be used as partial fulfillment of this requirement, provided they are not used to meet the upperclass course requirement. A student who elects one-hour topics courses must complete a minimum of three as partial fulfillment of the upperclass course requirements.

Humanistic Studies and Fine Arts. A student must complete at least 12 hours of work in the humanistic studies and fine arts, and the 12 hours presented must be derived from courses in at least two of the following six areas:

1. Appreciation or history of art and music, except research and methods courses.
2. Foreign civilizations (courses in classical archaeology and mythology, civilization courses taught in foreign language departments or in area studies programs).
3. Literature (all literature courses in the Department of English, all literature courses numbered above 103 in foreign language departments, courses given by the Department of Speech and Dramatic Art that are concerned with the history of public speaking, the theater or broadcasting).
4. Philosophy.
5. Creative and performing arts—studio art, music and speech (a maximum of two courses in this area may be counted; they must be numbered above 100).
6. The humanities sequence—101, 102, 103 and 104 (students who complete all four courses in this sequence are exempted from the distribution requirement for the humanistic studies and fine arts). All General Honors courses offered in the above areas also may be used in fulfillment of this requirement.

V. State Requirement

According to Missouri state law, a candidate for an undergraduate degree at UMC must present for graduation at least one course in American history or American government.

VI. Area of Concentration

The area of concentration consists of at least 32 hours of course work acceptable to the department in which the student elects a major. No fewer than 18 nor more than 40 hours may be selected from the major subject matter field. The area also must include eight hours of...
course work, including at least two upperclass courses, in other departments related to the student's major interest. A student completing an area of concentration in geology is not required to complete two upperclass courses outside the major department. The area must include a minimum of 20 hours of upperclass course work, 12 of which must be completed in residence at UMC in the department in which the area is centered. Upperclass courses completed with grades of D may not be included in the area without the approval of the adviser and the dean, and students must achieve an overall average of C in all of the courses attempted in their major departments at UMC. A student majoring in art may not include any D grades in courses used to satisfy general education or basic skills requirements.

VII. Scholastic Standing
At the time of graduation, all candidates must be in good scholastic standing. No student on scholastic probation will qualify for graduation.

BACHELOR OF FINE ARTS
The bachelor of fine arts degree, offered by the Department of Art, is designed for students interested in more professional training in the visual arts than is possible under the bachelor of arts degree program. The requirements for the degree are the same as for the bachelor of arts degree with the following exceptions:

I. Admission
In addition to being regularly admitted to the College, the student must present a portfolio to the Department of Art for acceptance as a degree candidate and have a minimum cumulative grade point average of 2.0 (3.0 in studio art courses).

II. Basic Skills and General Education Requirements
A. Basic Skills
Foreign Language. Although a foreign language is not required, a course in a foreign language taken in residence may in part satisfy the humanities requirement.

B. General Education
Biological, Mathematical and Physical Sciences. No fewer than eight hours must be completed, including at least one laboratory course.

Behavioral Sciences, Social Sciences and Humanities and Fine Arts (excluding Art History). A minimum of at least 18 hours must be completed, including at least one course in each of the fields. At least one upperclass course must be completed in each of the two fields.

II. Area of Concentration
The area of concentration normally consists of 60 to 70 hours of studio art courses and 12 hours of art history. A minimum of two upperclass courses in art history must be taken. At least 35 semester hours must be completed in residence at UMC. Upperclass courses completed with a grade of D may not be included in the area, and the student must maintain an overall grade point average of at least 3.0 in studio art.

BACHELOR OF MUSIC
The bachelor of music degree offers a maximum concentration in music combined with the elements of a liberal education. The requirements for this degree are the same as those for the Bachelor of Arts degree with the following exceptions.

III. Basic Skills*
Foreign Language. Each student is required to attain the degree of proficiency indicated by completing one course beyond the equivalent of the intermediate level (generally 12 or 13 hours) of a foreign language as set forth under the foreign language requirement for an AB degree. Students majoring in music should follow this schedule:

For an instrumental major or a theory or composition major: 12 hours in German or 13 hours in either French or Italian.

For a voice major: 22-24 hours required by taking either French or Italian. The remainder must be fulfilled by completing the elementary course in each of the other two languages (Elementary German I and II).

*For a music history major: 9 hours of German, plus 10 hours in either French or Italian, and a three-hour reading course in one of these.

IV. General Education
Humanistic Studies and Fine Arts, Behavioral and Social Sciences. A total of 16 hours must be completed in these fields. The 16 hours must include two courses in literature, one course in European history, and at least one other course in the behavioral or the social sciences.

Biological, Physical and Mathematical Sciences. No requirement. Students who have not fulfilled the basic skills requirement in mathematics must, however, complete Mathematics 10, College Algebra or 12, Basic Concepts of Modern Mathematics.

VI. Area of Concentration
The area of concentration for the bachelor of music consists of no fewer than 62 hours and no more than 90 hours in individual performance courses, music history, theory, and ensemble. The specified course work in each of these is determined by the particular areas of music which the student wishes to emphasize.

*All candidates for this degree who plan to receive teacher certification may opt to complete the new degree requirements. See the music department for details.

A candidate for the bachelor of music degree with a performance major must pass a candidacy examination in the areas of performance at the completion of their sophomore year. This exam is administered by the applied faculty concerned, and must be passed before entrance to the 300-level individual performance courses (16 hours minimum requirement) is approved.

In addition to performances at student recitals, each performance major is required to present a junior and senior recital. The performances are to be approved two weeks in advance by a faculty hearing committee.

Upperclass courses completed with grades of D 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 C in all of the courses attempted in the music department.

BACHELOR OF SCIENCE
The bachelor of science degree, offered in the Departments of Chemistry, Geology and Physics, is designed for students interested in more professional training in the sciences than is possible under the program of the bachelor of arts degree. The requirements for this degree are the same as those for the bachelor of arts degree with the following exceptions.

II. Hours and Points
A candidate for the bachelor of science degree must have passed a minimum of 30 hours in upperclass courses. At least two of the upperclass courses must be distributed among at least two of three fields: (1) behavioral sciences, (2) social sciences, and (3) humanistic studies and fine arts.

III. Basic Skills and General Education Requirements
A. Basic Skills
Foreign Language/Special Emphasis Area
a. A student may fulfill this requirement by attaining the degree of proficiency equivalent to the completion of at least 12 hours of college-level work in a single foreign language as outlined in the foreign language requirement for the AB degree. Students who plan to continue their studies beyond the bachelor's level should be advised that many graduate schools have a foreign language proficiency requirement for graduation which may be satisfied by this option. A student who completes German 21GH, 22GH and 23GH is considered to have fulfilled the equivalent of German 103 and will thus receive three hours of upperclass credit. This requirement may be satisfied in full or in part by high school credit as outlined in the foreign language requirements for the AB degree.

b. Alternatively, a student may fulfill this requirement by completing a special program unit consisting of no fewer than 12 credit hours of upperclass course work, not in the parent department and not normally required of all departmental majors nor appearing elsewhere in the area of concentration. This program must be a carefully planned, coherent unit, formally approved by both the undergraduate adviser and the department. Students who plan to continue their studies beyond the bachelor's level should be advised that many graduate schools have a foreign language proficiency requirement for graduation which would not be satisfied by this option.

B. General Education
Distribution Requirement: A candidate must pass a minimum of two courses numbered 100 or above, distributed among two of three areas:
(1) behavioral sciences, (2) social sciences, and (3) humanities and fine arts. Courses used as partial fulfillment of general education requirements may not be used on the area of concentration. Students from an accredited community or junior college in the state of Missouri whose associate of arts degree requires 60 hours of college-level work oriented toward the baccalaureate degree will be regarded as having completed the general education requirements for the BS degree as long as the requirements have not been fulfilled through CLEP General Examinations, but rather through completion of specific courses.

**Biological, Mathematical and Physical Sciences.** The student’s science program is planned by an area adviser to fulfill the requirements of the department in which the area is centered. In the BS degree program there is no general requirement for biological sciences.

**Behavioral Sciences, Social Sciences and Humanities and Fine Arts.** At least 18 hours of course work in behavioral sciences, social sciences, and humanities and fine arts must be completed, including courses in at least two of these fields. At least one upperclass course must be completed in each of two fields.

**DEGREE PROGRAMS**

The degree program, centered around the area of concentration, permits (1) specialization in a major subject matter field of the student’s choice and (2) work in various departments related to the student’s major interest.

The student plans the area of concentration with the help of an adviser from the department in which the area is centered. It is the responsibility of the student to initiate the planning of an area of concentration prior to the first semester of the junior year.

The area of concentration has been adopted by the College in place of major-minor system in order to prevent the intellectual isolation of overspecialization. It recognizes that while specialization in a field is necessary for proficiency, many fields are related and cannot be isolated by arbitrary limits.

The student has three options in fulfilling the area of concentration requirement: (1) The student may pursue an area of concentration within a specific department; (2) the student may select one of the special area of concentration programs; or (3) within the special area of concentration the student may plan, with the adviser, an individualistic and interdisciplinary program.

If an area of concentration within a department is selected, it must include at least: 32 hours of course work; 18 hours, but not more than 40 hours, in the department of major interest; eight hours of course work including at least two upperclass courses, outside the major department; 20 upperclass hours with a grade of C or higher.

Of the upperclass hours, 12 must be completed in residence at UMC in the department in which the area is centered.

Upperclass courses completed with grade of D may not be included in the area of concentration without the approval of the adviser and the dean (exception: the area of concentration in art). In addition, the student must achieve an overall GPA of 2.0 (C) in all of the courses attempted in the major department at UMC.

Courses applied to the general education and basic skills requirements may not be included in the area of concentration.

**Dual Areas of Concentration.** Studies of a complementary nature in two departments may be developed with the concurrence of departmental advisers. A notation of successful completion of the two areas appears on the student’s transcript.

**CREDIT RESTRICTIONS**

**Credit in Physical Education.** A maximum of two hours of credit in Health and Physical Education I may be counted as elective credit toward a degree. The grade will be incorporated in the grade point average; however, a student on scholastic probation must be enrolled in a minimum of 12 hours of course work in addition to this course.

**Credit in Studio Art and Individual Performance Courses in Music.** The maximum credit in studio art and individual performance courses in music for a non-major in those departments may not exceed 12 hours. Only six hours of music ensemble courses may be applied toward the AB, BS, or BFA degrees.

**Courses Regularly Offered for Credit in the College of Arts and Science.** All courses offered in the departments of the College of Arts and Science regularly are accepted for credit toward degrees in the College with the exception of English 1a or 1b, Mathematics 3, 4, 7, 8. Courses from other departments may be counted toward the degree under the provisions of the 18-hour rule.

**AEROSPACE STUDIES (AIR FORCE ROTC)**

213 Crowder Hall, (314) 882-7621

The mission of Air Force ROTC is commissioning career-minded male and female officers to meet the officer requirements of today’s Air Force. Air Force ROTC is the largest source of Air Force officers. Graduates of UMC’s Air Force ROTC are serving in virtually every nation of the free world. They are performing challenging and rewarding duties in career fields ranging from crew member of the numerous aerospace systems through personnel, education, intelligence, engineering, communications-electronics, information and security. ROTC traditionally has met its objective by placing lieutenants on active duty who demonstrate dedication to their assignments, a willingness to accept responsibility, critical and creative thinking and the ability to speak and write effectively.

This is one of more than 150 units from Hawaii to Puerto Rico which offer professional academic and military training in conjunction with other college career programs.

**THE NEW LOOK**

A modern university needs modern programs and academic curricula and the Air Force strives to keep both its program and the curriculum up-to-date. Since 1964, the Air Force ROTC program has had a new look. In that year, Congress passed the ROTC Vitalization Act which provided a totally new, flexible Air Force ROTC program geared to the changing patterns of higher education and the varying needs of today’s college student and Air Force. The legislation authorizes two separate ROTC programs. Colleges and universities may now select the traditional four-year program, a two-year program or both. UMC offers both programs.

**PROGRAMS**

**Four-Year**

The traditional four-year program consists of a two-year General Military Course and a two-year Professional Officer Course. The GMC, or basic course, is open to all undergraduate students with at least four years of college remaining. Exceptions can be made for some who have only three years remaining. Students can enroll in the GMC by registering for Aerospace Studies II, The Air Force Today, just as they register for any other course. This can be done by new students when they submit their pre-enrollment forms, or when they enroll during the regular registration period.

The GMC curriculum consists of four semesters, with one hour of academics and one hour of leadership laboratory per week. The first two semesters’ academics include doctrine, strategies and functions of the Air Force. The last two semesters are concerned with the study of the history of air power.

Qualified cadets in GMC are selected on a highly competitive basis for entry into the POC. Selections are based upon:

1. Results of an Air Force Officer Qualifying Test.
2. A military physical examination.
3. University grade point average.
4. A personal interview with detachment officers on the Air Force ROTC staff.

Students selected for POC complete a four-week field training encampment and then enter into a mutual contract with the secretary of the Air Force. This is the first time students obligate themselves to future military duty (unless they previously received a scholarship). Students agree to attend three hours of classroom instruction and one hour of leadership laboratory per week for two years; to accept, if offered, a commission in the U.S. Air Force; and to serve for a period of not less than four years on active duty (pilots and navigators must serve six and five years, respectively, after completion of flight training). The Air Force, in return, provides all required uniforms and a tax-free allowance of $100 per month during the two-year POC membership. POC cadets also are entitled to such fringe benefits as
limited use of certain facilities on Air Force bases and free space available travel on military aircraft.

Two-Year Program

The two-year program is designed to provide greater flexibility in meeting the needs of students desiring Air Force commissions. UMC students who did not participate in the four-year program, or junior college transfers, are eligible for enrollment. Basic entry requirements are that students have at least two academic years (either undergraduate or graduate, or a combination of both) remaining at UMC. Applicants must be in good academic standing, pass the Air Force Officers Qualifying Test and the Air Force medical examination, and be selected by an interview board.

After successful completion of a six week field training encampment designed to prepare them for entry into the Professional Officer Course, applicants meeting all requirements may be permitted to enroll in Air Force ROTC upon their return to campus. During these two years, cadets study national security forces in contemporary American society and Air Force management and leadership, along with professional preparation for future Air Force duty. Cadets also receive a tax-free allowance of $100 per month and may be eligible for a two-year Air Force ROTC scholarship.

Upon admittance to the POC, cadets are required to enter into the same contractual agreement as a student entering through the four-year program.

Scholarships

Air Force scholarships are available to cadets in the Air Force ROTC two-year and four-year programs. The scholarships pay all tuition costs, incidental and laboratory fees, and reimbursement for the purchase of books. Scholarship cadets also receive $100 a month tax-free pay. A four-year scholarship is valued between $8,000 and $14,400.

Scholarship nominees are selected from among the cadet corps on the basis of:
1. Scores achieved on the Air Force Officers Qualifying Test.
2. Grade average for all college work completed.
3. The rating from an interview board composed of Air Force ROTC staff officers.

Names of scholarship nominees are then forwarded to Air Force ROTC headquarters for final selection.

General Information

The Air Force provides all textbooks and uniforms of the uniform required in the AFROTC program. Upon commissioning, the student may purchase from the University a set of uniforms valued at $300 for a nominal cost usually around $50. A cash allowance of $300 is given by the Air Force for additional uniforms.

Students receiving their commissions from the two-year or four-year program normally will enter an Air Force career field closely related to their college training (unless they attend pilot or navigator training). For example, engineers usually will be assigned to work with one of the aerospace research projects in a base engineering office.

Field Training

Air Force ROTC cadets' first extended exposure to a military environment comes with a field training encampment. To most cadets this is a memorable high point on their road to an Air Force commission. Here the cadet gets a close look at Air Force life and activities and the Air Force takes a searching look at the cadet.

Two field training courses are offered. One is of four weeks duration for cadets in the four-year Air Force ROTC program. The other, for applicants to the two-year program, lasts six weeks. The extra two weeks includes an intensive academic program that four-year cadets receive during their first two years. Normally, students in the four-year program must attend the four-week encampment during the summer between their sophomore and junior years. The six-week encampment must be successfully completed by all candidates for the two-year Air Force ROTC program during the summer preceding their entry into the POC.

Both encampments include cadet orientation, survival training, junior officer training, aircraft and aircrew indoctrination, physical training, organization and function of an Air Force base, career orientation, small arms familiarization, and supplemental training. In addition, each cadet rides in an Air Force jet trainer.

Cadet organization during field training closely parallels actual Air Force organizational structures. Each cadet receives several opportunities to serve in responsible positions within the organization. Discipline is stringent, with emphasis placed on customs and traditions of the Air Force.

A large number of future Air Force officers attend field training each summer. They meet and work with peers from all geographical areas of the United States, a broadening and motivating experience in itself.

Travel pay to and from the student's home is provided, or the Air Force provides a paid ticket for a commercial carrier. Room and board also are provided throughout field training. While there, the cadet receives approximately $630 in pay at the six-week encampment or about $430 at the four-week encampment.

Graduate Study

The Air Force realizes there is an increasing demand for graduate education among its personnel and has established several programs to provide this training. The Air Force Institute of Technology is available to AFROTC graduates and offers advanced degree training in college curricula which are related to Air Force career fields. These include all fields of engineering, meteorology, the physical sciences, mathematics, languages and business management.

Qualifications

All students who desire to enter the Air Force ROTC program must be U.S. citizens, be of sound physical condition, be of the highest moral character, and be at least 14 years of age to enroll but not more than 30 years old upon graduation and commissioning. Highly deserving applicants may be eligible for age waivers to age 35. Additional qualifications for admission to the POC include, for the two year applicant, the completion of the six-week field training. In addition, all applicants must pass the Air Force Officer's Qualifying Test, the Air Force physical examination, be interviewed by a board of officers and join the Air Force Reserve prior to entry into the POC. (This incurs no additional training requirements other than normal Air Force ROTC requirements.)

Entry into the POC is highly competitive and students are selected on a "best qualified" basis. Satisfactory completion of the minimum qualifications does not assure that a student will be accepted.

Physical Requirements

Detailed information on physical requirements is available at 214 Crowder Hall, UMC, Columbia, Mo. 65211.

Military Obligation

Upon graduation and commissioning as an officer in the United States Air Force, students fulfill their military obligation by agreeing to retain their commission for a period of six years and serving at least four of these six years on active duty. Availability of programs authorizing a delay of entry into active duty is contingent upon the needs of the Air Force.

The Corps of Cadets

The AFROTC unit at UMC is organized as a cadet group with squadron staffs and several flights. Freshman and sophomore cadets are assigned to one of the flights. They receive instructions from POC cadets in basic military customs and courtesies, drill movements and many other facets of Air Force operations. Junior and senior cadets are assigned and rotated through various leadership positions, gaining experience in management procedures.

The Corps of Cadets is a cadet function, with all planning and operations accomplished by cadets. A drill competition is held once a year. During this competition, each flight competes against other flights. The commander of the flight winning the competition receives the coveted Board of Curators' Cup, awarded annually by the University.

Cadet Activities

Air Force ROTC cadets at UMC are given an opportunity to visit Air Force bases for a first-hand look at the facilities and equipment and to gain a general idea of how a base functions. In past years, cadets have visited the North American Defense Command at Cheyenne, Wyo.; Patrick Air Force Base, Fla. (including a visit to Kennedy Space Center and Disney World); and Wright-Patterson Air Force Base, Ohio (headquarters for Air Force Logistics Command, Systems Command and home of the Air Force museum). Such trips range from one to three days and usually are highlighted by transportation in an Air Force aircraft.

In addition to base visits, the cadets participate on Air Force ROTC athletic teams and publish their own newsletter. Cadets may join a professional AFROTC cadet organization known as the Arnold Air Society which furthers the purpose and traditions of the U.S. Air Force. Members participate in community service projects as well as social activities such as an annual military ball, picnics, and conclaves where they meet and exchange ideas with cadets from other universities.
FLIGHT INSTRUCTION PROGRAM

Air Force ROTC offers an FAA approved civilian contracted Flight Instruction Program at UMC. This instruction consists of ground school and 13 hours (12 dual, 1 solo) of flight training. The Air Force pays for all flight instruction, textbooks, navigation equipment, flight jacket, and transportation to and from the flying school. The Flight Instruction Program is a required extracurricular activity for all cadets in their second year of the advanced POC course who intend to become pilots after being commissioned. This program is managed by an experienced Air Force officer who has flown military aircraft for many years.

SUPPLEMENTAL COURSE REQUIREMENT

Foreign Language Requirement. Students who accept a scholarship must agree to successfully complete at least one semester of college instruction in a major Indo-European or Asian language prior to commissioning.

English Composition Requirement. Four-year scholarship students must successfully complete a course in English composition by the end of their fourth semester. Other scholarship recipients must complete the requirement within two academic years.

Mathematical Reasoning Requirement. All students must successfully complete a course in mathematical reasoning prior to commissioning.

ANTHROPOLOGY

210 Switzer Hall, (314) 882-4731

Anthropology is literally the study of humans. Students have an opportunity to view humans comparatively and to consider the interplay between biology and culture. Anthropological study has four foci—(1) physical (concerning the evolution and biology of humans and other primates), (2) cultural (study of ways of life of recent and present day peoples), (3) archaeological (using methods of determining ways of life of the past), and (4) linguistic (an approach to human behavior through the study of language in its cultural context)—each contributing to a discipline which has been called “the most humanistic of the sciences, the most scientific of the humanities.” Indeed, although most anthropology courses meet behavioral science requirements, particular ones presently meet other general education requirements.

A concentration in anthropology may provide the core of a broadly based liberal education or it may serve specific vocational or professional goals of the student. For example, it is of particular value to students planning professional careers in a world of cultural and ethnic diversity. Faculty specialties allow students to emphasize any of the four foci, select some combination of them, or choose interdisciplinary programs in cooperation with other departments or schools. Such programs are made possible by departmental focus on a number of geographic regions and topics (cultural ecology, medical anthropology, forensic anthropology, cognitive science). The MA and PhD degrees also are offered by the department. Undergraduate training in anthropology prepares students for full-time research (especially in archaeology), museum curatorialship, work in governmental agencies, and graduate study leading toward college or university teaching of anthropology. American Anthropological Association publications on career opportunities are available from the director of undergraduate studies.

Undergraduate majors will be permitted two options in filling the area of concentration, depending on their objectives. The minimum requirements for an area of concentration are different in each.

Liberal Arts Emphasis. This program is designed for students who wish to study anthropology for its general educational value. Required are 27 hours of anthropology, selected under special advisement, and eight hours of related courses outside anthropology.

Preprofessional Emphasis. This program is intended primarily for students considering graduate work in anthropology or a closely related field. Required courses are:

- 150 Human Evolution (5)
- 152 Introduction to Archaeology (3-4)
- 153 Introduction to Cultural Anthropology (3)
- 154 Introduction to Anthropological Linguistics (3)
- Area course (e.g., Cultures of Asia) (3)
- Topical course (e.g., Political Anthropology) (3)
- Methods or techniques course
- Theory course (e.g., Culture Change) (3)
- Related courses outside anthropology (8)

The departmental Honors program entails independent research during the senior year. For information, consult Professor R. G. Spier, Anthropology Honors director.

Undergraduates have opportunities to participate, as volunteers or as paid workers, in research projects in all divisions of the discipline and in different parts of the world. Students may take part in one of several ongoing Missouri archaeological projects or learn specialized laboratory analytical techniques (palaeoethnobotany, zooarchaeology, human osteology, thermoluminescence). Other research and undergraduate teaching programs have recently been held in France, Luxembourg, Mexico and Peru.

The department is one of several cooperating in the South Asia Area Studies program and is a participant in the campus cooperative linguistics program. Through physical anthropology there is an interchange with the Division of Biological Sciences, the School of Medicine and the College of Veterinary Medicine.

ART

A-126 Fine Arts Center, (314) 882-3555

The Department of Art offers studio courses on the undergraduate and graduate levels in drawing, painting, design and graphic design, sculpture, printmaking, ceramics, fibers and photography. Undergraduate study leads to the bachelor of art and the bachelor of fine arts degree. The AB 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 also is the required undergraduate degree for admission to most master of fine arts programs.

Students enrolled in either the AB or BFA degree programs may not include (within the area of concentration) art department courses with a grade of D.

The Department of Art reserves the right to retain selective examples of student work for its collection.

BACHELOR OF ARTS

Minimum studio course requirements for the AB degree include a core program plus an area of specialization consisting of at least 15 credit hours.

Minimum Core Requirements
1 Introduction to Art
2 20 Basic Design I
21 Basic Design II
220 Beginning Spatial Design
Drawing (3 semesters)
Painting or Watercolor (one semester)
Crafts (Ceramics, Metals, or Fibers) (1 semester)

Art History at least 9 hours
At least 15 hours in a studio area of two related media, (such as drawing and photography) are required. No more than 40 semester hours of course work in the department may be included in the AB curriculum.

BACHELOR OF FINE ARTS

The College of Arts and Science requirements for the BFA degree are the same as for the AB degree, with the exceptions outlined in Requirements for Graduation Section.

Students accepted to the BFA program are assigned a departmental adviser. It is the student’s responsibility to meet with the adviser as soon as possible and plan a program of study with emphasis in a major studio area.

Area of Concentration. Normally 60 to 70 hours of studio art courses and 12 hours of art history courses are required. At least two art history courses must be upperclass level. The last two full semesters and at least 35 hours of upperclass work in the area must be completed in residence at UMC. The BFA candidate must achieve a grade point average of 3.0 in studio and art history courses in order to be graduated.

Studio course requirements for BFA degree.
2 Introduction to Art
20 - 21 Basic Design I and II
220 Beginning Spatial Design or 285 Beginning Sculpture
60 and 160 Beginning Drawing I and II
260 Intermediate Drawing
165 Anatomical Drawing or 360 Advanced Painting
177 Beginning Painting
277 Intermediate Painting or 175 Beginning Watercolor
One course from each of the following areas: photography, metals, ceramics or fiber or electives.

Studio credit hours to bring total to between 60 and 70 credit hours.

CAREER OPPORTUNITIES

Teaching. Students who wish to teach on the elementary and secondary level normally pursue the BS in education degree. AB and BFA candidates may acquire an elementary and/or secondary art teaching certification by completing the additional art education requirements not already completed in their AB or BFA programs.

Commercial Art. Students specializing in graphic design and photography may find employment with advertising agencies, newspapers and industries employing their own artists. According to the U.S. Department of Labor, employment opportunities for commercial artists should remain constant through the '80s.

Other. Opportunities exist to establish private studios selling to the public, to do freelance work for clients, or to work in art galleries or museums.
ART HISTORY AND ARCHAEOLOGY

109 Pickard Hall, (314) 882-6711

The development of the material culture of man and the artistic manifestations of that culture through the ages are the subjects of study in art history and archaeology. Undergraduate areas of concentration are available both in art history and in archaeology and usually follow the guidelines below. Each student's program is planned to meet individual interest and professional requirements.

ART HISTORY

I. Required courses: 24 hours minimum
10, 11 Introduction to Western Art (3)
180 Introduction to Art History and Archaeology (1)
4-5 courses in art history and archaeology surveys

II. Recommended related area, electives or general requirements:

Classical mythology
Classical literature in translation
All history and anthropology courses

Geology

Art courses (maximum 12 hours)

Film

Literature

Philosophy, aesthetics

III. Language study required through the reading level in German and French or Italian.

ARCHAEOLOGY

I. Required courses:
10 Introduction to Western Art (3)
180 Introduction to Art History/Archaeology (1)
219 Art and Archaeology of Ancient Egypt (3)
220 Classical Art and Archaeology I: Greece (3)
221 Classical Art and Archaeology II: Rome (3)

II. Recommended related area, electives or general requirements:

All courses in classics
All ancient history courses
Anthropology 152
Civil Engineering 20 Surveying

III. Languages
13 hours or equivalent, in both Greek and Latin plus a beginning course in German and French. If the program is begun late in the undergraduate years, language requirements may be adjusted to the individual student's program.

BIOLOGICAL SCIENCES

105 Tucker Hall, (314) 882-4068

The biological sciences division offers a bachelor of arts degree program in the biological sciences for students planning a career in any of the many different areas of basic and applied biology. The program, together with the general education requirements of the College of Arts and Science, provides a fundamental background in biological sciences and the supporting ancillary sciences. The program is flexible, giving each student an opportunity to select courses of special interest. A student majoring in biological sciences obtains the foundation to enter many technical and professional fields. Information about careers and advanced degree programs in the life and health sciences is available in the divisional office.

Undergraduate participation in Honors research and proseminar courses is encouraged, primarily because it gives a student individualized instruction by professional scientists. Contact the Honors director for details about the Honors degree in biological sciences.

Graduate programs in research and study leading to the MA and PhD degrees are available to qualified students.

BIOLOGICAL SCIENCES AREA

Ancillary science requirements:

Chemistry, a minimum of 17 hours, including one semester of organic chemistry and one additional course in chemistry or biochemistry.

Physical sciences other than chemistry, eight hours, of which one course must be physics.

Mathematics, one semester of calculus.

Biological sciences requirement:

A student must select a minimum of 33 hours, including either 21 and 22 General Biology or 11 Zoology and 12 Botany, a genetics course (202, 238 and 239, or 202 and 238), a physiology course (203, 270, or 313), and an environmental course (250, 302 or 362). In addition, the student must present at least 11 hours in formal courses numbered 200 or above. One course must include a laboratory and one course must be at the 300 level.

For examples of emphasis areas and requirements, consult your adviser.

MICROBIOLOGY INTERDISCIPLINARY PROGRAM

In cooperation with selected departments from the Colleges of Agriculture and Veterinary Medicine and the School of Medicine, the biological sciences division offers an area of concentration with emphasis in microbiology.

The following courses are required by those who elect the Interdisciplinary microbiology program:

122 Basic Microbiology (3) transfer students who have had an introductory microbiology course elsewhere should select 212 as their first microbiology course at UMC, and it will serve as a Category B elective—see below.

202 General Genetics (3)
Chemistry 11 and 12 General Biochemistry (10)
Chemistry 210 and 211 Organic Chemistry (lecture and laboratory) (5)
Physics 11 and 12 Elementary College Physics (8)
Mathematics 80 Analytical Geometry and Calculus I

In addition to the above required courses, 18 to 24 credits in electives must be taken. At least two of these courses must be selected from Category A, and the remainder of the hours may be filled from Category B. Other courses, not listed here, may be accepted for credit in Category B but only if approved by your microbiology adviser.

Category A Courses

303 Systematic Bacteriology (2)
305 General Pathology (3)
307 Mycology (4)
322 Protozoology (3)
354 Advanced Bacteriology (3 or 5)
Veterinary Microbiology 343 Concepts and Methods in Animal Virology (3)

Category B Courses

Agronomy 312 Soil Microbiology (lecture) (2)
Agronomy 312 Soil Microbiology (lecture and laboratory) (3)(The three-hour course has a prerequisite of Agronomy 100.) Biochemistry 270 Biochemistry (3)
Biochemistry 272 Biochemistry (3)
Biochemistry 274 Biochemistry Laboratory (3)
Biochemistry 301 Biochemistry (5)
203 Introduction to Cell Biology (3)
210 Parasitology (3)
241 Genetics Laboratory (2)
260 Molecular Biology (4)

300 Problems (independent research, by adviser's permission) (1 to 3)
324 Limnology (3 or 4)
326 Analysis of Biological Macromolecules (3)
340 Mammalian Cell Genetics (3)
346 Genetics of Microorganisms (3)
360 Techniques in Cell Culture (4)
371 Cellular Physiology (3 or 5)
374 and/or 375 Cell Biology I and II (3 to 4)
Chemistry 212 Organic Chemistry (3)
Chemistry 230 Physical Chemistry (3)
Civil Engineering 393 Sanitary Engineering Microbiology (3)
Food Science and Nutrition 372 Food Microbiology (3)
Food Science and Nutrition 373 Food Microbiology Laboratory (2)
Food Science and Nutrition 374 The Bacterial Spore (2)
Microbiology 304 Immunology (3)
Microbiology 314 Immunology Laboratory (1)
Microbiology 315 Bacterial and Viral Genetics (4)
Veterinary Microbiology 340 Microbial Physiology (3)
Veterinary Microbiology 345 Veterinary Parasitology I (3)
Veterinary Microbiology 346 Veterinary Parasitology II (3)

CHEMISTRY

123 Chemistry Building, (314) 882-2439

The chemistry department offers a bachelor of science degree in chemistry certified by the American Chemical Society. The bachelor of arts degree with an area of concentration in chemistry is designed for those students who desire a more general education or who are preparing for medical or dental training.

Because the bachelor of science program includes so many specific requirements, the undergraduate curriculum in chemistry, mathematics and physics is outlined below.

Suggested Schedule of Chemistry, Mathematics and Physics Courses for BS Degree in Chemistry

Chemistry 11 (5) (or advanced placement examination)
Chemistry 12 (5)
Chemistry 175 (5)
Chemistry 210 (3)
Chemistry 211 (3)
Chemistry 212 (2)
Chemistry 213 (2)
Chemistry 231 (3)
Chemistry 232 (4)
Chemistry 233 (3)
Physics 80 (3)
Physics 80 (3)
Physics 123 (3)
Mathematics 175 (5)
Mathematics 213 (2)
Mathematics 215 (5)
Mathematics 231 (3)
Physics 123 (3)
Physics 175 (5)
Physics 123 (3)
Mathematics 233 (3)

Suggested Schedule of Chemistry, Mathematics and Physics Courses for AB Degree

Although the schedule for the AB degree is more flexible than that of the BS degree, most students satisfy the chemistry, mathematics and physics requirements in the following order.

Chemistry 11 (5)
Chemistry 12 (5)
Chemistry 175 (5)
Chemistry 210 (3)
Chemistry 211 (2)
Chemistry 213 (2)
Chemistry 231 (3)
Chemistry 233 (3)
Physics 123 (3)
Physics 175 (5)

CLASSICAL STUDIES

420B General Classroom Bldg., (314) 882-3340

The classical studies department offers courses in the life, language and thought of the Greeks and Romans.

The department offers five emphases leading to the AB degree. Requirements are as follows:

Classical Civilization

Greek or Latin through the 103 level
12 hours in the department's courses taught in translation
12 hours in related fields (history, philosophy, English, comparative literature, archaeology, linguistics, etc.

Greek or Latin

22 hours in either language (usually 1, 2, 3, 210, two 3-hour courses at the 300 level).
9 hours in English language courses
9 hours in related fields

Classics (Greek and Latin)
Greek or Latin through two 3-hour courses at the 300 level;
the other language through the 210 level
9 hours in English language courses
9 hours in related fields

Classics, for secondary school teachers
22 hours in either language (usually 1, 2, 3, 210, two
3-hour courses at the 300 level)
9 hours in English language courses

COMPUTER SCIENCE
304 Math Science Bldg., (314) 882-3842
The computer science department offers programs of study leading to the bachelor of science and the bachelor of arts degrees. The bachelor of science degree program is designed for those students preparing for graduate study in computer science and for those who wish to apply the fundamental concepts and methods of computer science to areas such as systems programming and scientific applications programming. The bachelor of arts degree program is designed for those students who wish to apply the fundamental concepts and methods of computer science to areas such as business data processing and management systems. This degree program does not include sufficient training in mathematics to qualify a student for graduate study in computer science but, with the proper electives, it prepares the student for graduate study in other fields such as business administration and accountancy.

COURSES REQUIRED
All the courses from one of the following degree programs must be completed with an overall GPA of 2.4 and a grade of C or better in each course before an area of concentration will be approved.

BS Degree Program: 22 hours
Comp Science 104 Computers and Programming I (3)
Comp Science 203 Computers and Programming II (3)
Comp Science 210 Introduction to Systems Concepts (3)
Mathematics 80 Analytic Geometry and Calculus I (5)
Mathematics 175 Calculus II (5)
Mathematics 201 Calculus III (3)

AB Degree Program: 24 hours
Comp Science 104 Computers and Programming I (3)
Comp Science 203 Computers and Programming II (3)
Comp Science 210 Introduction to Systems Concepts (3)
Mathematics 60 Finite Mathematics (3)
Mathematics 61 Elements of Calculus (3)
Statistics 150 Introduction to Probability and Statistics I (3)
Statistics 250 Introduction to Probability and Statistics II (3)
Accountancy 36 or 136GH Accounting I (3)
Accountancy 37 or 137GH Accounting II (3)
Accountancy 258 Computer-Based Data Systems (COBOL) (3)
Accountancy 358 ED1 Systems Analysis and Design (3)
Comp Science 351 Systems Programming I (3)

Related Courses: 33 hours
Mathematics 201 Calculus I (3)
Mathematics 202 Calculus II (3)
Mathematics 203 Calculus III (3)
Mathematics 226 Discrete Mathematical Structures (3)
Mathematics 323 Numerical Analysis (3)
Statistics 320 Introduction to Mathematical Statistics (3)

Physics 80 University Physics I (3)
Physics 123 University Physics II (3)
Accountancy 258 Computer-Based Data Systems (COBOL) (3)

English 161 Technical Writing (3)
Technical Electives (6)

AB Degree in Computer Science: 57 hours
Computer Science Courses: 24 hours
Comp Science 104 Computers and Programming I (3)
Comp Science 203 Computers and Programming II (3)
Comp Science 208 Job Control Languages and Systems Utilities (3)
Comp Science 210 Introduction to Systems Concepts (3)
Comp Science 303 Assembly Language Programming (3)
Comp Science 320 Data Structures (3)
Comp Science 330 Computer Organization I: Design Fundamentals (3)
Comp Science 351 Systems Programming I (3)

Related Courses: 33 hours
Mathematics 60 Finite Mathematics (3)
Mathematics 61 Elements of Calculus (3)
Statistics 150 Introduction to Probability and Statistics I (3)
Statistics 250 Introduction to Probability and Statistics II (3)
Accountancy 36 or 136GH Accounting I (3)
Accountancy 37 or 137GH Accounting II (3)
Accountancy 258 Computer-Based Data Systems (COBOL) (3)
Accountancy 358 ED1 Systems Analysis and Design (3)
Comp Science 351 Systems Programming I (3)

ECONOMICS
118 Professional Building, (314) 882-4574
A basic understanding of economics develops insights into the many problems facing our contemporary society—inflation, unemployment, poverty, environmental pollution, the energy crisis, urban decay and the appropriate role of government in the economic life of the society. An economics major prepares one for careers in business and government and for graduate work in areas such as economics, business and law.

The department offers the AB degree in the College of Arts and Science and the BS BA degree in the College of Business and Public Administration. Details of the program for the BS BA degree in business administration are found in the College of Business and Public Administration section of this catalog. Students choosing the AB degree must take the following courses in economics:

1 General Economics (5) or 1 and 2 Fundamentals of Macroeconomics (6)
229 Money and Banking (3)
351 Intermediate Price Theory (3)
353 Intermediate Income Analysis (3)

At least three of the following courses selected in consultation with the student’s adviser (9):
311 Employment and Wages (3)
315 Public Finance (3)
316 State and Local Finance (3)
320 Economic Doctrines (3)
325 International Economics (3)
329 Banking and Money Market (3)
355 Structure of Industry (3)
361 Comparative Economic Systems (3)
362 Welfare Economics (3)
368 Business Fluctuations (3)
370 Quantitative Economics (3)
371 Applied Econometrics (3)
384 Economic and Demographic Change (3)

Economics courses not included in the above requirements are offered in Economics 316 and Statistics 250.

ECONOMICS 362 Welfare Economics (3)
ECONOMICS 368 Business Fluctuations (3)
ECONOMICS 370 Quantitative Economics (3)
ECONOMICS 371 Applied Econometrics (3)
ECONOMICS 384 Economic and Demographic Change (3)

Occasionally (subject to adviser approval) a student may substitute an alternative economics course for one of the above.

At least eight hours, including two upper-division courses, in a related subject approved by the adviser.

Statistics 31 Elementary Statistics or equivalent (3)

The electives in economics and the courses in the outside field differ for each student and enable students to design the area of concentration toward specific educational objectives.

ENGLISH
231 Arts and Science Bldg., (314) 882-6066
A major in English gives the student an appreciation and understanding of the great literary works in the English language and develops skills in reading, critical thinking, and written communication. The area of concentration in English has the following requirements:

2 Introduction to Poetry (3)
2 Introduction to Fiction (3) or 4 Introduction to Drama (3)

One course selected from seven of the following eight areas, plus one additional choice from any course listed below: (24)

The English Language: 309, 319, 320, 322, 323
Medieval Literature: 325, 326
Renaissance Literature: 331, 333, 335, 336, 345, 351, 352
Eighteenth-Century Literature: 355, 356, 357
Nineteenth-Century Literature: 365, 366, 367, 368, 369
American Literature: 304, 375, 377, 378
Modern Literature and Criticism: 316, 317, 318, 389, 391,
392, 393, 394, 395, 396
Topics and Special Themes: 201, 202, 206, 310, 221, 223,
301, 310, 385

Courses in related humanities (art, art history and archaeology, classics and classical civilization, foreign literature, history, music, philosophy, speech and dramatic art, religious studies and women's studies). (8)

The area of concentration in English offers a special emphasis in creative writing. The creative writing student takes an additional prerequisite (either English 50 or 70), chooses six courses in different categories, instead of seven, and adds two upperclass courses in writing (302, 303, 313, 314 or 315).

The required six hours of composition, which the student should complete before taking upperclass courses in literature, are excluded from the maximum 40 hours of English which may be counted toward the degree.

Students who maintain a minimum GPA of 3.3 are eligible for the departmental honor program. These students take six courses in different categories plus 196 and 197 (Honors seminars) and 190 Honors Senior Essay. Further information is available from the English Honors director.

In the entire AB program, a student may count no more than 40 hours of English toward graduation. The required six hours of composition, which the student should complete before taking upperclass courses in literature, may be in addition to the 40 hours of English.

Although a major in English does not provide specific vocational training, it can lead to many possible careers. Teaching has long been the most obvious career possibility, but others are becoming prominent. English continues to provide excellent preparation for professional schools, especially in law, medicine, and business. Other possible opportunities are in publishing, editing, advertising, writing and research for government or business, and public relations. More information about career opportunities for an English major is available from the Career Planning and Placement Center and from the director of undergraduate studies.

The department also offers work leading to the MA and PhD degrees.
GEOGRAPHY

8 Stewart Hall, (314) 882-8370

The undergraduate program of the geography department has three purposes: to serve the vocational goals of some students; to prepare for graduate study; and to provide a focus for those students wanting a broadly based liberal education. The area of concentration in geography can integrate a student's interests into a framework of spatial, areal and environmental associations.

The area of concentration in geography requires a minimum of 32 hours of course work, of which at least 18 hours must be in the geography department and eight hours in other departments. Twenty of the hours must be upperclass, including at least two upperclass courses in other departments.

Specific programs in geography are designed to fit the interests and needs of individual students. Each area of concentration is worked out by consultation between the student and adviser.

All areas of concentration in geography normally include four to six of the following courses:

1. Regions and Nations of the World I (3)
2. Regions and Nations of the World II (3)
3. Geographic Information Systems (3)
4. Quantitative Methods in Geography (3)
5. Historical Geography (3)
6. Human Geography (3)

To complete the area of concentration, geography majors may find it desirable to emphasize one of the following:

Regional, political, historical, cultural geography. This emphasis provides the theoretical background in geography. Students may select from among the following courses: 116, 117, 125, 150GH, 152, 171, 180, 305, 317, 340, 371, 396.

Economic geography, urban geography and planning. Course work should include 346, 347, 348, 350. Related work should be selected from such fields as anthropology, sociology, history, economics and political science.

Physical and environmental geography. Course work should be selected from 50, 301, 311 and 366. Related work should be selected from such fields as biology, ecology, environmental history, atmospheric science, forestry, soil science, statistics and agricultural economics.

Cartography. The department provides various opportunities for involvement in cartographic problems. Course work should include 137, 337, 338, 339. Related work should be selected from such fields as statistics, computer science, surveying and photogrammetry.

The departmental Honors program is open to superior students and encourages independent study with individual faculty. The area of concentration for departmental Honors students includes 196 Honors (3), 197 Honors (3), and 350 Special Readings (3).

The geography department participates in interdisciplinary degree programs, such as South Asian Area Studies, Latin American Studies, Russian Area Studies, Black Studies and Peace Studies.

Geographers are employed as: cartographers, including map editors; planners with governmental agencies and private firms; area intelligence specialists; environmental analysts; natural resource managers; map librarians; land use specialists; remote sensing and air photo interpreters; industrial development specialists; travel agents; teachers at all levels; and positions related to marketing, transportation, and placement of such facilities as health care and recreational services. An internship program (Geography 399) with a state agency may be arranged during a student's senior year.

The department cooperates with the Career Planning and Placement Center to find appropriate jobs for its majors after graduation and will assist them in planning programs compatible with their individual career objectives and ambitions.

Further information on jobs and careers in geography is available from the Association of American Geographers, 1710 16th St. N.W., Washington, D.C. 20009, or (for teachers) the National Council for Geographic Education, Western Illinois University, Macomb, Ill. 61455.

The department also offers the MA degree. For further information on the graduate program, contact the director of graduate studies.

GEOLOGY

101 Geology Bldg., (314) 882-6785

The geology department offers course work leading to the bachelor of science and the bachelor of arts degrees. The bachelor of science degree is designed to prepare the student for graduate study in geology or for possible employment. The bachelor of arts degree provides a cultural curriculum, but does not include sufficient training in geology and in related sciences to allow the student to enter directly into graduate study.

The Departments of Geology and of Civil Engineering offer a dual degree program leading to bachelor of science degrees in both departments. The five-year curriculum for this degree is listed below.

The minimum requirements for the areas of concentrations for both undergraduate programs in the department and the dual degree program are listed below.

AB DEGREE IN GEOLOGY

Geology courses
1 Principles of Geology (5) or 2 Physical Geology (3)
127 Surficial Earth Processes and Products (4)
128 Internal Earth Processes and Products (4)
224 Historical Geology (4)
Field Course (8)

At least two additional lecture courses in geology (6-8)

Related courses
Proiciency in trigonometry (may be taken in high school); at least 18 hours from the natural sciences or mathematics and statistics, subject to approval of adviser.

BS DEGREE IN GEOLOGY

Geology courses
1 Principles of Geology (5) or 2 Physical Geology (3)
127 Surficial Earth Processes and Products (4)
128 Internal Earth Processes and Products (4)
224 Historical Geology (4)
234 Mineralogy (4)
307 Structural Geology (4)
328 Optical Mineralogy (3)
324 Introduction to Petrology (3)
Field Course (8)

One 300-level course representing three of the following areas: paleontology (5), geochemistry (4 or 3), 323 Optical Mineralogy (3), applied geology (3 or 4), 303 Exploration Geophysics (3).

Related courses
Biological Science 1 or 2 years of high school biology
Chemistry 11 (5)
Chemistry 12 (5)
Math 80 (5)
Math 175 or 3 hours of statistics (3-5)
Physics 11, or 80 and 123 (5-6)

DUAL DEGREE GEOLOGY/CIVIL ENGINEERING

Geology courses
1 Principles of Geology (5)
127 Surficial Earth Processes and Products (4)
234 Mineralogy (4)
328 Optical Mineralogy (3)
324 Introduction to Petrology (4)
336 Field Course (8)
9 hours of geology electives

Engineering courses
5 Digital Computer Computation (2)
30 Engineering Graphics (3)
85 Statics and Elementary Strength of Materials (3)
99 Engineering Thermodynamics I (3)
124 Circuits, Devices and Systems (3)
195 Intermediate Strength of Materials (3)

Civil Engineering courses
113 Engineering Measurements (3)
221 Structural Analysis I (4)
185 Introduction to Dynamics (3)
212 Transportation Systems Engineering (3)
232 Civil Engineering Materials (3)
241 Fluid Mechanics (1)
251 Fluid Mechanics (3)
340 Applied Fluid Mechanics (2)
341 Hydrology (3)
355 Soil Mechanics (3)
374 Civil Engineering Systems Design (3)
391 Introduction to Water Quality (3)

Plus three electives, two of which should be design courses.

Related courses
Chemistry 5 (5)
Mathematics 80 (5)
Mathematics 175 (5)
Mathematics 201 (3)
Mathematics 304 (3)
Physics 80 (3)
Physics 123 (3)
Physics 124 (3)
Foreign Language (13)

English 60 Exposition (3)
English 161 Technical Writing (3) or Speech 75 Introduction to Speech Communication (3)

Humanities and Social Science Electives (18); must include an economics course (Economics 41 preferred), an American government or history course, and must satisfy the College of Engineering groupings requirements.

GERMANIC AND SLAVIC STUDIES

451 General Classroom Bldg.

The Department of Germanic and Slavic Studies offers courses in German and Russian language, literature and civilization. The bachelor of arts degree is given in German and Russian. Certain courses, such as German civilization, Russian civilization, and literature in translation courses, do not presuppose a knowledge of German or Russian, either language or literature.

AREA OF CONCENTRATION

I. Courses in the Department

German: The area of concentration in German consists of 27 semester hours in German beyond the courses needed to fulfill the language requirement of the College of Arts and Science. German 203, Advanced German Reading, and German 275, German Classics, are prerequisites to most 300-level courses and usually are required. Specific courses to be taken should be decided upon in consultation with the adviser.

Russian: The area of concentration in Russian consists of 27 semester hours beyond the language requirements of the College of Arts and Science. Russian 366, Structure of the Russian Language, and at least one 300-level course in Russian literature are required.

II. Courses Outside the Department

At least eight semester hours in related humanities or social sciences should be selected in consultation with the adviser. German and Russian are, for purposes of planning an area of concentration, considered two distinct and separate disciplines.
HISTORY
143 Arts and Science Bldg., (314) 882-2481
The history department offers undergraduate work in ancient, medieval, and modern European history; the history of the United States; the history of Latin America; and the history of Asia. In addition, the department participates in interdepartmental programs in Ancient Studies; Black Studies; Medieval and Renaissance Studies; Peace Studies; Women's Studies; and Latin American, Russian, and South Asia Area Studies.

The area of concentration in history requires a total of 29 hours of history courses and eight hours (including two upperclass courses) in the related area, which should consist of a meaningful cluster of courses chosen from one or more departments, normally in the humanities, social or behavioral sciences areas. The history courses should include the following:* Survey courses 13 hours
1 Foundations of Western Civilization (4)
3 Survey of U.S. History to 1865 (3)
4 Survey of U.S. History since 1865 (3)
100 History of Modern Europe (3)
Specialized Courses 16 hours
History Colloquium (1)
Undergraduate Seminar (3)
Upperclass elective in U.S. History (3)
Upperclass elective in non-U.S. history (3)
Two other upperclass history courses (6)
29 Total History Hours

LIBRARY SCIENCE
111 Stewart Hall, (314) 882-4044
The best educational program for librarians consists of a broad, substantial background in the liberal arts, some specialization in a particular academic subject area, and a basic core of professional courses in library science. This training is provided in the undergraduate general education and basic skills program and in the area of concentration in library science. The area is planned by each student in consultation with the adviser. It consists of 40 hours of course work, including 18-22 hours of library science and 18-22 hours in another subject in the College of Arts and Science. Special programs combining an interest in librarianship with such fields as sociology, English, foreign languages, biology, chemistry and computer science offer fruitful possibilities.

Area of Concentration: 40 hours
211 Elementary Cataloging (3) or 312 Principles of Cataloging and Classification (5)
326 Developing Library Collections (2)
231 Elementary Reference (3) or 332 Bibliography and Reference (5)
341 Management of Information Agencies (3)
One of the following: 322 Literature of the Humanities (3), 323 Literature of the Social Sciences (3) or 324 Literature of Science and Technology (3) if the student has no working experience in a library; 380 Practicum (3).
Primary academic department (18-22)
Students who expect to qualify as public school librarians should consult the College of Education section of this catalog for details regarding certification requirements.

LINGUISTICS
231 Arts Sciences Bldg., (314) 882-3582
Linguistics is the study of human language as a dimension of human behavior. It seeks to understand and explain language in a clear and formal manner. Although specialists in this field commonly do know one or more foreign languages, such knowledge is complementary rather than essential.

The area of concentration in linguistics, leading to the AB degree, offers students liberal education and prepares them for postgraduate study in linguistics or a related field. Many professional opportunities in linguistics require an advanced degree or a second major. A student in linguistics develops verbal and analytical skills that are valuable in many different careers.

The area of concentration consists of at least 24 semester hours in linguistics courses numbered 100 or above, including the three core courses 371, 372, and 374 and one of the following: 120, 306, 307, 363, 363 or 393. No more than six hours of Linguistics 350, Special Readings, may be included in the area.

Sample Areas of Concentration
Core courses
371 Introduction to General Linguistics (3)
372 Techniques of Linguistic Analysis (3)
374 Issues in Linguistic Analysis (3)

Other Courses in Linguistics (total of 12 hours from linguistics listings), a sample program might include:
319 The Structure of American English (3)
335 Philosophy and Language (3)
346 Language and Culture (3)

Courses Outside the Department (total of 9 hours of related courses) are chosen mostly from one of a wide number of other fields, such as anthropology, computer science, English, foreign languages, geography, history, mathematics, philosophy, psychology, sociology, speech or statistics.

A program of study leading to an AB with Honors also is available. In addition, the linguistics area program offers an MA degree.

MATHMATICS
202 Math Sciences Bldg., (314) 882-6221
The language and methods of mathematics are fundamental to an understanding of almost every science. Furthermore, the increasing use of computers in our society is generating a growing need for mathematical knowledge in many areas outside of the sciences; thus, the mathematics department provides mathematical training needed to pursue careers in a number of diverse areas. Students may select areas of concentration combining mathematics with computer science, statistics, actuarial science, physics, chemistry, biology, economics, philosophy and a number of other fields.

Requirements
The minimum requirements for the area of concentration consists of:
Calculus 80, 175, 201
A minimum of eight courses numbered above 300 in mathematics, statistics or computer science. At least six of these courses must be in mathematics.
These courses must include at least one course in each of the following: differential equations (304 or 308), linear algebra (331, 341 or 324), advanced calculus (302, 310 or 309).
These courses must also include at least two of the following sequences:
Applied advanced calculus (302 and one of 303 or 305) Applied mathematics (308, 309) Advanced calculus (311, 312) Numerical Analysis (323, 324) Probability or statistics (325, 326) Algebra (340, 341) Topology or geometry (372 and one of 362, 366 or 367).
Exceptions to these requirements must be approved by the director of undergraduate studies and must be an equivalent variation of these requirements.

SUGGESTED PROGRAMS
Students majoring in mathematics usually have career options requiring (1) a thorough knowledge of higher mathematics or (2) a sound mathematical background with an applied emphasis or (3) training suitable for teaching high school mathematics.

Below are some course suggestions which are appropriate for each of these options. Many alternate programs are available.
Sample Program of Option (1) (Pure)
80 Analytic Geometry and Calculus (3)
175 Calculus II (5)
201 Calculus III (3)
304 Differential Equations (3)
305 Introduction to Complex Variables (3)
310 Advanced Calculus I (3)
311 Advanced Calculus II (3)
340 Introduction to Abstract Algebra I (3)
341 Introduction to Abstract Algebra II (3)
358 Mathematical Logic (3)
366 Foundations of Geometry (3)
372 Introduction to Topology (3)
Sample Program of Option (1) (Applied)
80 Analytic Geometry and Calculus I (5)
175 Calculus II (5)
210 Calculus III (3)
305 Introduction to Complex Variables (3)
308 Applied Mathematics I (3)
309 Applied Mathematics II (3) or 324 Numerical Linear Algebra (3)
310 Advanced Calculus I (3)
311 Advanced Calculus II (3)
320 Introduction to Mathematical Statistics (3)
323 Numerical Analysis (3)
340 Introduction to Abstract Algebra I (3)
341 Introduction to Abstract Algebra II (3)
Sample Program of Option (2) (Computer Oriented)
80 Analytic Geometry and Calculus I (5)
175 Calculus II (5)
201 Calculus III (3)
305 Introduction to Complex Variables (3)
308 Advanced Calculus I (3)
309 Advanced Calculus II (3)
320 Introduction to Mathematical Statistics (3)
323 Numerical Analysis (3)
324 Numerical Linear Algebra (3)
331 Matrix Theory (3)
337 Applied Modern Algebra (3)
Sample Program of Option (2) (Computer Oriented)
80 Analytic Geometry and Calculus I (5)
175 Calculus II (5)
201 Calculus III (3)
305 Introduction to Complex Variables (3)
308 Advanced Calculus I (3)
309 Advanced Calculus II (3)
320 Introduction to Mathematical Statistics (3)
323 Numerical Analysis (3)
324 Numerical Linear Algebra (3)
331 Matrix Theory (3)
337 Applied Modern Algebra (3)
Sample Program of Option (3)
80 Analytic Geometry and Calculus I (5)
175 Calculus II (5)
201 Calculus III (3)
250 Survey of Mathematics (3)
302 Advanced Calculus with Applications (3)
304 Differential Equations (3)
320 Introduction to Mathematical Statistics (3)
331 Matrix Theory (3)
358 Mathematical Logic (3)
366 Foundations of Geometry (3)
372 Introduction to Topology (3)
Students in secondary education may count 331 and 333 as one of the required sequences.
Recommended courses for related areas, electives, or general requirements are:
**Computer Science**
04 Computers and Programming I (3)
05 Computers and Programming II (3)
07 Assembly Programming Language (3)

**Statistics**
07 Nonparametric Statistical Methods (3)
10 Introduction in Mathematical Statistics (3)
75 Operations Research (3)

**Physics**
12 University Physics (3)
14 General Physics (3)
14 Mechanics (3)

It is strongly recommended that all mathematics majors have at least one course in the computer sciences. Individual programs should be worked out with an adviser in order to best meet specific needs and requirements. The area of concentration generally is completed during the sophomore year.

The three career options mentioned above can lead to a wide variety of opportunities. Some of the possibilities are given below.

**Option I.** Programs of study that provide a thorough knowledge of higher mathematics are suggested for those who wish to pursue a higher degree in a mathematical, physical or engineering science. Students who are interested in Option 1 and who wish to seek careers in industry immediately after the AB degree should take some upperclass courses in computer science and the physical sciences.

**Option II.** Programs of study that provide a sound mathematical background with an applied emphasis are suggested for those who wish to combine undergraduate mathematics with other fields. Careers in scientific programming require a background in computer science as well as mathematics. A broad knowledge in the physical sciences is required for careers in industrial mathematics. Additional courses in economics, accountancy, finance, statistics and computer science are suggested for those who seek careers in business or actuarial science.

**Option III.** Programs of study in Option 3 are intended for those who wish to pursue a career in secondary education.

Students interested in a degree in mathematics with Honors should contact the director of undergraduate studies.

The mathematics department offers graduate work leading to the degrees of master of arts, master of science in applied mathematics, master of science for teachers, and doctor of philosophy.

**Credit by Examination in Mathematics.** Credit in Mathematics 10, College Algebra, is awarded on the basis of the student's score on a mathematics test taken by all incoming freshmen.

Transfer students may qualify for credit by taking an algebra test administered in the department.

**Credit in Mathematics 80, Analytic Geometry and Calculus I, and Mathematics 175, Calculus II, may be awarded on the basis of examinations administered in the department.**

These examinations are designated for students who have had a comprehensive, one-year course in calculus in high school. Credit in Mathematics 80 also may be awarded on the basis of a ranking of three or better on the AB Calculus Examination of the College Entrance Examination Board and credit for Mathematics 80 and 175 will be awarded on a ranking of three or better on the BC courses in the department is available to students who qualify by virtue of their background for the examination. 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.

**MILITARY SCIENCE (ARMY ROTC)**

202 Crowder Hall, (314) 882-7721

The purpose of the military science department is development of well-educated young men and women for positions of responsibility in the U.S. Army. Army ROTC cadets may request to go into the regular Army, the Army Reserve, or the Army National Guard upon graduation.

**Benefits**

Army ROTC offers UMC students:

1. A challenging, important, and well-paid job at graduation in one of the many professional fields that the modern Army has to offer. The starting pay for a second lieutenant is approximately $17,000 per year.

2. College financing. All students accepted in the final two years of Army ROTC are paid a minimum of $2,500 (all receive $100 per month for 10 months each year, plus a salary and transportation expenses for a six-week summer training session).

3. One-, two-, three-, and four-year scholarships. Fully enrolled University students are eligible for the many ROTC scholarships. Army ROTC scholarship students receive $100 per month and total payment for University tuition, incidental and laboratory fees, books and school supplies, and travel expenses.

4. Option of two careers. Upon graduation and commissioning as officers in the U.S. Army, students may fulfill their military obligation by agreeing to serve three years on active duty. Included are many benefits such as travel, free medical and dental care, 30 days paid vacation per year and advanced educational opportunities.

Students may request instead to serve in the Army Reserve or National Guard. For those preferring a civilian job after graduation, experience as an Army ROTC graduate is a strong plus on any resume.

**THE PROGRAM**

College students who successfully complete the program earn commissions as second lieutenants in the U.S. Army at the same time they receive their degrees at UMC. Although students normally begin the program as freshmen, they may enter at any point in their first four semesters. Students who are veterans enroll one semester at a time and assume no obligation either to continue that semester or for any military service of any kind. ROTC students attend a summer advanced camp (with pay) for six weeks between their junior and senior years.

**FOUR-YEAR PROGRAM**

The military science curriculum is traditionally offered as a four-year program. It is best started during the freshman year, but special arrangements can be made for those who elect to start as sophomores. The first two years of military science are intended to give the student a perspective on what the Army has to offer. Attendance during the first two years is completely voluntary and the student may drop out at any time, with no obligation. The student who decides to continue in ROTC for the third and fourth years signs a contract acknowledging that fact with the Department of the Army. Students agree to take military science for two academic years, to accept a commission in the U.S. Army at graduation and to spend some time (a minimum of three months) on active duty. In return, the Army pays the student a tax-free subsistence allowance of $2,500 during the last two academic years and provides necessary uniforms and texts.

**TWO-YEAR PROGRAM**

The two-year program is designed to provide greater flexibility in meeting the needs of students desiring Army commissions. UMC students who did not participate in the four-year program and junior college transfers are eligible for enrollment. Basic prerequisites for entering the two-year program are:

1. Applicants must be in good academic standing, pass the Army Officers Qualifying Test and the Army medical examination.

2. The student must have at least two academic years of study remaining—either as an undergraduate, graduate or any combination.

The student will attend a six-week summer basic training camp. Graduation from basic camp places individuals on a military training level with students in the four-year program. Attendance at the basic camp does not obligate the prospective ROTC student in any way. It is intended to give the student a look into what the Army is and has to offer.

**SIMULTANEOUS MEMBERSHIP**

Students who qualify for the Simultaneous Membership Program (member of Army Reserve or National Guard and Army ROTC program) can earn more than $6,500, depending on academic year. SMP students receive Reserve or Guard pay at the minimum level of Sergeant E-5 and $100 a month from the ROTC advanced course.

At the completion of the second year of advanced ROTC, students are commissioned as second lieutenants, serving with a Reserve or Guard unit until completing their college degree. Upon graduation, a student may request to continue Reserve or Guard service or compete for active duty.

**SCHOLARSHIPS**

Army ROTC currently has 12,000 scholarships in effect, which pay tuition, incidental fees, laboratory fees and other educational expenses. In addition, a tax-free subsistence allowance of $100 per month is paid for up to 10 months of each academic year, plus a mileage allowance from home to college. The total value of a four-year Army ROTC scholarship can exceed $12,000.

**ACADEMICS**

UMC Army ROTC academics consists of two parts: (1) earning a degree in whatever field the student chooses, and (2) completing 18 credit hours (four-year program) or 12 credit hours (two-year program) of the military science curriculum. The courses in military science are college level academic courses, most of which receive full academic credit on cam-

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pus and count on the student's grade point average.

The military science curriculum is designed to complement a student's baccalaureate degree course of study, but does not provide technical training in a job specialty or vocational training. The curriculum consists of classroom instruction and laboratory sessions each semester. Classroom instruction is supplemented each semester with a weekly leadership laboratory in which students are trained in applied leadership.

GRADUATE STUDY

The Army realizes there is an increasing demand for graduate education among its personnel. Several programs have been established to provide this training. ROTC cadets are permitted to accept civilian fellowships, grants and other national international scholarships offered for graduate study by eligible donors. Regular Army ROTC graduates who accept one of these receive their full Army pay and allowances.

QUALIFICATIONS

All students who desire to enter the Army ROTC program must be U.S. citizens, of sound, physical condition and of the highest moral character. Cadets must be at least 17 years of age upon graduation and commissioning. Additional qualifications for admittance into the final two years include an academic average of C or better; a satisfactory score on the Army Officers Qualifying Test, ACT, or SAT examinations; and successful completion of the Army medical examination.

CADET ACTIVITIES

Army ROTC students may participate in many extra-curricular activities during the year. Participation is elective. The cadets sponsor athletic teams in all major sports for competition in campus leagues. The National Society of the Pershing Rifles represents UMC in numerous local, state and regional drill and marksmanship competitions. The Pershing Rifles includes training in special skill areas such as mountaineering, camping and water crafts. Techniques. A small-bore rifle range, excellent international match quality rifles and auxiliary equipment are provided for rifle team participants. Students interested in journalism publish the cadet newspaper.

Social activities include the Tri-Service Ball, Ozark float trip, picnics and informal parties during the year. Army ROTC students support various campus and community service activities. They may volunteer to usher at varsity athletic events and receive free admittance.

SPECIAL TRAINING

Selected volunteers may attend one of several special schools during the summer; the Airborne Course at Fort Benning, Ga.; Air Assault School at Fort Campbell, Ky.; Jungle Warfare School in Panama; or the Northern Warfare School in Alaska. Successful course completion earns the coveted badge (such as the jump wings or air assault wings) associated with each school.

Special Cadet Troop Leader Training is available on a limited basis. Students participating in the program live and work with an active Army unit during part of one summer.

MUSIC

140 Fine Arts Center, (314) 882-2640

The music department, an institutional member of the National Association of Schools of Music, offers instruction to those who wish professional training in music as well as those who wish to pursue music as an avocation. Applied music instruction in piano, organ, voice, string, wind, brass and percussion instruments is offered by the department for beginning as well as advanced students. Practice facilities for the students are available. Elementary and advanced courses are given in theory and composition. The appreciation, literature and history of music are covered by survey and specialized courses.

The department also offers the opportunity for all students of the University to participate (for credit or non-credit) in various performing groups. The University Philharmonic Orchestra, Marching Band, Symphonic and Concert bands, Choral Union, University Singers, Singsations, Collegium Musicum, Chamber Singers, Concert Chorale, Opera Workshop, Brass Choir, and the string, percussion, and wind chamber ensembles give regular programs on campus and throughout the state. Membership in these groups is open to interested students by audition.

The bachelor of music degree is a professional degree and offers the maximum concentration in music. The student may emphasize instrumental, keyboard or vocal music; music theory; composition; music history, or music education. The specific requirements vary, but all students are required to have a minimum of 20 hours in individual performance study courses, 24 hours of theory and 8 hours of music history.

Detailed information on music instruction and programs, including courses in music education for teachers, is outlined in the departmental bulletin.

PHILOSOPHY

438 General Classroom Bldg., (314) 882-2871

The philosophy department offers undergraduate and graduate courses in the main areas of philosophy: logic, ethics, epistemology (theory of knowledge) and metaphysics (theory of reality), and in the major periods of the history of philosophy (ancient, medieval, early modern, 19th century and contemporary). The department also offers courses in conjunction with the Honors College and such interdisciplinary programs as South Asia Area Studies, Latin American Studies, Linguistics and Peace Studies. The undergraduate program in philosophy leads to an AB degree; the graduate program offers the MA and PhD.

Undergraduates pursuing an area of concentration in philosophy are required to complete 24 semester hours of philosophy courses and nine semester hours (including six hours in upperclass courses) in a related field. The philosophy courses must include the following survey of the field and its history.

One course in logic (10 or 314)
One course in ethics (5 or 135 or 213 or 317 or 327 or 331 or 332 or 366)

204 Ancient Western Philosophy
205 Early Modern Philosophy
206 Kant to Hegel or 207 19th Century Philosophy
208 Contemporary Philosophy

Philosophy majors supplement these required courses with six or more hours of upperclass electives in which they study an aspect of the field in greater detail. The nine semester hour course in a field related to philosophy may be done in one of five more departments, but students are urged to concentrate on one department closely related to their main interest in philosophy, such as classical studies for students interested in ancient philosophy, mathematics for students interested in logic. The undergraduate offerings in philosophy also include six semester hours of Honors courses to supplement the regular requirements for philosophy majors. These courses coupled with the regular requirements lead to an AB degree with Honors in philosophy.

A major in philosophy offers students a liberal education, prepares them for graduate work in the field of philosophy and for advanced work in other liberal arts. A major in philosophy has traditionally been an excellent preparation for advanced work in law or the ministry.

PHYSICS

223 Physics Bldg., (314) 882-3434, 882-3338

Physics is the science which studies the structure and properties of matter and transformations of energy. With mathematics 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 which have been discovered and developing the skills which enable such knowledge to be advanced through research.

The study of physics is the starting point for many career opportunities; training in physics allows immense flexibility for the future not only in terms of additional study, but in terms of ability to fit into jobs and job training in many areas. A traditional path is to continue the study of physics in graduate school to earn a master of science or doctor of philosophy degree, a necessary achievement to be qualified to teach and continue research in a college or university.

A background in physics is preparation for continued study in a wide variety of fields including geophysics, health physics, meteorology, all other sciences, as well as medicine, law, business, and many other professions. Other opportunities for both those with bachelor of science degrees or those with advanced degrees are to be found in a variety of industries and in state and federal laboratories and agencies.

Astronomy is the study of all phenomena outside the limits of our planet; as such it involves the application of physics to interpretation of observable phenomena from the near space environment surrounding the earth to the distant limits of the universe. Astronomical science is a smaller field than physical science, but employment opportunities at the bachelor's level exist in federal laboratories (NASA), at other institutions where technical management,
telescope and planetarium operation, and, in some cases, research projects are carried out, and in industry. More direct involvement in astronomical research and/or employment at the university level or at major astronomical research observatories requires a graduate degree.

The department offers two basic undergraduate degrees, the bachelor of arts and the bachelor of science. The AB degree requires fewer physics and mathematics courses (32 credit hours of physics and 21 credit hours of mathematics and other sciences) and is particularly suited for students who are planning to enter medical school or who wish to earn a life teaching certificate from the College of Education. Most physics majors will prefer to earn a BS degree (37 hours of physics and 27 hours of mathematics and chemistry) which gives the solid foundation for the further graduate studies necessary for most careers in physics and other sciences. The core courses for each of these degrees as well as for the astronomy option are given below:

**AREA OF CONCENTRATION - AB**

- 30, 123, 124 University Physics I, II and III (9)
- 110 Undergraduate Seminar (2)
- 215 Intermediate Modern Physics (3)
- 304 Principles of Physical Measurements (3)
- 310 Electricity and Magnetism I (3)
- 314 Mechanics (3)
- 380 Modern Physics I (3)
- Mathematics 80, 175, 201 Calculus I, II and III (13)
- Mathematics 304 Differential Equations (3)
- Chemistry 11 General Chemistry (5)
- Mathematics 80, 123, 124 University Physics I, II and III (9)
- 215 Intermediate Modern Physics (3)
- 304 Principles of Physical Measurements (3)
- 360, 307 Advanced Physics Laboratory I and II (6)
- 310 Electricity and Magnetism I (3)
- 314 Mechanics (3)
- 380, 381 Modern Physics I and II (6)
- Mathematics 80, 175, 201 Calculus I, II and III (11)
- Mathematics 304 Differential Equations (3)
- Chemistry I General Chemistry (5)

**AREA OF CONCENTRATION - BS**

- 30, 123, 124 University Physics I, II and III (9)
- 110 Undergraduate Seminar (2)
- 215 Intermediate Modern Physics (3)
- 304 Principles of Physical Measurements (3)
- 360, 307 Advanced Physics Laboratory I and II (6)
- 310 Electricity and Magnetism I (3)
- 314 Mechanics (3)
- 380, 381 Modern Physics I and II (6)
- Mathematics 80, 175, 201 Calculus I, II and III (11)
- Mathematics 304 Differential Equations (3)
- Chemistry I General Chemistry (5)

**AREA OF CONCENTRATION - ASTRONOMY**

The curriculum requirements are basically the same as those for a BS degree in physics with the addition, as elective courses, of the following:

- Astronomy 201 Introduction to Modern Astrophysics (3)
- Astronomy 202 Astronomical Observations and Measurements (2) and two or three of
  - Astronomy 315 Stellar Astrophysics (3)
  - Astronomy 320 Observational Astronomy (3)
  - Astronomy 325 Stellar Astrophysics (3)
  - Astronomy 340 Extragalactic Astrophy (3)

Students who expect to continue their studies at the graduate level should note that many universities require that a master’s degree and a doctoral candidate have the ability to use a foreign language. However, the student who aims at a career in business or industry without the need for an advanced degree may wish to select an emphasis area as an alternative to study of the optional foreign language. The emphasis area is a concentration of 12 or 13 hours in a subject other than physics or astronomy, typically four or three-credit-hour courses in a single field. Depending upon the individual student’s interests and career goals, the emphasis area selected may include any of the following:

- geology, chemistry, library science, radiation biology, health physics, computer science, electrical engineering, nuclear engineering, law, etc. The selection of the emphasis area is to enhance the employment opportunities for the graduate with a bachelor’s degree. Each student’s emphasis area will be planned carefully under the direction of the departmental undergraduate adviser.

The physics department offers O.M. Stewart Scholarships to physics majors at the sophomore, junior and senior levels. The award is based on scholastic achievement and is renewed annually. It may be held in addition to University scholarships and other sources of financial assistance. Application is made to the departmental chairman of the O.M. Stewart Fund Committee.

**Additional information on the requirements for undergraduate work and on the O.M. Stewart Scholarship is detailed in the brochure Physics and Astronomy at the University of Missouri-Columbia available from the department office.**

The department also offers several courses designed for non-science students. These include Physics I, Physical Science (5), as well as Astronomy I, Introduction to Astronomy (4), Astronomy 2, Introduction to Laboratory Astronomy (2), and Astronomy 110, Archaeoastronomy (3). All satisfy the arts and science requirements for physical science course work.

**POLITICAL SCIENCE**

114 Professional Building, (314) 882-2062

Political science is concerned with government, politics and public policies. In political science courses, students learn how the 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.

Almost one-half of the political science graduates attend law school or attend graduate school studying political science, public administration, business administration, library science or other subjects. Other political science graduates are employed as budget analysts, legislative correspondents, military officers and teachers. Many public officials and government administrators have political science degrees.

**Internships.** The political science department offers four internship programs, with at least one internship being offered every semester. Students are encouraged to take one or two internships to gain practical experience. Students intern with state legislators, administrative agencies, political candidates and lobbyists. A special intern is selected each semester to work with state elected officials and state political parties.

**Honor Program.** Students with a 3.3 grade point average may enter the department Honors program. Students who successfully complete Honors projects in three of their advanced political science courses will have the phrase “with Honors in Political Science” added to their diploma.

**Preparation for Graduate School.** Students who plan to enter graduate school are encouraged to enter the Honors program and to take the two methodological courses: 324, Survey Research Methods, and 326, Data Analysis in Survey Research. Students who plan to take the public policy option in the political science master’s program at UMC also are encouraged to consult with Professor Hardy about procedures that will allow the student to complete the BA and the Public Policy MA in five years.

**Government Service.** This area is designed especially for students who want political science training in order to become government administrators. The student must take the following courses:

102 State Government, or 306 Municipal Government 150 Comparative Political Systems, or 262 Classical Political Thought, or 263 Modern Political Thought 323 Administrative Agency Internship, or 333 Legislative Internship 210 Current Issues in American Politics 310 Introduction to Public Administration 316 Congress and Legislative Policy, or 320 The American Constitution, or 340 The American Presidency 330 Governmental Budgeting, or Public Administration 354, Public Budgeting, or Accountancy 325, Governmental Accounting and Taxation 314 Economics 141, Evolution of Industrial Society, or Economies 215, Economics of Public Policy: Government Finance, or Economics 233, Macroeconomic Policy Management 310, Personnel Management Statistics 31, Elementary Statistics Accountancy 36, Accounting I Accountancy 37, Accounting II

**Public Information and Reporting.** Designed for students who want to be governmental press secretaries or public information specialists, interest group lobbyists or government reporters, this program combines a liberal arts background with some training in journalism. A GPA of 3.0 or above is required. The journalism courses also can be applied to a master’s degree in journalism at UMC. Students must take the following courses:

332 Administrative Agency Internship, or 333 Legislative Internship, or 334 Campaign Internship, or 335 Lobbying Internship two of the following courses: 102 State Government, 306 Municipal Government, 310 Introduction to Public Administration, 311 Administrative Regulation of Business two of the following courses: 305 Political Parties, 307 Political Campaigns and Voter Behavior, 316 Congress and Legislative Policy, 325 Politics of Pressure Groups 300 Internship in international affairs or comparative government 263 Modern Political Thought, 360 American Political Thought, or 364 Recent Democratic Theory

Journals 102, News Journalism 110, Editing Journalism 120, Advertising Principles and Practice Journalism 322, Public Relations Journalism 304, Communication Law

**Political Leadership.** This area is designed for students who want to serve in elected or appointive office. It combines training in techniques needed to win office with the principles of policy analysis needed by the person who is selected for office. Students must take the following courses:

332 Administrative Agency Internship, or 333 Legislative Internship, or 334 Campaign Internship, or 335 Lobbying Internship three of the following: 305 Political Parties, 307 Political Campaigns and Voter Behavior, 325 Politics of Pressure Groups, 340 American Presidency 151 Politics and the Military, or 314 American Foreign Policy 324 Survey Research Methods, or 326 Data Analysis in Political Research 102 State Government, or 306 Municipal Government 317 Public Policy, or 320 The American Constitution 310 Sociology, Public Opinion and Communication Economics 215, Economics of Public Policy: Government Finance Psychology 260, Social Psychology Psychology 371, Attitude Change

**Public Policy.** This area is designed especially for students who wish to analyze and evaluate public policies for governmental bodies or private organizations. Students must take

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the following courses:
332 Administrative Agency Internship, or 333 Legislative Internship, or 335 Lobbying Internship
310 Introduction to Public Administration, or 311 Administration and Policy Development in Public Service
314 American Foreign Policies, or 360 American Political Thought
316 Congress and Legislative Policy, or 325 Politics of Pressure Groups
317 Public Policy
319 Public Policy Analysis
324 Survey Research Methods
326 Data Analysis in Political Research

In addition, students are required to take 12 hours outside the field of political science in some substantive area or areas of public policy such as agriculture, criminal justice, economics, energy, health, welfare and the like. (The selection of such courses should be carefully worked out with the student's adviser.)

**PSYCHOLOGY**

210 McAlester Hall, (314) 882-6860

The undergraduate AB degree program in the psychology department stresses the scientific and experimental foundations of psychology. The department has prepared a brochure, available upon request, which describes its areas in greater detail. It contains recommended areas for students desiring a strong liberal education and background for people-oriented careers (personnel management, etc.) and areas for those desiring to pursue graduate work in psychology (experimental, clinical, counseling, social) or other fields (medicine, law, ministry, etc.). A booklet describing each course offered in psychology is available for examination in the department office. There are many career options for people with education in psychology. A pamphlet describing these options is available for examination in the department office or in the CPCP.

The minimum requirements for an area of concentration in psychology are 24 hours (including statistics) and a minimum of eight hours from related departments for a total of 32 hours in the area. (At least 20 hours must be 100-level area courses or above.) The 13 hours of electives in psychology must be regularly scheduled courses with adequate representation of different subfields.

A student may select additional courses in psychology (up to 40 hours total) in order to prepare for a career in a specific specialty area. The eight-hour related department requirement may be met by taking courses in certain professional divisions on campus, or in other departments of Arts and Science. The dual major plan also is encouraged.

**AREA OF CONCENTRATION**

1 General Psychology (3) and 3 Experimental Psychology (2) or 2 General Experimental Psychology (5)
Statistics 31 Elementary Statistics (3)
215 Research Methods in Psychology (3)
Psychology electives (13). Six hours must be in 300-level courses. One course must be with lab or be a research course.

Courses from related departments (8)

**PSYCHOLOGY**

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A student may select additional courses in psychology (up to 40 hours total) in order to prepare for a career in a specific specialty area. The eight-hour related department requirement may be met by taking courses in certain professional divisions on campus, or in other departments of Arts and Science. The dual major plan also is encouraged.

**AREA OF CONCENTRATION**

1 General Psychology (3) and 3 Experimental Psychology (2) or 2 General Experimental Psychology (5)
Statistics 31 Elementary Statistics (3)
215 Research Methods in Psychology (3)
Psychology electives (13). Six hours must be in 300-level courses. One course must be with lab or be a research course.

Courses from related departments (8)

**ROMANCE LANGUAGES**

27 Arts and Science Bldg., (314) 882-4874

The Romance Languages department offers language and literature courses in French, Italian, Portuguese, and Spanish. An area in general linguistics also is available. A student may elect to prepare an area of concentration in French, Italian, or Spanish. In French and Spanish, a student may choose between a language-centered area of concentration and literature-centered area.

Students may elect to have a double major (an AB degree with a major in French, Italian or Spanish and a degree in another college or school).

The department also offers, in cooperation with other departments, a special area in Latin American Studies, described under Interdisciplinary Areas of Concentration.

**AREAS OF CONCENTRATION**

**French (Literature Emphasis).** A student must include in the area of concentration a minimum of 30 hours of courses in the major language beyond the courses used to satisfy the basic skills requirement in foreign languages. The following courses or their equivalents must be included in the area:

106 French Composition (3)
109 French Conversation (3)
203 Introduction to Hispanic Literature I (3)
205 Advanced French Composition (3)
209 Advanced French Conversation (3)
256 Stylistics (3)
Four 300-level courses, one of which must be in literature (excluding 350). A minimum of 12 hours beyond the elementary courses (9-10) in another foreign language: 3, 106, 109, and one 200-level course. These courses meet the eight-hour requirement outside the department.

**Spanish (Literature Emphasis).** A student must include in the area of concentration a minimum of 27 hours of courses in the major language beyond those used to satisfy the basic skills requirement in foreign languages. The following courses or their equivalents must be included in the area:

106 Spanish Composition (3)
109 Spanish Conversation (3)
203 Introduction to Hispanic Literature I (3)
204 Introduction to Hispanic Literature II (3)
Two 300-level courses in Spanish American literature (one early, one modern)

A 300-level course in literature or language, excluding 350. Courses to meet the eight-hour requirement outside the department are recommended in anthropology, art history and architecture, English, geography, Germanic and Slavic literatures, history, linguistics, music history and literature, philosophy or political science.

**Spanish (Language Emphasis).** A student must include in the area of concentration a minimum of 33 hours of courses in the major language beyond those used to satisfy the basic skills requirement in foreign languages. The following courses or their equivalents must be included in the area:

106 Spanish Composition (3)
109 Spanish Conversation (3)
203 Introduction to Hispanic Literature I (3)
204 Introduction to Hispanic Literature II (3)
206 Advanced Spanish Composition (3)
209 Advanced Spanish Conversation (3)
256 Stylistics (3)
Four 300-level courses, one of which must be in literature (excluding 350), a minimum of 12 hours beyond the elementary courses (9-10) in another foreign language: 3, 106, 109, and one 200-level course. These courses meet the eight-hour requirement outside the department.

**Italian.** The area of concentration in Italian must include a minimum of 30 hours of courses in Italian beyond those used to satisfy the basic skills requirement in foreign languages. The following courses or their equivalents must be included in the area:

106 Italian Composition (3)
109 Italian Conversation (3)
110 Italian Civilization (3) (taught in English)
206 Advanced Italian Composition (3)
209 Advanced Italian Conversation (3)
311 Survey of Italian Literature I (3)
312 Survey of Italian Literature II (3)

At least nine hours in other 300-level literature courses. Candidates for the AB with an area of concentration in Italian are encouraged to take the eight required hours of coursework outside the major in another Romance Language or in linguistics.

**SOCIOLOGY**

109 Sociology Bldg., (314) 882-8331

The study of sociology gives students insights into the social relationships among humans, the changes occurring in values and institutions, and the social problems facing contemporary society.

The department requires the following five courses:
1 Introduction to Sociology (3)
2 Social Research 1 (3)
282 Senior Seminar (3)
298 The Rise of American Sociology (3)
299 Recent Theories in Sociology (3)

Three additional courses in sociology are required, although a student may take more, up to a maximum of 40 hours. Choice of the three additional courses depends upon a student's interests and goals. The student may elect a liberal arts option which involves selection of three courses suited to a student's unique needs. In addition, the department often offers special emphasis course sequences in the following areas (faculty advisers for each sequence are listed in parentheses after each area): business and society (Benn, Jenkins, pretl), law (Gallicutt, McCartney), health care (Twaddle, Hessler), social welfare (T. Vaughan, Woodard), social research applications (Brent, Altegg), sociology with journalism emphasis (P. Hall, Granberg, and J. Hall), and sociology with information science emphasis (Bak). The student who elects a specialized emphasis will be required to take three sociology courses in the specialized sequence and an outside area of concentration that complements this sequence.

Care in advising students is an important priority of the department. Students planning to major in sociology should seek departmental advice as soon as possible. A brochure, prepared by the department, describes the undergraduate major in greater detail.

**SPEECH AND DRAMATIC ART**

115 Switzer Hall, (314) 882-4431

The speech and dramatic art department offers programs leading to the AB degree in three areas of concentration.

Speech communications is elected by students who intend to enter law, public relations, business management or sales. The theater area offers courses which provide graduates with an appreciation of theater as a fine art, and prepares them for careers in theater and other fields. Radio-television-film courses prepare students both for critical understanding of mass media and careers in broadcasting and film.

**AREAS OF CONCENTRATION**

A student's program for a bachelor of arts in speech and dramatic art must include five hours of the basic requirements in speech, not more than 35 hours in one of the three fields of specialization, and eight hours in courses from other departments.

**Theater**

All students:
2 Voice and Articulation (2) or 233 Oral Interpretation of Literature (3)
20 Principles of Technical Theatre Production (2)
60 Principles of Script Analysis (2)
75 Introduction to Speech Communication (3)
120 University Theatre Workshop (1-3)
251 Beginning Theatrical Costume Design (3) or 253 Stagecraft (3)
261 Theatrical Directing (4)
Theater history, dramatic literature, dramatic criticism, 
dramatic theory, or playwriting in courses numbered 300 
or above (6)
Students specializing in performance:
4 Stage Movement for the Actor (2)
243 Acting I (3)
244 Acting II (3)
320 Theatre Practicum (1-3)
Electives, such as 266 Musical Theatre Performance
Students specializing in technical theater:
251 Beginning Theatrical Costume Design (3) or 252 
Stagecraft (3)
220 Technical Theatre Practicum (1-3)
230 Theatre Practicum (1-3)
Plus three of the following:
253 Design Techniques (3)
352 Scene Design (3)
353 Advanced Costume Design (3)
354 Stage Lighting Design (3)
Students specializing in theater history and 
dramatic literature:
Electives including six semester hours in theater history, 
dramatic literature, dramatic theory, dramatic criticism, 
and playwriting beyond the core requirement.
To meet the eight-hour requirement outside the depart­
ment, students are encouraged to take courses in art, 
classics, English, home economics, or music.
Additional programs related to theater in­
clude an endorsement in dance and concentra­
tion in Fashion Design—Theater Costume De­
sign.

Speech Communication

Students who wish a concentration in speech 
communication must have a 2.5 GPA to file an area of concentration, and they must maintain a minimum GPA of 2.5 to be graduated in this area of emphasis.
1 Voice and Articulation (2)
75 Introduction to Speech Communication
106 Great Speakers (2)
141 Nonverbal Communication (3)
171 Group Communications (3)
173 Argument and Advocacy (3)
270 Culture and Communication (3)
276 Persuasive Speaking (3)
283 Contemporary American Speakers (3)
302 Psychosocial Aspects of Speech (3)
174 Persuasion (3)
276 Communication in Organizations (3)
381 Principles of Rhetoric (3)
282 Process of Communication (3)
Courses to meet the eight-hour requirement outside the 
department are recommended in history, English, political 
science, psychology, sociology, journalism, marketing or management.

Radio-Television-Film

For a radio-television-film concentration, a minimum 2.3 GPA is required before students can declare themselves majors. This minimum GPA requirement must be maintained throughout the course of studies.
1 Voice and Articulation (2)
3 Televisio and Radio in Modern Society (2.3)
5 Introduction to Speech Communication
30 Basic Audio Production and Performance (3)
35 Performance in the Visual Media (3)
36 Advanced Audio Production (3)
39 Introduction to Radio-Television Film Writing (3)
42 Experimental Film and Video (3)
43 Film Production (3)
34 Radio and Television Programming and Management (3)
37 Television Studio Production (3)
37 Broadcast Regulations and Responsibility (3)
38 Television Program Analysis and Criticism
39 Film and Television Documentary (3)
37 Television Field Production (3)
40 Professional Practice (1-6)
35 Television Technology (3)
36 Contemporary Issues in Telecommunications (3)
39 Professional Seminar in Television Production (3)
39 Professional Seminar in Film Production (3)
Electives from other speech communication, theater courses 
or Journalism 357 Station Management. Courses to meet the eight-hour requirement outside the department are recommended in psychology, political science, history, 
English, film studies, marketing and management.

STATISTICS

222 Mathematical Sciences Bldg.,
(314) 882-6376
The statistics department offers undergradu­
ate programs leading to a bachelor of arts 
degree in statistics.
Students interested in majoring in statistics 
should contact the department as early as their senior year in high school. Early admission into the undergraduate program will permit adjusting 
the program so that the proper mathematics and 
statistical prerequisites can be taken in an orderly sequence.

REQUIREMENTS FOR THE 
BACHELOR'S DEGREE

The minimum mathematics requirements are a 
complete calculus sequence such as Math­
ematics 80, 175 and 201, and Mathematics 231 
Elementary Matrix Theory. The statistics re­
quirements may vary, depending whether or not additional courses in mathematics and/or com­
puting are taken. Statistics majors are strongly 
encouraged to take computer-oriented courses such as Computer Science 104 and 203, or 
Mathematics 323 or 324.
The statistics requirements vary from a min­
imum of 18 to a maximum of 24 hours. In some 
emphas areas it is possible to take one or more of 
the above listed courses in mathematics or computing in lieu of a statistics course. The 
undergraduate program is very flexible and has 
only a minimal number of fixed requirements. It allows students to concentrate on statistics or 
focus their attention on a combined program of 
statistics and mathematics. In either case the students may develop an outside area wherein 
statistical methodology is useful. These areas 
of application normally include economics, 
biology, accounting, finance, marketing, man­
agement, psychology, sociology, engineering, 
agriculture and atmospheric science.

INTERDISCIPLINARY AREAS OF CONCENTRATION

Interdisciplinary areas of concentration provide 
for the special interests and motivations of individual students. Normally, the student who 
prepares an interdisciplinary area has a particu­ lar career or interest in mind, the study program 
for which may be broader than would be 
available in any one department. The depart­
ments involved in such an area may include 
some outside the College of Arts and Science. 
Usually, the student is advised by staff mem­ bers from more than one department who are 
well acquainted with the specific aims of the student.
Interested students should consult the arts 
and science dean's office for assignment to the 
appropriate member of the Interdisciplinary Advising Committee to discuss possible pro­
grams of study. After a program for the area has 
been completed, it must be approved by a 
representative of the Interdisciplinary Advising 
Committee.
Existing interdisciplinary areas of concentra­ 
tion and information about each are included below.

BLACK STUDIES AREA

420 General Classroom Bldg.,
(314) 882-6060
An interdisciplinary program of specialization 
in black studies may be arranged as a minor area of concentration.
The black studies program is open to all students. Requirements of the program are:
1. Satisfaction of the basic skills and general education requirements in the College of Arts 
and Science. In selecting a language to meet those requirements, students are encouraged to 
consider Spanish, French or Portuguese.
2. Completion of an area of concentration in another Arts and Science program or depart­ ment.
3. Completion of an interdisciplinary area of concentration of at least 32 hours in black studies and related courses.

FILM STUDIES AREA

210 Jesse Hall, (314) 882-6411
The interdisciplinary area of concentration in 
film studies is administered by a committee of 
faculty members who teach film in various UMC departments. The program is open to all 
undergraduate students. Anyone interested in 
film studies should consult the chairman of film 
students who will appoint an adviser for the student. The adviser then meets with the 
student to design a course of studies. Each student must take a minimum of 32 hours of 
course work, of which at least 20 must be in 
upperclass courses. The only required courses are English 91 and 92, Introduction to Film. 
With the adviser's consent, a student may take 
film courses in the School of Journalism (pro­
vided the requirements for those courses are met). Other film courses are offered in the 
Departments of Education, English, History, 
German, Romance Languages, and Speech and Dramatic Art.

GERMAN AREA STUDIES

451 General Classroom Bldg.,
(314) 882-4328
This interdisciplinary area of concentration 
offers an interdisciplinary approach to the study of 
the language, literature, civilization, history and 
politics of Germany, combined with sub­ jects selected by the student to fit with career 
plans. It is designed primarily to prepare the 
student for work with governmental agencies 
and with companies doing business with or in 
the two Germanies. It also can provide prepara­ 
tion for graduate work in German.
To be eligible for the program a student must 
have completed the basic skills and general 
education requirement of the College of Arts 
and Science, have completed the foreign lan­ 
guage requirement of the College of Arts and 
Science, have completed the foreign language 
requirement in German, and have a 2.75 GPA.
Requirements
Language and Literature (12)
106 German Conversation and Composition I
203 Advanced German Reading
Civilization (3)
110 German Civilization Beginning to 1850 or 111 German Civilization 1850 to Present
History (3)
History 231 Contemporary Europe or History 334 Germany 
in the 20th Century

47
Political Science (3)
Political Science 354 Western European Political Systems or Political Science 355 Western Europe's Foreign Policy
electives (15)

Courses in this category are to be chosen by the student according to the area of interest, in consultation with an adviser in the applicable area. Areas might include accountancy, anthropology, art history, computer science, economics, finance, geography, history, management, marketing, philosophy, political science, 300-level German language or literature courses, as well as relevant courses offered by other departments, with a view of working out a cohesive program suited to the student’s goals.

A total of 36 hours is required. The study of another foreign language and/or additional courses in German may be recommended particularly to those students who are interested in graduate work.

HONORS INTERDISCIPLINARY AREA
612 Kuhlman Court, (314) 882-3893

A special student-designed area of concentration is available to students who qualify for departmental Honors programs. The required grade point average for participation in the program is outlined in the Honors College section of the Arts and Science section of this catalog.

This area permits Honors students to pursue subject matter fields or broad programs of study not regularly offered in traditional areas of concentration.

The requirements for this area stipulate that:
1. Must take at least 32 hours of courses in at least three departments (30 hours must be in courses at the 200 level or above; however, all GH 100 courses, including GH101-104, may be substituted).
2. Must take at least four courses at the 200 level or above in one department.
3. Must have the area of concentration approved by two Honors directors of departments in which the student will be studying.
4. Must secure the final approval of the area of concentration by the program coordinator.

LATIN AMERICAN STUDIES AREA
27 Arts and Sciences Bldg., (314) 882-4874

This interdisciplinary area of concentration is designed to provide a broad background in language, literature, philosophy and social science for students anticipating careers in government service, teaching or business in the Latin American field. Sufficient concentration in one discipline also is incorporated into the area to provide a good foundation for advanced graduate study in any one of several fields.

Since a number of the prescribed courses have prerequisites, interested students are advised to begin planning their work toward the area as early as the second semester of the freshman year.

Study abroad in an approved program is highly desirable. Students contemplating study abroad should consult their advisers before choosing programs and courses.

Requirements
Spanish: Beyond the 13-hour basic skills requirement, a student must take six hours in Spanish language, including at least one 200-level course.
Portuguese 207 (3) Must be taken after completing 10 hours of another Romance language.
Spanish 331 or 332 Survey of Spanish American Literature 1 or 2
Economics 260 Economic Development (3)
History 167 Colonial Latin America (3) and History 168 Latin America Since Independence (3) or six hours in other Latin American history courses acceptable to the adviser.

PEACE STUDIES
101 Professional Bldg., (314) 882-7565

The College of Arts and Science offers a program leading to a bachelor of arts degree with an interdisciplinary area of concentration in peace studies.

The peace studies program draws from a wide variety of courses which deal with the issue of peace. The interdisciplinary nature of the program enables a student to pursue areas of peace studies such as international agencies of world law and world order; strategies of transition to global cooperation; theories of conflict resolution; understanding and channeling aggression; disarmament logistics; non-violent methods of social change; economics of war and peace; war and peace in literature and the humanities; peace education and peace planning; anticipation and prevention of armed conflict; social, political and cultural roots of war; value assumptions underlying war and peace; and history of pacifism and non-violent resistance.

Area of Concentration Requirements
A student concentrating in peace studies is required to fulfill the general educational requirements for a bachelor of arts degree in the College of Arts and Science, and 33 hours in peace studies, as follows, 50 introduction to Peace Studies (3)
Two of the following seminars:
180 Seminar I: Conflict Resolution in Theory and Practice (3)
181 Seminar II: Contemporary International Conflict (3)
182 Seminar III: The History and Theory of Nonviolent Action (3)
183 Seminar IV: Images of War and Peace (3)
188-189 Senior Thesis (3-6) All must complete at least three hours.
Twenty one additional hours are to be selected from a list of 41 recommended and cross-listed courses in consultation with the program director and the student’s adviser.

RELIGIOUS STUDIES

Religious studies seeks to understand the role of religion in human life and culture. Religious expression, from all cultures in every period of history, is within its field of study. Systematic study of this rich world of expression employs the widest range of academic tools and competencies, from the skill 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 in their use. The study of religious phenomena further provides deeper understanding of national and international culture. Students concentrating in religion are, therefore, well prepared for careers in business, government, counseling, law, medicine and journalism, as well as advanced professional study in religion itself.

Until its own degree program is established, a formal degree in religious studies is available through interdisciplinary studies. Students also may pursue an Honors major in religious studies. A minimum of 18 hours of religious studies courses is required, including RS 1, Introduction to Religion, and RS 111, Ways of Understanding Religion. At least eight hours in related areas also are required. Students are encouraged to pursue dual majors that combine religion with another interest.

RUSSIAN AREA STUDIES
433 General Classroom Bldg., (314) 882-4328

This interdisciplinary area of concentration is designed to provide students with an interdisciplinary approach to Russian and Soviet studies. While providing a broad background in Russian history, culture and ideology, the flexibility of the program allows for concentration within a discipline to suit the interests of the individual and provides the foundation for specialized graduate study.

Since several required courses have prerequisites, students are encouraged to begin planning their program during the freshman year and, unless they plan formal course work in the language during the summer, they should begin their language courses no later than the sophomore year.

Requirements (33 hours)
Russian Language (6)
106 Composition and Conversation
203 Advanced Reading
Russian Literature in Translation (6)
Two of the following courses:
251 From the Beginnings to Turgenev
252 Tolstoy and Dostoevsky
253 Russian Modernism
254 Contemporary Russian Literature
History (6)
History 138 Foundations of Russian History
History 139 Russian in Modern Times
Political Science
One of the following courses:
Political Science 356 Comparative Communist Systems
Political Science 358 Soviet Foreign Policy
Philosophy or Economics (3)
One of the following courses:
Philosophy 341 Marxism
Economics 261 Introduction to the Soviet Economy
Electives
Nine hours are to be chosen in consultation with the student’s adviser from upperclass courses in Russian language, literature, history, political science, or other courses relevant to the student’s interests and related to the Russian area.

SOUTH ASIAN STUDIES
437 General Classroom Bldg., (314) 882-3065

The area of concentration in South Asia provides the undergraduate with a firm grounding in the area along with major concentration in a specific discipline. Since language prepara-
tion is fundamental to a study of culture, the student is required to take at least three semesters of elementary Hindi. Students who wish to use Hindi to fulfill the foreign language requirement need one additional semester of Hindi. Arrangements for language study should be made early in the student’s academic career. The area of concentration comprises 34 credits. Students are assigned to advisors on the basis of their disciplinary interests and should consult with the advisors in preparing a program.

Requirements (34 hours)

Language: Three semesters (9 hours) of elementary Hindi Social and Behavioral Sciences: 12 hours of courses pertaining to South Asia in two or more of the following fields: anthropology, geography, history, political science, social work or sociology

Humanities: Studies in Fine Arts: 6 hours of South Asia courses in art, art history, philosophy or South Asia studies (either Indian civilization or Asian civilization required)

Electives: 7 hours of any courses relating to South Asia, including courses on religions of India.

WOMEN STUDIES

Students can receive a bachelor of arts degree in the College of Arts and Science with an interdisciplinary area of concentration in women studies. The women studies curriculum is composed of core and departmental courses which examine the nature, condition and experience of women. Students designing this area of concentration must take 12 hours of core courses, 12 hours of cross-listed courses, and eight hours in a related area. A listing of the core courses can be found in the description of courses section of this catalog. Current listings of the cross-listed courses can be found in the Women Studies Courses flyer distributed each semester prior to preregistration. Copies of this flyer can be obtained in 207 Jesse Hall.

Advising of students and aid in designing an area of concentration in women studies are available through the women studies office, 207 Jesse Hall.

Requirements (32 hours)

12 hours of core courses, including the following:
Women Studies 215 American Feminism
Women Studies 220 Comparative Feminist Identities
Women Studies 390 Senior Research Seminar

12 additional hours in departmental cross-listed courses
Eight additional hours in a related area

FACULTY

ADMINISTRATION

Milton D. Glick, dean and professor, PhD, University of Wisconsin

THOMAS B. HARRIS, associate dean, MA, University of Missouri-Columbia

David G. McDonald, associate dean and professor, PhD, Washington University (St. Louis)

Emler Ellis, president, dean professor emeritus, PhD, University of Missouri-Columbia

Theodore Reker, associate dean and professor, PhD, University of Michigan-Arrow

ANTHROPOLOGY

H. Clyde Wilson, chairman and professor, PhD, University of California-Los Angeles

Robert B. Blincoe, professor, PhD, University of Texas

Robert T. Bray, associate professor, MA, University of Missouri-Columbia

Carl H. Chapman, professor, PhD, University of Michigan

Richard M. Stehli, professor, PhD, The Pennsylvania State University

Louanna Furbee, associate professor, PhD, University of Chicago

Peter T. Gardner, professor, PhD, University of Pennsylvania

James A. Gavan, professor, PhD, University of Chicago

James W. Hamilton, associate professor, PhD, University of Michigan

Michael J. O'Brien, assistant professor, PhD, University of Texas

ART

Frank Stack, professor and chairman, MA, University of Wyoming

Donald Bartlett, professor, MFA, Cranbrook Academy of Art

Jerry D. Berenche, professor, MFA, University of Ohio

William Berry, professor, MFA, University of Southern California

Robert Bussabarger, professor, MA, Michigan State University

Brooke Cameron, professor, MA, University of Iowa

Jean Garrett, assistant professor, MFA, School of the Art Institute of Chicago

Larry Kantner, professor, EdD, The Pennsylvania State University

Stephen Lahr, assistant professor, EdD, University of Nebraska

Robert M. Pringle, assistant professor, MFA, University of Kansas

Lawrence Rugolo, professor, MFA, University of Iowa

Erica Rutherford, professor, University of London (England)

Oliver Schuchard, associate professor, MFA, Southern Illinois University

ART HISTORY AND ARCHAEOLOGY

Verena Townsend, associate professor and chairman, PhD, Emory University

Edzard Baumann, associate professor, PhD, Vienna

William Biers, professor, PhD, University of Pennsylvania

Patricia Crown, assistant professor, PhD, University of California-Los Angeles

Norman Land, associate professor, PhD, University of Minnesota

Albert Leonard Jr., associate professor, PhD, University of Chicago

Osmund Overby, professor, PhD, Yale University

Kathleen Slane, assistant professor, PhD, Bryn Mawr College

Homer Thomas, professor, PhD, Edinburgh

BIOLOGICAL SCIENCES

Warren R. Fleming, director and professor, PhD, University of Oregon

Paul F. Agris, associate professor, PhD, Massachusetts Institute of Technology

Robert P. Breitenbach, professor, PhD, University of Wisconsin

Allan B. Burdick, professor, PhD, University of California-Berkeley

James E. Carrel, associate professor, PhD, Cornell University

Stephen J. Chaplin, associate professor, PhD, Cornell University

Linda F. Chapman, associate professor, PhD, University of California-Los Angeles

Billie G. Cumbie, professor, PhD, University of Texas

John D. David, associate professor, PhD, Vanderbilt University

Roger M. deloos, professor, PhD, University of California-Berkeley

David B. Dunn, professor, PhD, University of California-Los Angeles

Abraham Eisenstark, professor, PhD, University of Illinois

John R. Faaborg, associate professor, PhD, Princeton University

H. Carl Gerhardt, professor, PhD, University of Texas

Miriam Golomb, associate professor, PhD, University of California-Berkeley

Charles S. Gowans, professor, PhD, Stanford University

Donald H. Hazelwood, associate professor, PhD, Washington State University

Philip H.S. Jen, associate professor, Washington University (St. Louis)

Gary Y. Kikudome, associate professor, PhD, University of Illinois

Clair L. Kubera, professor, PhD, Iowa State University

Dan Mertz, professor, PhD, University of Texas

Dean E. Metter, professor, PhD, University of Idaho

C. Donald Miles, professor, Indiana University

Donald L. Riddle, associate professor, PhD, University of California-Berkeley

Louis A. Sherman, associate professor, PhD, University of Chicago

George Smith, associate professor, PhD, Harvard University

William S. Stark, associate professor, PhD, University of Wisconsin

Gerard Summers, assistant professor, PhD, University of Illinois

Jack Twente, associate professor, PhD, University of Michigan

Frederick Von Saal, assistant professor, PhD, Rutgers University

Richard Wang, associate professor, PhD, University of Colorado

Joseph M. Wood, professor, PhD, Indiana University

Armon F. Vanders, professor, PhD, University of Nebraska

CHEMISTRY

John E. Bauman Jr., professor and chairman, PhD, University of Michigan

John Ewart Adams, associate professor, PhD, University of Illinois-Berkeley

Glenn Richard Clark, associate professor, PhD, Cornell University

Milton D. Glick, professor, PhD, University of Wisconsin

Robert E. Harris, associate professor, PhD, University of California-Berkeley

Edwin M. Kaiser, professor, PhD, Purdue University

Hyunyong Kim, professor, PhD, University of California-Berkeley

S. Roy Koititsy, professor, PhD, University of Missouri-Columbia

Robert R. Kunta, professor, PhD, Carnegie Institute of Technology

Richard N. Loeppky, associate professor, PhD, University of Michigan

Stanley A. Mauhan, professor, PhD, University of Kansas

John P. McCormick, associate professor, PhD, Stanford University

R. Kent Murmann, professor, PhD, Northwestern University

Jerome W. O'Laughlin, associate professor, PhD, Iowa State University

Norman Rahjohn, professor, PhD, University of Illinois

Erich O. Schlomper, professor, PhD, University of Minnesota

Scott Searles Jr., professor, PhD, University of Minnesota

Richard C. Thompson, professor, PhD, University of Maryland

David E. Troutner, professor, PhD, Washington University

Tuck Chuen Wong, associate professor, PhD, University of Michigan

CLASSICAL STUDIES

Eugene N. Lane, chairman and professor, PhD, Yale University

Charles E. Saylor, professor, PhD, University of California-Berkeley

Theodore A. Tarkow, professor, PhD, University of Michigan-Arrow

John C. Tihbault, professor, PhD, University of Illinois-Urbana

Barbara P. Wallach, assistant professor, PhD, University of Illinois-Urbana

Victor A. Estevez, associate professor, PhD, University of Wisconsin

COMPUTER SCIENCE

Donald Shurtleff, chairman and professor, PhD, Worcester Polytechnic Institute

Paul Blackwell, professor, PhD, Syracuse University

Sushil Jajodia, assistant professor, PhD, University of Oregon

Peter Ng, associate professor, PhD, University of Texas-Austin

Gordon Springer, associate professor, PhD, The Pennsylvania State University

Frederick Springsteel, associate professor, PhD, University of Washington-Seattle

ECONOMICS

Ronald A. Ratti, associate professor and chair, PhD, Southern Methodist University

Steven G. Buckles, associate professor, PhD, Vanderbilt University

Eun Kwan Choi, assistant professor, PhD, University of Iowa

John F. Doll, professor, PhD, Iowa State University

Charles G. Geis, associate professor, PhD, University of North Carolina

Floyd K. Harmsen, professor, PhD, University of Missouri-Columbia
GEOLOGY
Raymond L. Ethington, professor, PhD, University of Iowa
Thomas J. Freeman, professor, PhD, University of Texas
Glen R. Himmelberg, professor, PhD, University of Minnesota
David W. Houseknecht, assistant professor, PhD, The Pennsylvania State University
William D. Johns, professor, PhD, University of Illinois
James H. Stitt, professor, PhD, University of Texas
George W. Viale, professor, PhD, University of Utah

GERMANIC AND SLAVIC STUDIES
Ruth Firestone, chairman and associate professor, PhD, University of Colorado
Ernst Braun, professor, PhD, University of Wisconsin
James Curtis, professor, PhD, Columbia University
John Lalande, assistant professor, PhD, Pennsylvania State University
Dennis Mueller, professor, PhD, Washington University
James Peters, associate professor, PhD, University of Washington-Seattle
Naomi Ritter, professor, PhD, Harvard University
Aina Schroeder, professor, PhD, The Ohio State University
Lurverne Walton, associate professor, PhD, Indiana University

HISTORY
Arvarh E. Strickland, chairman and professor, PhD, University of Illinois
Thomas B. Alexander, professor, PhD, Vanderbilt University
N. Gerald Barrier, professor, PhD, Duke University
Richard T. Bienvenu, professor, PhD, Harvard University
John L. Bullion, assistant professor, PhD, University of Texas-Austin
Winfield J. Burggraf, professor, PhD, University of New Mexico
Gerard H. Clarfield, professor, PhD, University of California-Berkeley
Robert M. Collins, associate professor, PhD, Johns Hopkins University
Noble E. Cunningham Jr., professor, PhD, Duke University
Susan L. Flader, professor, PhD, Stanford University
Claudia Kren, professor, PhD, University of Wisconsin
John Lankford, professor, PhD, University of Wisconsin
T.J. Jackson Lears, assistant professor, PhD, Yale University
Kerby A. Miller, assistant professor, PhD, University of California-Berkeley
Fordyce W. Mitchell, professor, PhD, Yale University
Charles G. Nauert Jr., professor, PhD, University of Illinois
Robert J. Rowland Jr., professor, PhD, University of Pennsylvania
Robert M. Somers, associate professor, PhD, Yale University
David P. Theilen, professor, PhD, University of Wisconsin
J. Michael Thorn, assistant professor, PhD, University of Wisconsin
Charles E. Timberlake, professor, PhD, University of Washington
William M. Wieck, professor, PhD, University of Wisconsin
Russell Zguta, professor, PhD, The Pennsylvania State University

MATHEMATICS
Calvin D. Ahlbright, associate professor, PhD, University of Oklahoma
John K. Beem, professor, PhD, University of Southern California
Robert P. Carmignani, professor, associate professor, PhD, Rice University
Carmen C. Cichone, assistant professor, PhD, University of Wisconsin
Joseph G. Conlon, assistant professor, PhD, Oxford University
Richard M. Crownover, associate professor, PhD, Louisiana State University
Paul E. Ehrlich, professor, PhD, State University of New York
Richard Felder, assistant professor, PhD, University of Michigan
James A. Huckaba, professor, PhD, University of Iowa
Marc O. Jacobs, professor, PhD, University of Oklahoma
Nigel J. Kallion, professor, PhD, Trinity College, Cambridge
Jerome J. Lange, associate professor, PhD, University of Colorado
Ira J. Papick, associate professor, PhD, Rutgers University
Dita E. Petrey, associate professor, PhD, University of Utah
Clinton M. Petty, professor, PhD, University of Southern Illinois
John H. Reeder, associate professor, PhD, Northwestern University
Elisas Schan, assistant professor, PhD, University of Illinois
Urbana-Champaign
Keith W. Schrader, professor, PhD, University of Nebraska
Dawn Stainton, professor and chairman, PhD, Louisiana State University
Richard C. Swanson, assistant professor, PhD, University of California
Roy W. Utz, professor, PhD, University of Virginia
Joseph L. Zemmer, professor, PhD, University of Wisconsin

MILITARY SCIENCE
Forest Lanning, professor, MEd, DePaul University
Clint Tomlin, associate professor, BJ, University of Missouri-Columbia

MUSIC
Donald McGlothin, chairman and professor, PhD, University of Iowa
James Burk, associate professor, D MEd, University of North Carolina
John Cheetham, professor, DMA, University of Washington
Duncan Couch, professor, PhD, University of Kansas
George DePue, associate professor, MA, Columbia Teachers College
Steven Geibel, assistant professor, MM, University of Missouri
Helen Harrison, associate professor, MA, University of Iowa
Bob Henry, instructor, M Ed, University of Missouri
Raymond Herbert, professor, MM, Eastman School of Music (University of Rochester)
Richard Hills, professor, PhD, University of Iowa
Carolyn Kenneson, associate professor, MM, University of Texas
Frank Krager, associate professor, MM, University of Michigan
William McKenney, associate professor, PhD, Eastman School of Music (University of Rochester)
John McLeod, associate professor, MM, Manhattan School of Music
James Middleton, professor, D MEd, University of Oklahoma
Harry Morrison, professor, MFA, University of Iowa
Charles Nick, associate professor, PhD, University of Indiana
Perry Parrin, associate professor, MM, University of Indiana
Alexander Pickard, associate professor, DMA, Eastman School of Music (University of Rochester)
Irwin Powell, associate professor, D MEd, University of Oklahoma
Virginia Pyle, associate professor, D Mus, Florida State University
Charles Sherman, professor, PhD, University of Michigan
Eva Szekely, assistant professor, MS, The Juilliard School of Music
Edward Thaden, associate professor, D Mus, Florida State University
Janice Wenger, assistant professor, MM, Eastman School of Music (University of Rochester)
Barbara Wood, associate professor, MA, University of Missouri-Columbia

PHYSICS
G.P. Aldredge, associate professor, PhD, Michigan State University
H.R. Chandralekha, associate professor, PhD, Purdue University
D.L. Cowan, associate professor, PhD, University of Wisconsin-Madison
H.R. Danner, professor, PhD, The Pennsylvania State University
B. DeFacio, associate professor, PhD, Texas A&M University
T.W. Edwards, associate professor, PhD, University of Wisconsin-Madison
E.B. Hensley, professor, PhD, University of Missouri
L.V. Holroyd, professor, PhD, Notre Dame University
J.C. Huang, associate professor, PhD, Michigan State University
R.A. Hultsch, associate professor, PhD, Iowa State University

ENGLISH
Robert J. Barth, professor, PhD, Harvard University
Donald Anderson, professor, PhD, Duke University
Robert Bender, professor, PhD, University of Michigan
Mary Camargo, associate professor, PhD, University of Illinois
Thomas Cooke, professor, PhD, University of Pittsburgh
Donald Crowley, professor, PhD, The Ohio State University
Walter Daniel, professor, PhD, Bowling Green State University
Albert Devlin, associate professor, PhD, University of Kansas
John Foley, associate professor, PhD, University of Massachusetts
Howard Fulweller, professor, PhD, University of North Carolina
Howard Hinkle, associate professor, PhD, Tulane University
C. Haskell Himmant, professor, PhD, Columbia University
Richard Hocks, professor, PhD, University of North Carolina
William Holtz, professor, PhD, University of Michigan
James Holleran, professor, PhD, Loyola University
Winifred Horner, associate professor, PhD, University of Michigan
William Jones, professor, PhD, Northwestern University
Mary Lago, professor, PhD, University of Missouri-Columbia
Donald Lance, professor, PhD, University of Texas
Timothy Materer, professor and chairman, PhD, Stanford University
Russell Meyer, associate professor, PhD, University of Minnesota
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Ben Nelms, associate professor, PhD, University of Iowa
Catherine Parke, associate professor, PhD, Stanford University
Gilbert Porter, professor, PhD, University of Oregon
Tom Quirk, assistant professor, PhD, University of New Mexico
John R. Roberts, professor, PhD, University of Illinois
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Gilbert Younans, assistant professor, PhD, University of Wisconsin

GEOGRAPHY
Walter A. Schroeder, chairman and instructor, MA, University of Chicago
Robert F. Austin, professor, PhD, University of Michigan
John Beets, instructor, MA, University of Kansas
J. Trenton Kostbade, professor, PhD, University of Michigan
Gall S. Ludwig, assistant professor, DA, Northern Colorado State University
William A. Noble, associate professor, PhD, Louisiana State University
Jesse H. Wheeler Jr., professor, PhD, University of Chicago

The text continues with the names of other individuals and their affiliations.
The College of Business and Public Administration, established in 1914 as a senior professional school, offers curricula which emphasize educating students for their growing responsibility in business, government and the society as a whole.

The College includes the School of Accountancy, the School of Business—which is composed of the Departments of Finance, Management and Marketing—and the Department of Public Administration.

The School of Accountancy was the first such school at a major state university and was among the first group of accounting programs to be separately accredited by the American Assembly of Collegiate Schools of Business. The School also is a charter member of the Federation of Schools of Accountancy. The School of Business, which offers curricula in business logistics, economics, finance, general business, management, marketing, real estate, and risk and insurance, has been accredited by the American Assembly of Collegiate School of Business since 1926. The Department of Public Administration is a member of and has established programs in accordance with the National Association of Schools of Public Administration and Affairs.

The faculty of the College seek to:
1. stimulate the student's thought processes and intellectual curiosity to promote continued learning after formal education ceases;
2. encourage disciplined imagination to enable the student to come to grips with problems in a changing world;
3. emphasize intellectual awareness which will help the student relate general education to education for business and public administration;
4. emphasize intellectual integrity;
5. develop the student's capacity to reason objectively, precisely and creativily as an aid to decision making.

The College also has the responsibility to enlarge the existing body of knowledge covering the theoretical structure and operational principles of private and public enterprise. Faculty members are engaged in a wide variety of research projects in these areas, an activity which serves to enrich the educational experience of the students.

Finally, the College has the responsibility for providing continuing educational services for those who have entered the fields of accountancy, business or government. Therefore, the College participates through the Institute for Executive Development with the University Extension Division in conducting conferences, seminars and short courses for those who have completed their formal education. It also initiates and carries out educational programs designed to improve public policy analysis.

ADMISSION
To be eligible for admission to B&PA, a student must have completed at least 54 semester hours of college credit with a 2.600 cumulative grade point average for all work attempted. These 54 hours must include all general education and basic skills requirements. In extenuating circumstances, a maximum of 12 semester hours in general education courses may be lacking at the time of admission. However, Accy 36, Engl 1, Math 60, Math 61, and Stat 150 must be completed before admission. Accountancy majors must also have completed Engl 60. Any exceptions must be approved by the B&PA dean's office.

Students eligible for the College of Business and Public Administration who would be placed on probation if they remained in their former division, will be admitted to the College but placed on Probationary Admission. In exceptional circumstances the dean may admit students who do not meet the regular admissions requirements. Students who are admitted under this provision are on scholastic probation and are subject to dismissal unless they earn a minimum GPA of 2.600 for at least 12 hours of specified credit during their first regular semester.

Special Admission of Disadvantaged Students. The College of Business and Public Administration makes a special effort to attract disadvantaged groups. In exceptional circumstances the dean may admit students who do not meet the regular admissions requirement of a 2.600 GPA, and may prescribe a three-year rather than two-year period in the College with a reduced academic load.

Credit by Examination. The College accepts CLEP subject examinations, departmental exams and Advanced Placement (College Board). Students wishing additional information should contact an academic adviser in the College of B&PA.

Transfer Students. Coursework completed with a grade of C or better at an accredited four-year institution will be accepted if the courses are appropriate equivalents of the required UMC courses.

Credits transferred from accredited community/junior colleges are limited to general education, basic skills and unrestricted elective courses completed with a grade of C or better. The College of Business and Public Administration will accept a maximum of 64 hours of coursework from a junior college. A degree-seeking student with 64 or more semester hours of acceptable college credit generally may, beyond those hours, apply toward graduation only those hours earned in a four-year institution.

Students are encouraged to have their transcripts evaluated by an academic adviser in the College of Business and Public Administration prior to their enrollment at UMC.

STUDENT SERVICES
ADVISING
Entering students are assigned a faculty member from the major field of study to work with the student in determining the area of concentration and coursework needed to complete a degree. In addition, there are full-time academic advisers available to assist students.

Students have the responsibility of determining an appropriate schedule of courses each semester. The faculty adviser must approve the courses scheduled.

PLACEMENT
The Placement Office facilities of the College of Business and Public Administration are available to graduating seniors and alumni. Each year representatives from more than 200 local, national and international business organizations and public accounting firms, as well as state and national government agencies, visit the campus to interview prospective personnel.

STUDENT ORGANIZATIONS
B&PA Student Council. The Student Council is composed of 16 members elected by the students in the College of Business and Public Administration. Some of the council's activities include publishing the newsletter, organizing graduation ceremonies and B&PA Week.

Alpha Kappa Psi. A national professional business fraternity whose goals are to enhance the business student's opportunities in the varied fields of business through student-teacher interaction and contact with business executives.

Association of Accounting Students. This association promotes communication among accounting students and faculty, and informs students of the opportunities available to them within the field of accountancy.

Beta Alpha Psi. An honorary accounting fraternity which promotes student involvement in professional accounting activities.

Gamma Sigma Pi. The national scholastic honorary society for outstanding students in business and management.

Black Business Student Association. An organization to promote and encourage the involvement of minorities in the field of business. Several special activities are planned each year.

Delta Sigma Pi. A professional business fraternity which seeks to encourage the study of business and the advancement of the commercial world.

Finance Students Association. An organization to further professionalism in the field of finance and to provide professional interaction among students, faculty and business executives.

Marketing Forum. A collegiate chapter of the American Marketing Association. To further professionalism in marketing, the group sponsors industrial tours, professional speakers, research and work projects.

Phi Chi Theta. A national professional business fraternity established to promote women in business. A variety of meetings and small professional trips are planned each year.

Pi Alpha Alpha. A national honorary society for public affairs and administration. Its purpose is to encourage and
recognize outstanding scholarship in the field of public administration.

Rho Epsilon: A fraternity open to anyone interested in real estate. Promotes the exchange of ideas between real estate practitioners and students.

Student Society of Personnel Administrators of Columbia (Affiliated with ASPA): An organization open to anyone interested in personnel administration. Special activities include Columbia area speakers and tours.

SCHOLARSHIPS IN THE COLLEGE OF BUSINESS AND PUBLIC ADMINISTRATION

Applications and information available in the undergraduate advising office.

Mary E. and Martha J. Riepel Scholarship: This fund is specifically designed to support women students in the College of Business and Public Administration. Selection will be made on the basis of scholarship and financial need.

Harry Gannison Brown Alumni Scholarship: This scholarship is awarded annually to undergraduate students and is based primarily upon participation in College of Business and Public Administration activities. Financial need and scholastic achievements also are considered.

Henry Hatch Green Memorial Scholarship Fund in Administration: Students considered for this award will be juniors or seniors in the School of Business or graduate students in one of the professional programs of the College. Recommendation is based upon academic excellence, character, citizenship, and leadership.

Edward D. Jones & Co. Internship: The firm underwrites an internship in its Columbia office. A recipient is selected on the basis of character, aptitude, education, or interest. This internship is concurrent with the academic year and a stipend is paid per semester.

Leila Kidwell Nolen Memorial Scholarship: This scholarship is provided for deserving students in the College of Business and Public Administration.

Noel William Palmeter Memorial Award: This annual stipend is awarded to a junior enrolled in any four-year Reserve Officer Training Corp program. Selection is based on personal and professional devotion to duty and scholarship.

H. R. and Alberta B. Ponder Scholarships: These scholarships are open to undergraduate and graduate College of Business and Public Administration students. Selection will be made on the basis of scholarship and financial need.

Scholarships in the College of Accountancy

Students considered for these awards will be attending full time, majoring in accounting, and will have completed Accounting 136 or 236, and one additional accounting course. These students will have at least a 3.5 cumulative grade point average or financial need. Application information is available from the director of the School of Accountancy.

Alumni with Arthur Andersen & Co. Fund in Accounting: These scholarships are based on scholastic achievement, personal characteristics and promise for professional success.

AMOCO Foundation Scholarships: These awards are established for outstanding minority accounting students.

Arthur Young & Company Foundation Fund in Accounting: The criteria for these awards includes outstanding academic performance and campus involvement.

Baird, Kurtz & Dobson School of Accounting Grant: Awarded to accounting students showing academic excellence, character, and leadership.

Coopers & Lybrand Accountancy Grant: This grant is given to students showing academic excellence, leadership, and character.

Deloitte Haskins & Sells Scholarship in Accounting: Outstanding accounting majors are awarded this scholarship each year.

Ernst & Whitney Accountancy Grant: This grant is awarded to students who show academic achievement, participate in campus activities and display promise for future success.

George Keepers Memorial Scholarship: Designated for an outstanding accounting student who has financial need.

Monsanto Company Accountancy Education Grant: Monsanto awards this grant to students with a good scholastic record, character and promise for future success in the accounting profession.

Peat, Marwick Foundation Accountancy Grants: These grants are awarded to accountancy students who show scholastic and professional excellence and future promise.

Price Waterhouse Fund in Accountancy: These annual awards are given based on professional promise, academic achievement and leadership.

John W. Rader Accountancy Scholarship: This award for accounting students is determined on the basis of academic record, financial need and promise of future success.

John Schweitzer Accountancy Grant: This grant is based on academic performance, leadership and future promise as an accountant.

DR Scott Memorial Scholarship: This scholarship is awarded to an outstanding accounting student.

Touche Ross and Co. Accountancy Grant: Touche Ross awards this grant to an outstanding student who has demonstrated academic excellence and campus involvement.

Scholarships in the School of Business

Applications and information are available in the departmental offices.

Finance

College Risk and Insurance Scholarship: This award is given to a junior or senior majoring in risk and insurance on the basis of his/her scholastic record.

J. F. Dean Scholarship: Established by a contribution from the Commercial Union Insurance Co. in memory of J. F. Dean. This scholarship is awarded each year to a student enrolled in the risk and insurance program. Selection is based on a recommendation by the finance department faculty and the dean's office.

Mason L. Dean Scholarships: Established in honor of Oliver H. Dean, one scholarship is awarded to an outstanding junior finance major and one to an outstanding senior interested in a banking career.

Harry Hall Tripp Memorial Scholarship Fund: This stipend is given to an undergraduate student enrolled in the risk and insurance program who ranks in the upper one-third of the class and has financial need.

Missouri Association of Realtors Educational Foundation Scholarship Fund: This stipend is available for two juniors whose major study is the field of real estate. Recipient is recommended by the dean.

C. L. Williams Memorial Scholarship: Two scholarships are provided each year by the Missouri Alpha Chapter of Phi Kappa Psi Fraternity. Students selected will have at least a 3.0 grade point average and will have demonstrated leadership qualities, good moral character and financial need.

Scholarships in Marketing

Business Logistics (Thompson) Award: This award is given annually to a student majoring in business logistics.

Eisenhart Brokerage Company Scholarship: At the beginning of the winter semester, this award is given to a marketing major who has demonstrated academic excellence in the fall semester.

Mid-Missouri Traffic Club Business Logistics Scholarship: This scholarship is awarded annually to a business logistics major.

Missouri Chapter of American Society of Traffic and Transportation Scholarship: This annual award is given to a business logistics major and is based on scholarship, service and need.

W. C. Tingle Scholarship: This award is presented annually to a senior whose area of concentration is marketing, business logistics or general business.

Samuel G. Wennberg Marketing Scholarship: The marketing major who has the highest scholastic average at the time of graduation is awarded this annual scholarship.

SCHOLARSHIPS IN THE DEPARTMENT OF PUBLIC ADMINISTRATION

The Bryant Award: This award goes to an undergraduate student majoring in Public Administration. The criteria for selection is overall performance, including academic excellence, leadership and character.

SPECIAL SERVICES

ADMINISTRATIVE BEHAVIOR LABORATORY

Recognizing that the availability of a behavioral laboratory is a necessary condition for rigorous and scientific inquiry into the behavioral dimensions of administration, the College of Business and Public Administration established an Administrative Behavior Laboratory in 1974. The laboratory is used for research and instructional activities of the College. The laboratory is equipped with a complete audio and videotape system and observation booths which permit a wide variety of experimentation on individual and small group activities such as decision making, problem solving, conflict resolution and communication.

BUSINESS AND PUBLIC ADMINISTRATION RESEARCH CENTER

The Research Center is a computer-based research support facility of the College of Business and Public Administration. The Center provides data and data management services, data analysis, software development, consultation on data applications, statistical analysis, and instruction in the use of various data sets and associated retrieval software to University faculty, staff and students; federal, state and local government agencies; private enterprises; and the public.

In addition, the Research Center maintains a large and varied data base of financial, economic and demographic information describing characteristics of the nation, the states and their subdivisions. Major data holdings include the 1970 Census, Bureau of Economics Analytics Regional Economic Information System, National Bureau of Economic Research Time Series Data Bank and COMPUSTAT. Much of these data pertain to Missouri and the Midwest.

Technical assistance is available at cost to research organizations or individual researchers at all stages of their projects on a contractual basis. These services are provided free for the unfunded research projects of the faculty and students in the College of Business and Public Administration at Columbia.

INSTITUTE FOR EXECUTIVE DEVELOPMENT

The College of Business and Public Administration, in cooperation with the University's Extension Division, recently formed the Institute for Executive Development. The Institute provides programs in management education for persons in various fields. These external programs not only serve the needs of the professional community but also provide close contact between faculty and students in the College and persons working in accounting, business and government. Examples of Institute programs are the CPA Review, the University of Missouri Management Development Program, and the annual conference for city clerks and finance officers.

ACADEMIC STANDING OF UNDERGRADUATE STUDENTS

Students are on academic probation for any semester if:
1. The UMC GPA for the previously completed semester was less than 2.0 but not less than 1.0.
2. The cumulative UMC GPA is from 1 to 15 grade points below a 2.0.
3. The cumulative GPA for courses offered by the College of Business and Public Administration is from 1 to 15 grade points below a 2.0. This includes all on-campus Business and Public Administration courses regardless of whether the courses are completed before or after admission to the College of Business and Public Administration.

Students are dismissed from enrollment in the College of Business and Public Administration for one calendar year if:
1. The UMC GPA for the previously com-
The undergraduate degree requirements include stipulations about number of credit hours, courses taken and grades earned.

**HOUR REQUIREMENTS**

Satisfactory completion of a minimum of 120 semester hours from accredited colleges or universities is required. In completing the 120 semester hours of credit for graduation, students may count no more than 30 hours of credit in courses within their major field of study. The last 30 hours of courses must be completed in residence at UMC enrolled in the College of Business and Public Administration. Students lacking 3 hours or less may, with the permission of the dean, complete the requirement by correspondence or transfer credit.

A student who has one bachelor's degree may receive a degree from the College of Business and Public Administration upon completion of the requirements of any curriculum provided the courses completed include at least 24 hours in addition to the minimum hours required for the first degree.

**CORE COURSE REQUIREMENTS**

**BS in Accountancy**

General education and basic skills requirements 51-60 hrs.

Core courses 21 hrs.

Requirements in an approved professional curriculum 33 hrs.

Unrestricted electives 6-15 hrs.

**BS in Business Administration**

General education and basic skills requirements 47-57 hrs.

Core courses 21 hrs.

Requirements in an approved professional curriculum 30-36 hrs.

Unrestricted electives 6-22 hrs.

**BS in Public Administration**

General education and basic skills requirements 47-57 hrs.

Requirements in approved professional curriculum 48 hrs.

Unrestricted electives 15-25 hrs.

These course requirements are designed to ensure that 40 percent of a student's coursework is earned in divisions other than B&PA.

**GPA REQUIREMENTS**

A minimum of a 2.0 GPA for all courses attempted must be met for each of the following categories:

1. All courses offered by the College of Business and Public Administration. This includes all on-campus Business and Public Administration courses regardless of whether the courses are completed before or after admission to the College of Business and Public Administration.
2. All UMC campus courses.
3. All courses attempted at any college or university.

**GENERAL EDUCATION AND BASIC SKILLS REQUIREMENTS**

Courses which satisfy general education and basic skills requirements are recommended for the freshman and sophomore years. Students who lack certain courses when admitted to the College must complete these courses as soon as possible after admission.

Ordinarily, freshman and sophomore courses are taken while students are registered in the College of Arts and Science, but a student may take this work while enrolled in other divisions.

The following are the basic requirements for all undergraduate programs in the College of Business and Public Administration. Students majoring in accountancy should carefully note exceptions or special requirements for the accountancy major.

Accountancy 36, 37 or 136GH, 137GH 6 hrs.

Economics 51 5 hrs.

English 1 and 60 or 65GH 3-6 hrs.

Students whose placement test scores exempt them from English 1 receive no extra credit. For those who enroll in the School of Accountancy, English 161 must be taken as an additional requirement.

Political Science 1 or 11 3-5 hrs.

Mathematics 60 and 61 or Math 80 5-6 hrs.

Math 80 must be completed with a grade of C or better to substitute for Math 60 and 61. Students who are weak in mathematics may be required to take Mathematics 10 College Algebra, before enrolling in Mathematics 60. Finite Mathematics. No credit is given for testing out of Mathematics 10, but general elective credit (3 hours) is given to those who take and successfully complete the course.

Statistics 150 and 250 6 hrs.

It is important that students start the mathematics-statistics sequence as early as possible.

Humanistic Studies 6 hrs.

Humanistic studies include such subjects as art, literature, music, philosophy, and religion, but do not include applied courses in these fields. Courses in foreign languages numbered 103 or under do not fulfill this requirement. For students who enroll in the School of Accountancy, the humanities requirement is 3 hours of humanistic studies (Philosophy 1.5 or 10 are recommended) and 3 hours of oral communication (Speech 75 or 173).

Natural Science 5 hrs.

The following are considered natural science courses: laboratory courses in astronomy, biology, chemistry, geology, physics, zoology and general experimental psychology (Psychology 2).

Additional Social Sciences 9 hrs.

Social science courses must be selected from at least two of the following fields: anthropology, economics, geography, history, political science, psychology and sociology. Students who enroll in the School of Accountancy must satisfy this requirement by taking Political Science 55 or 155 and a first- and second-level course sequence (6 hours) in either psychology or sociology. For the degree in Public Administration, the requirement is Speech 75 and 6 hours of social sciences.

Total 49-54 hrs.

**SCHOOL OF ACCOUNTANCY**

The Bachelor of Science in Accountancy degree is designed for the student interested in a career as a professional accountant in business, government or public accounting. Students completing this degree are actively recruited. The strength of the existing program is reflected in the annual honor roll of students receiving the CPA examination. The number of graduates who are partners and managers with international accounting firms, and those who are chief financial officers in industry.

**BS IN ACCOUNTANCY**

The BSAcc degree can be completed in four years and includes the basic technical and professional training of the common body of knowledge for the professional accountant. Students are encouraged to continue for a fifth year to study the advanced professional training included in the Master of Arts-Accountancy degree.

**Required Core Courses to be Completed on Campus in the Junior Year**

Accountancy 258 Computer-Based Data Systems (3)

Economics 229 Money and Banking (3)

Management 202 Fundamentals of Management (3)

Finance 203 Corporation Finance (3)

Marketing 204 Principles of Marketing (3)

Management 254 Introduction to Business Law (3)

**Required Core Courses to be Completed on Campus in the Senior Year**

Business Administration 376 Business Policy (3)

**Required Courses**

236 Financial Accounting I (3)

237 Cost Accounting (3)

246 Financial Accounting II (3)

268 Accounting Information Systems (3)

273 Introduction to Taxation (3)

325 Governmental Accounting and Budgeting (3)

337 Managerial Accounts and Statistics (3)

384 Auditing (3)

336 Advanced Financial Accounting or

358 EDPS Systems Analysis and Design or

368 EDPS Systems Management and Control

373 Intermediate Taxation (3)

Management 255 Legal Aspects of Business Organization and Operations or

Management 356 The Law of Commercial Credit Transactions (3)

Economics 351 Intermediate Price Theory (3)

Total: 54 credit hours

A student may count a maximum of 30 semester hours of accountancy, exclusive of data processing and income tax courses, to meet accountancy major requirements for the undergraduate degree.

**SCHOOL OF BUSINESS**

**BS in Business Administration**

The Bachelor of Science in Business Administration degree is awarded to a student who completes one of these curricula: general business, business logistics, economics, finance, administrative management, operations management, personnel management, marketing, real estate or risk and insurance. All of these curricula have a common core of required courses designed to cover the common body of knowledge in business and administration.

**Required Core Courses to be Completed on Campus in the Junior Year**

Accountancy 258 Computer-Based Data Systems (3), or Computer Science 104 Computers and Programming I (3)

Economics 229 Money and Banking (3), or Economics 251 Theory of the Firm (3)*

Management 202 Fundamentals of Management (3)

Finance 203 Corporation Finance (3)

Marketing 204 Principles of Marketing (3)

Management 254 Introduction to Business Law (3) or

Political Science 311 Administrative Regulation of Business (3)*

Total: 18 credit hours
*Finance students are required to take Computer Science 104, English 161 Technical Writing and Management 254. Economics students are required to take Economics 229.

Required Core Courses to be Completed on Campus in the Senior Year

Business Administration 376 Business Policy (3)
Total: 3 credit hours

GENERAL BUSINESS

This curriculum provides a broad program in business administration

Required Courses: 21 credit hours

Economics 210 Labor Economics (3)
Finance 218 Bank and Insurance (3)
Accountancy 305 Financial Accounting Concepts (3)
Management 254* Introduction to Business Law (3) or Political Science 311 Admin. Regulation of Business (3)
Marketing 309 Marketing Management (3)
Finance 323 Financial Management (3) or Finance 333 Investments (3)
Management 310 Personnel Management (3)
Professional Electives: 9 credit hours
Total: 30 credit hours

*Whichever has not been completed in satisfaction of core course requirements is required in this curriculum.

BUSINESS LOGISTICS

This curriculum is designed for those interested in professional education leading to a variety of careers with carriers, government and industrial users of transportation service, federal and state regulatory commissions, trade associations, consulting firms and public authorities concerned with the planning and use of transportation facilities.

Required Courses: 15 credit hours
Marketing 206 Distribution Systems (3)
Marketing 347 Channel Management (3)
Marketing 373 Distribution Management (3)
Marketing 381 Transportation Policy (3)
Accountancy 358 EDP Systems Analysis and Design (3)
Three of the following: 9 credit hours
Marketing 313 Marketing Research (3)
Marketing 314 Consumer Behavior (3)
Marketing 358 Purchasing (3)
Marketing 371 World Marketing (3)
Marketing 376 Disintermediation (3)
Management 308 Operations Management (3)
Professional Electives: 12 credit hours
Computer Science 104 Computers and Programming (3)*
Computer Science 201 Programming as a Research Tool (3)
Economics 210 Labor Relations (3)
Economics 265 Economics of Location (3)
Finance 323 Financial Management (3)
Geography 100 Economic Geography (3)
Management 310 Personnel Management (3)
Management 311 Collective Bargaining (3)
Management 375 Management Policies and Problems (3)
Marketing 305 Marketing Policy (3)
Marketing 350 Marketing, Society and Government (3)
Political Science 311 Administrative Regulation of Business (3)*
Statistics 307 Nonparametric Statistics (3)
Statistics 375 Operations Research (3)
Total: 36 credit hours

*If not taken as a core course.

ECONOMICS

The sequence of courses in this area introduces the student to the tools of economic analysis and to their use in decision making in such areas as investment, optimal product mix, budget allocations, locational decisions and competitive strategies. It also may provide training in internal and external forecasting.

Such analytical techniques are appropriate for industrial, commercial and financial organizations, as well as governmental units and agencies. In addition to this emphasis in economics, students complete their area of concentration work from one or a combination of the following areas: accounting, behavioral science, business management or quantitative techniques (mathematics and statistics).

Required Courses: 27 credit hours

351 Intermediate Price Theory (3)
353 Intermediate Microeconomics (3)
At least three additional courses in economics at the 300 level selected in consultation with the area adviser (9-12)
Courses in accounting, finance, management, marketing, mathematics or behavioral sciences (9-12)
Professional Electives 3 credit hours
Total: 30 credit hours

FINANCE

This curriculum is designed for the student anticipating a career in a bank or other financial institution, an investment management firm or in the financial division of a nonfinancial business or government.

Required Courses: 15 credit hours
323 Financial Management (3)
333 Investments (3)
343 Financial Intermediaries and Markets (3)
Economics 251 Theory of the Firm or Economics 351 Intermediate Price Theory (3)
Accountancy 305 Financial Accounting Concepts or Accountancy 236 Financial Accounting I or Accountancy 237 Cost Accounting (3)
Management 308 Operations Management (3)

From the following (at least 6 hours):
326 Financial Management Policy (3)
353 Security Analysis (3)
355 Portfolio Management (3)
363 Management of Financial Institutions (3)

From the following (at least 6 hours):
Accountancy 236 Financial Accounting I (3)*
Accountancy 237 Cost Accounting (3)**
Accountancy 246 Financial Accounting II (3)**
Accountancy 258 Computer-Based Data Systems (3)
Accountancy 268 Accounting Information Systems (3)
Accountancy 273 Introduction to Taxation (3)
Accountancy 337 Managerial Accounting and Statistics (3)
Accountancy 358 EDP Systems Analysis and Design (3)
Accountancy 373 Intermediate Taxation (3)
Computer Science 203 Computers and Programming II (3)
Economics 315 Public Finance (3)
Economics 325 International Economics (3)
Economics 329 Financial System and Money Market (3)
Economics 353 Intermediate Income Analysis (3)
Economics 370 Introduction to Quantitative Economics (3)
Economics 371 Applied Econometrics (3)
English 161 Technical Writing (3)
Management 255 Legal Aspects of Business Organization and Operation (3)
Management 318 Management Science (3)
Management 319 Production Systems Analysis (3)
Management 356 The Law of Commercial Credit Transactions (3)
Marketing 313 Marketing Research (3)
Speech 75 Introduction to Speech Communication (3)
Total: 30 credit hours

**If not taken as a required course and if Accountancy 305 has not been taken.
***If not taken as a required course.

MANAGEMENT (OPERATIONS, PERSONNEL, ADMINISTRATIVE)

Professional education in management can lead to a variety of career opportunities in the private and public sectors. Students desiring a career in management should enroll in one of the three areas of emphasis: operations management, personnel management or administrative management.

Required Courses for All Options: 15 credit hours

306 Opm. Mgt. (3)
310 Pers. Mgt. (3)
329 Org. Beh. (3)
330 Org. Theory (3)
375 Mgt. Pol. & Prob. (3)

Option A. Operations Management: 9 credit hours
318 Mgt. Sci. (3)
39 Prod. Sys. Anal. (3)
345 Mgt. Ser. Omps. (3)

Option B. Personnel Management: 9 credit hours
384 Adv. Org. Theory (3)
Any other course approved by adviser including:
Accountancy 237 Cost Account. (3)

Industrial Engineering 388 Indus. Sys. Simulation (3)
Indust Engineering 398 Schedul. Sys. (3)
English 161 Technical Writing (3)
Speech 75 Introduction to Speech Communication (3)
Total: 33 credit hours

Option C. Personnel Management: 12 credit hours
311 Coll. Bar. (3)
320 Pers. Ad. Law (3)
347 Comp. Theory & Pract. (3)
352 Sel. Pers. Mgt. (3)

Professional Electives: 6 credit hours
Other management courses are suggested especially:
Management 318 Management Science (3)
Management 329 Organizational Behavior (3)
Management 354 Management of Service Operations (3)
Management 357 Management Policies and Problems (3)
Economics 299 Money and Banking (3)*
Economics 251 Theory of the Firm (3)*
Economics 256 Economics of Public Policy: Antitrust

Economics 325 International Economics (3)
Journalism 120 Advertising Principles and Practices (3)
Journalism 328 Retail Advertising (3)
Journalism 332 Public Relations (3)
Philosophy 135 Ethics and the Professions (3)
Political Science 311 Administrative Regulation of Business (3)
Sociology 260 Social Psychology (3)
Sociology 218 Industrial Sociology (3)
Sociology 333 Comparative Sociology (3)
Psychology 212 Human Learning (3)
Psychology 230 Individual Differences (2)
Psychology 304 Industrial Psychology (3)
Statistics 307 Nonparametric Statistics (3)
Public Administration 205 Managing the Public Sector (3)
Public Administration 354 Public Budgeting (3)
Public Administration 371 Business, Society and Government (3)
Total: 36 credit hours

*If not taken as a core course.

REAL ESTATE

This curriculum provides a basic education for students contemplating a career in real
estate, real estate management or associated fields.

Required Courses: 18 credit hours
- Finance 323 Financial Management (3)
- Finance 331 Investments (3)
- Finance 343 Financial Intermediaries and Markets (3)
- Finance 340 Principles of Real Estate (3)
- Finance 341 Real Estate Appraisal (3)
- Finance 342 Real Estate Finance and Investment (3)

From the following: 6 credit hours
- Finance 218 Risk and Insurance (3)
- Finance 326 Financial Management Policy (3)
- Finance 318 Property and Liability Insurance (3)
- Finance 355 Portfolio Management (3)

Accountancy 273 Introduction to Taxation (3)
- Agricultural Economics 338 Rural Real Estate Appraisal (3)
- Forestry 253 Light Construction (3)
- Home Economics 344 Architectural Design II (3)
- Home Economics 346 Contract Design II (3)
- Home Economics 349 Housing Fundamentals (3)

Management 356 The Law of Commercial Credit Transactions (3)

Marketing 336 Sales Management (3)

Economics 251 Theory of the Firm (3)

Professional Electives: 6 credit hours

Total: 30-33 credit hours

RISK AND INSURANCE

This curriculum is designed to provide a basic education for the student contemplating a career in the insurance industry or in the risk management division of a non-insurance enterprise.

Required Courses: 18 credit hours
- Finance 218 Risk and Insurance (3)
- Finance 313 Personal Insurance (3)
- Finance 318 Property and Liability Insurance (3)
- Finance 323 Financial Management (3)
- Finance 333 Investments (3)

From the following: 6 credit hours
- Finance 363 Management of Financial Institutions (3)
- Economics 317 Social Insurance (3)
- Management 329 Organizational Behavior (3)
- Management 330 Organizational Theory (3)

Marketing 336 Sales Management (3)

Marketing 314 Consumer Behavior (3)

Total: 30-33 credit hours

DEPARTMENT OF PUBLIC ADMINISTRATION

BS IN PUBLIC ADMINISTRATION

The Bachelor of Science in Public Administration program is designed to prepare students for careers related to governmental and public service. The program provides a strong component of analytical and management skills relevant to the field of public management, as well as a broad background and understanding of the political, social and economics environment in which public programs are developed and administered.

In addition to 39 hours of required courses, students are required to take nine hours of professional electives. Professional electives must be approved by the student's advisor. In choosing professional electives, the student is encouraged to select courses that relate to each other and to established career patterns, for instance, in areas such as budgeting, personnel administration, social services administration, and energy and environment.

No more than six hours of internship courses may be offered for the degree program, and no more than three of these hours may be credited toward fulfilling the requirements for professional electives.

Required Courses: 39 credit hours
- Public Administration 205 Managing the Public Sector (3)
- Accountancy 258 Computer-Based Data Systems (3)
- Accountancy 325 Governmental Accounting and Budgeting (3)
- Economics 215 Economics of Public Policy: Governmental Finance (3)
- Economics 251 Theory of the Firm (3)
- Economics 253 Macroeconomic Policy (3)
- Management 202 Fundamentals of Management (3)
- Management 308 Operations Management (3)
- Management 310 Personnel Management (3)
- Management 329 Organizational Behavior (3)
- Political Science 102 State Government (3) or Political Science 306 Municipal Government (3)
- Political Science 311 Administrative Regulation of Business (3) or Political Science 317 Public Policy (3)

Public Administration 354 Public Budgeting (3)

Professional Electives: 9 credit hours

Total: 48 credit hours

FACULTY

ADMINISTRATION

Stanley J. Hille, dean, professor, PhD, University of Minnesota
Robert B. Denhardt, associate dean, professor, PhD, University of Kentucky
Ronald E. King, assistant dean, instructor, PhD, University of Missouri-Columbia

ACCOUNTANCY

Rick Elam, director, professor, PhD, University of Missouri-Columbia
Royal D.M. Bauer, professor emeritus, MBA, Northwestern University
Raymond C. Dockweiler, associate professor, PhD, University of Illinois
Jere Francis, assistant professor, PhD, University of Missouri
Wilber C. Haseman, professor, PhD, Syracuse University
Thomas P. Howard, assistant professor, DBA, Arizona State University
Paul A. Kohler, professor emeritus, PhD, University of Iowa
Robert L. Kym, professor, PhD, Louisiana State University
James C. Lampe, associate professor, PhD, University of Michigan
Charles Lитеcky, associate professor, PhD, University of Minnesota
Loren A. Nikolai, professor, PhD, University of Minnesota
James E. Parker, professor, PhD, Michigan State University
Joseph A. Silvoso, professor, PhD, University of Missouri-Columbia
Ralph E. Skelly, associate professor, PhD, University of Alabama
James C. Stallman, associate professor, PhD, University of Illinois
Jenice P. Stewart, assistant professor, PhD, University of Alabama
Earl R. Wilson, assistant professor, PhD, University of Missouri-Columbia
Eugene L. Zschammer, professor, PhD, University of Illinois

BUSINESS ADMINISTRATION

Rodney C. Sherman, associate professor, resident director, PhD, Georgia State University
Janet S. Adams, instructor, MBA, Berry College
Van Dyke Gray, instructor, MBA, North Texas State University
Barry T. Lewis, assistant professor, PhD, University of Missouri-Columbia
Glenn N. Petengill, associate professor, PhD, University of Arkansas

FINANCE

Gary L. Trenneopol, chairman, associate professor, DBA, Texas Tech University
Robert E. Bray, associate professor emeritus, MA, University of Missouri-Columbia
Douglas R. Emery, associate professor, PhD, University of Kansas
Adam K. Gehr Jr., associate professor, PhD, The Ohio State University
Paul L. Gronewoller, assistant professor, MBA, University of Nebraska-Lincoln
Arnold D. Johnson, instructor, MBA, Washington University
Raymond T. Lansford, professor, EdD, New York University
John J. Pascucci, professor, PhD, Stanford University
Melville Peterson, associate professor emeritus, PhD, University of Illinois

John D. Stowe, associate professor, PhD, University of Houston
Francis L. Stubbs, professor, PhD, University of Wisconsin

MANAGEMENT

Earl F. Lundgren, chairman, professor, PhD, University of Wisconsin
Everett E. Adam Jr., professor, DBA, Indiana University
Russell S. Bauder, professor emeritus, PhD, University of Wisconsin
Allen Bluedorn, assistant professor, PhD, University of Iowa
Earl Cecili, professor, DBA, Indiana University
Robert G. Cook, professor emeritus, DBA, Indiana University

Thomas W. Dougherty, assistant professor, PhD, University of Houston
Robert D. Schoeler, professor, PhD, Indiana University
Myron L. Erickson, associate professor, JD, University of Wisconsin

Ronald E. King, instructor, PhD, University of Missouri-Columbia

RISK AND INSURANCE

Robert C. Manhart, professor emeritus, PhD, The Ohio State University

James H. Patterson, professor, PhD, Indiana University
Robert V. Penfield, associate professor, PhD, Cornell University
Dale E. Rude, assistant professor, PhD, University of Iowa
E. Allen Slusher, associate professor, PhD, University of Iowa

James A. Wall Jr., professor, PhD, University of North Carolina

MARKETING

Donald L. Shawver, chairman, professor, PhD, University of Illinois

S. Watson Dunn, professor, PhD, University of Illinois

Nylén W. Edwards, professor, DBA, Indiana University

Stanley J. Hille, professor, PhD, University of Minnesota

Robert D. Schoeler, professor, PhD, University of Texas

John W. Vann, assistant professor, PhD, University of Florida-Gainesville

William B. Wagner, associate professor, PhD, The Ohio State University

Don R. Webb, professor, PhD, University of Illinois

Samuel G. Wennberg, professor emeritus, PhD, Northwestern University

Albert F. Wiltz, Bailey K. Howard professor of marketing, PhD, Purdue University

PUBLIC ADMINISTRATION

Edward T. Jennings Jr., chairman, associate professor, PhD, Washington University (St. Louis)

Stanley B. Slocum, associate professor, PhD, University of Missouri-Columbia

Robert B. Denhardt, professor, PhD, University of Kentucky

Michael A. Diamond, assistant professor, PhD, University of Maryland

Brenda S. Gardner, instructor, MPA, University of Southern California

Robert F. Karch, professor emeritus, PhD, University of Missouri-Columbia

Robert W. Patterson, professor emeritus, PhD, University of Virginia

Michael J. Sabath, assistant professor, PhD, University of Pittsburgh

J.D. White, assistant professor, PhD, George Washington University
The College of Education was established in 1868 with the specific responsibility to prepare teachers for Missouri public schools. Today’s graduates of the College are employed in a wide variety of non-school settings as well as in educational institutions.

The College has the following specific purposes:

1. To design and provide adequate programs of general, preprofessional and professional education for men and women who plan to make a career of teaching, school administration, school supervision, other specialized school work or educational work in non-school settings.

2. To provide an appropriate foundation for graduate study and research in the undergraduate program.

3. To provide assistance to the schools of the state in the nature of research studies, in-service training, extension teaching, surveys and consultation on educational problems.

The College of Education is a member of the American Association of Colleges for Teacher Education. All programs are fully accredited by the North Central Association of Secondary Schools and Colleges and by the National Council for Accreditation of Teacher Education.

The College of Education is organized into the Departments of Educational and Counseling Psychology, 9 Hill Hall, 882-7731; Curriculum and Instruction, 212 Education Building, 882-6572; Educational Administration, 211 Hill Hall, 882-8221; Health and Physical Education, 20 Rothwell Gymnasium, 882-7601; Higher and Adult Education and Foundations, 301 Hill Hall, 882-8231; Practical Arts and Vocational-Technical Education, 405 General Classroom Building, 882-8391; and Special Education, 515 S. Sixth St., 882-3741.

ADMISSION

Undergraduate students may enter the College of Education as freshmen. For information on the admissions procedures, see Admissions in the general information section of this catalog.

The College of Education offers two baccalaureate degrees: the bachelor of science in education (BS Ed) and the bachelor of educational studies (BES). Approximately 36 semester hours of college credit is required before students may expect to gain admission to a specific program leading to an undergraduate degree in education.

HONORS PROGRAM

The College maintains an honors program for the academically talented student. First-semester freshmen may apply for the education honors program if they qualify on the Missouri Freshman Placement Test Battery. Second-semester freshmen may apply if they earn a 3.3 (A = 4.0) or higher grade point average for the first enrollment of 15 semester hours or more on the UMC campus. Transfer students may apply for the program following the first semester on campus if they have earned a minimum grade point average of 3.3 in 15 or more semester hours and have been recommended by the director of the honors program.

Students must maintain the minimum grade standard to remain eligible.

ADMISSION CRITERIA

Bachelor of Science in Education (Teacher Education Program)

Admission to a specific program is a prerequisite to upperclass field experiences (including student teaching) and, ultimately, certification to teach.

Students may expect to gain admittance to a specific program when the following criteria have been met as long as quotas have not been filled. Students must have:

1. At least 36 semester hours of college credit.
2. A grade point of at least 2.5 for all work completed on the UMC campus.
3. An area of specialization and an approved degree/certification program.
4. A successfully completed field experience.
5. Satisfactory completion of S35 Perspectives in Education. (Transfers with 60 hours or more are exempt.)
6. Completion of the appropriate orientation course at the program level.
7. Evidence of a satisfactory level of competence in oral and written communication and mathematics as indicated by SAT or ACT scores or an equivalent measure of scholastic aptitude.
8. Possession of characteristics associated with effective performance in a professional role at the level(s) and in the emphasis area (major) selected.
9. A notarized Affidavit of Moral Character. A student admitted to a professional program must maintain the standards met at the time of admission to the program. Continued assessment will be made of the characteristics associated with effective performance in the role of a professional at the level(s) and in the emphasis area (major) selected.

INDIVIDUALS WHO POSSESS A BACCALAUREATE DEGREE AND DESIRE TO MEET MISSOURI TEACHER CERTIFICATION REQUIREMENTS THROUGH THE COLLEGE OF EDUCATION MUST MEET THE ABOVE CRITERIA.

A student recommended for teacher certification must have a cumulative grade point average of 2.5—based upon all course work completed at the University of Missouri-Columbia—as well as an overall grade point average of 2.5 based upon all college course work completed.

Bachelor of Educational Studies

Procedures for admission to candidacy for the bachelor of educational studies degree parallel and approximate those for the Bachelor of Science in Education degree.

In order to qualify for admission, the applicant must:

1. Be regularly admitted to the College of Education.
2. Have at least 36 semester hours of college credit.
3. Have a grade point of at least 2.5 for all work completed on the UMC campus.
4. Have satisfactorily completed S35 Perspectives in Education. (Transfers with 60 hours or more are exempt.)
5. Have evidence of a satisfactory level of competence in oral and written communication and mathematics.
6. Possess characteristics associated with effective performance in a professional role at the level(s) and in the emphasis area (major) selected.
7. Submit a formal application for the degree to the appropriate department and divisional Bachelor of Educational Studies Admissions Committee.
8. Have program approved at least one semester or summer session prior to the semester of graduation.

TRANSFER STUDENTS

Students transferring to UMC from a community/junior college or other accredited college or university are subject to the Academic Regulations established by the UMC Faculty Council concerning transfer of credit. Transfer of credit is described in the Academic Regulations section of this catalog.

Course work satisfactorily completed at an accredited four-year institution will be accepted without limitation except that the final 24 semester hours leading to the baccalaureate degree must be completed at the University of Missouri-Columbia. Course work satisfactorily completed at an accredited junior/community college generally will be accepted without limitation up to and including 64 semester hours except that non-college level (including remedial and developmental courses) and professional education course work will not be accepted as applicable to the baccalaureate degree. The transfer policy does not waive nor alter any course requirements for the Bachelor of Science in Education or the Bachelor of Educational Studies.

Grades received from other accredited institutions will be recorded on the University of Missouri transcript just as they were earned (A = A, etc.). Advanced standing credit applicable toward a baccalaureate degree in education normally will be granted for college-level courses earned at an accredited institution, provided the grade was D or better. Advanced standing credit includes course work used to satisfy degree requirements, including the elective portion of the degree program.
UMC College of Education students who plan to take courses at another college or university should fill out the Transfer Credit Approval Form prior to enrollment. Copies of the approval form are available in 102 Hill Hall.

Transcript evaluations prepared by other academic divisions of the University of Missouri-Columbia have no validity in the College of Education.

Questions regarding transfer credit should be addressed to the Coordinator of Transfer Credit, 102 Hill Hall, UMC, Columbia, Mo. 65211.

STUDENT SERVICES

ADVISING

Entering students in the College are assigned academic advisers, who assist them in planning their college programs. It is the student’s responsibility to meet with the adviser as early as possible so that requirements may be met without losing credit or carrying excessively heavy loads during the junior and senior years.

PLACEMENT

A professional educational placement service is maintained to assemble and disseminate information related to careers in education and to assist in securing positions. This service is available to all UMC graduates and to all former students who have attended the University as a full-time student a minimum of one semester. For more information, contact the Director of Educational Placement, 118 Hill Hall, UMC, Columbia, Mo. 65211.

STUDENT ORGANIZATIONS

Activators: Activators is an organization for physical education majors. Its purpose is to encourage greater social and professional cooperation among all physical education majors, students, faculty and alumni.

Alpha Tau Alpha: Composed of students in vocational agriculture and agriculture education. The purposes of Alpha Tau Alpha are to develop a professional spirit and a positive attitude toward the teaching of vocational agriculture, to develop leadership in the field and to develop personal ideas.

The Association of Childhood Education International, open to all students, works for the education and well-being of children from two to 12 years old.

A chapter of The Council of Exceptional Children, affiliated with the National Education Association, is open to students enrolled in special education programs, as well as other students interested in exceptional children.

The Council of Teachers of English is an organization of students who are interested in the teaching of English as a profession. The purpose is to promote professionalism in the field.

The purpose of DECA (Distributive Education Clubs of America) is to develop, promote and execute a program of student activities which will contribute to the occupational competence of future marketing and distributive education teacher-coordinators.

Education Ambassadors assist the College of Education in public relations and recruitment activities. These undergraduate students must be recommended by the College of Education faculty, with final selection made by the Office of External Relations staff.

The Education Student Council is a division of UMC student government for undergraduate students in education.

The Educational and Counseling Psychology Student Association promotes the professional development and collegiality of students enrolled in the undergraduate programs in Educational and Counseling Psychology.

The Higher and Adult Education and Foundations Student Association is open to all students who have taken some course work in the department and who are interested in the improvement of education. The organization facilitates an orientation to the field and to professional affiliations.

Kappa Delta Pi, open to undergraduate and graduate students who are in the top 15 percent of their class, promotes and recognizes academic excellence in the College of Education.

The Industrial Education Club, designed for professional advancement and fellowship in industrial education, is for students in industrial education.

Music Educators National Conference is composed of students who are interested in the teaching of music as a profession. It allows the students to develop a high degree of musicianship; and it acquaints the students with the responsibilities and privileges associated with the music education profession.

Phi Beta Lambda, affiliated with the state and national FBLA-PBL, helps students prepare for their careers. Students enrolled in business, secretarial or business teacher education programs are eligible for membership.

Pi Lambda Theta, an honorary professional organization, is open to juniors and seniors in the College of Education. Members are elected on the basis of superior scholarship and professional promise in the field of education.

The Student Missouri State Teachers Association, affiliated with MSTA, promotes activities and experiences designed to assist students in their preparation for teaching careers. All education students are eligible for membership.

Teachers of Home Economics is for those students enrolled in home economics education or those anticipating a transfer into home economics education. Promoting professionalism in home economics education, meeting peers, sharing ideas and providing information are the major goals.

SCHOLARSHIPS

The following scholarships are available through the Financial Awards Committee of the College of Education. The deadline for application for most of these scholarships is Feb. 1. Specific information and applications forms may be obtained in 107 Hill Hall.

Aleppo Grotto Scholarships: Awarded to undergraduate or graduate students who plan to teach orthopedically handicapped children. Preference is given students who are especially interested in the cerebral palsy field.

Alumni Scholarship for Freshmen Students: Awarded to two entering freshmen (one minority and one non-minority) on the basis of promise as a future teacher, high school transcript and standardized test scores.

Arthur Bitker Scholarship: Awarded to students who are active in golf.

Joseph P. Blanton Scholarship: Awarded to a student recommended by the dean.

Isaac Hinton Brown Scholarship: Awarded to a female Missouri high school graduate who intends to pursue the teaching profession.

Carol Westerman Campbell Memorial Scholarship: Awarded to a student enrolled in the College of Education who has earned at least 30 semester hours and who shows promise as a teacher.

Ruby J. Cline Physical Education Scholarship: Awarded to a junior female student specializing in the field of physical education. Selection is based on grade point average, leadership and promise.

Flora E. Davidson Scholarship: Awarded to a worthy undergraduate majoring in elementary education.

Geraldine K. Fergen Scholarship: Awarded to undergraduate or graduate students enrolled in special education.

Pauline Gillette Garrett Award: Given to students who plan to teach home economics.

S.H. Ford Scholarship: Awarded annually on the basis of scholarship and probable service in the field of education to a graduating student deemed most worthy.

Albert Waldo Holman Memorial Award: Given to a freshman student from Boone County, Mo. Preference will be given to a student who was active in 4-H and athletics.

Theo W.H. Irion Memorial Scholarship: Given to a senior or a first-year graduate student majoring in education on the basis of financial need, scholarship, leadership and probable service in education.

Kappa Delta Pi Scholarship: Awarded to a junior, senior or graduate student in the College who also is a member of Kappa Delta Pi.

Friedel C. Maasdorf Foreign Language Education Scholarship: Awarded to students who major in foreign language education.

Mary R. McKee Physical Education Award: Given to outstanding women students on the basis of participation in sports and/or dance, leadership, service and scholarship.

Harry R. McMillan Memorial Scholarship Fund: Awarded to outstanding students in the College of Education.

Marvelle Michel Scholarship: Given to entering freshmen with a cumulative high school GPA of at least 3.2 on a 4.0 scale who intend to major in physical education. This scholarship may be renewed for four years providing the recipient maintains a 3.0 GPA.

Missouri Federation of Women's Clubs Elizabeth Cushing Scholarship in Special Education: Awarded to a student, recommended by the education faculty, who is preparing to teach mentally retarded or mentally superior children. Recipient must be a Missouri resident and agree to teach in Missouri within three years of graduation or repay the amount of the scholarship. It may be given to the same person for a second year.

Loran G. Townsend Scholarship in Edu-
OPPORTUNITIES
College of Education are organized and administered to make optimal use of all of the instructional personnel who are well prepared and who can provide evidence of competence in their areas of specialization. The College of Education has had a study abroad program for upperclass students is offered the second semester of each academic year.

SPECIAL SERVICES
Instructional Materials Center. Located in 311 Education Building, the center contains collections of textbooks, curriculum guides, tapes, films and models. Its equipment inventory includes projectors, recorders and study carrels. Staffed by personnel knowledgeable in the selection and use of instructional materials and equipment, the center is designed to serve both students and faculty of the College of Education.

Instructional Media Laboratory. The Instructional Media Laboratory in 314 Education Building, provides a training facility in the production and use of instructional materials and media. Students enrolled in methods courses use the laboratory to develop various types of audiovisual materials for use in student teaching.

Education Abroad. Since 1961, the College of Education has had a study abroad program with the School of Education of the University of Reading in England. This enables the College to provide unique offerings which carry academic credit. The Scholars Abroad program for upperclass students is offered the second semester of each academic year.

PROFESSIONAL OPPORTUNITIES
A career in professional education offers many challenging opportunities. Although job opportunities vary from field to field, professional personnel who are well prepared and who can provide evidence of competence in their areas of specialization are in demand. The professional education programs of the College of Education are organized and administered to make optimal use of all of the resources at the University of Missouri-Columbia which are applicable to the preparation of teachers and educational administrators as well as other educational and human services specialists.

Students who complete the requirements for the bachelor of science in education degree are eligible for a life certificate, issued by the Missouri Department of Elementary and Secondary Education also may be completed in the College of Education.

BSEd
The requirements for the bachelor of science in education (BSEd) degree are specified in four areas: general education, preprofessional professional education and a teaching major. All students preparing to be elementary or secondary teachers, regardless of the major field, are required to complete the general education and preprofessional program. Students transferring from other institutions are required to fulfill the equivalencies of these courses.

To secure the degree of bachelor of science in education, the candidate must fulfill the following requirements:
1. Be admitted to a teacher education program in the College of Education.
2. Complete the professional courses in education listed in the various curricula, the courses required in the areas of specialization and the general education as well as the preprofessional requirements for all teachers.
3. Demonstrate satisfactory proficiency in English. This requirement may be met by making a grade of C or better in the second course in English composition or by being admitted to 65GH, Honors Exposition, and making a grade of C or better.
4. Demonstrate satisfactory proficiency in oral communication. This requirement may be met by making a grade of C or better in Speech 75, Introduction to Speech Communication, or T41, Classroom Communication.
5. Have completed 120 semester hours acceptable toward the degree of bachelor of science in education.
6. Have a cumulative grade point average of 2.5 based upon all course work completed at UMC as well as an overall grade point average of 2.5 based upon all college course work completed.
7. Be recommended for the degree by the College of Education faculty.
8. Meet the residence requirement.

BES
The requirements for the bachelor of educational studies (BES) degree prepare students for careers in human services. The College of Education will not certify or recommend certification to teach in the public schools on the basis of the BES degree.

Graduation requirements for the BES degree are as follows:
1. All freshmen and sophomores must have successfully completed S35, Perspectives in Education.
2. The student must establish satisfactory proficiency in English. This requirement may be met by making a grade of C or better in the second course in English composition or by being admitted to 65GH, Honors Exposition, and making a grade of C or better.
3. The student must be admitted to and complete the program of studies as approved by the appropriate divisional and departmental Bachelor of Educational Studies Admissions Committee.
4. The student must complete a total of 120 semester hours of college credit acceptable toward the degree of bachelor of educational studies, including the general education requirements of the BS in education degree: at least 24 semester hours of course work offered by the College of Education. [These 24 hours must include course work selected from at least four different College of Education areas. The course S35, Perspectives in Education, while required—cannot be used as one of the four areas—but may be included in the 24 semester hours total.]; and at least one support area totaling 24 or more semester hours selected in accordance with the candidate's educational objective.
5. The student must have a cumulative GPA of 2.5 based upon all course work completed on the UMC campus as well as an overall GPA of 2.5 based upon all college course work completed.
6. The student must meet the residence requirement.
7. Students entering with advanced standing must complete at least three courses in education on UMC's campus.
8. The student must be recommended for the degree by the faculty of the College of Education.

RESIDENCE REQUIREMENT
Students must spend their senior year on the UMC campus in order to obtain the bachelor of science in education or bachelor of educational studies degrees. A minimum of three courses in education must be completed during this period. For the BSEd, these courses shall include student teaching and a special methods course. In addition, three semester hours must be earned in the subject field of specialization. Work done in the summer sessions on the Columbia campus may be counted as work in residence.

SENIOR PROFESSIONAL SEMESTER
Students completing a teacher preparation program on the Columbia campus are required to complete a senior professional semester. During the student's senior year, one semester is devoted to course work in teacher education, including student teaching. During one-half of the semester, the student is enrolled in six to eight semester hours of course work on campus. For the other half of the semester, the full day is devoted to the student's teaching assignment.

To qualify for student teaching, the applicant must:
1. Be admitted to a teacher education program.
2. Have a minimum of 90 semester hours.
3. Have spent at least the preceding semester in residence.
4. Have a minimum 2.5 GPA for all work completed at UMC and for all course work completed in professional education.
5. Meet specific prerequisite professional education course requirements for the level at which the student teaching is to be accomplished.

The senior professional semester for education majors will include student teaching and other courses designated by the department in which the student is majoring.

Student teaching assignments are available in the Columbia public schools, in several
surrounding towns and in the St. Louis area. Students whose homes are in the St. Louis area may make application to do their student teaching there. Applications are accepted in February and September for the following semesters. Any questions concerning student teaching should be directed to the Office of Education Field Experiences, 101 Hill Hall, UMC, Columbia, Mo. 65211.

REQUIREMENTS FOR TEACHING MAJORS

Students preparing for elementary school teaching need preparation in a number of subject matter areas as well as a specialization in elementary education. Programs in elementary education are planned with the close supervision of an adviser.

Students preparing for secondary school teaching are required to have a teaching major. By careful program planning, it is possible in some instances to earn certification in more than one area.

While a student's program of study may be strengthened by taking certain elective courses, such election should be made only with the consent of the proper adviser(s).

GENERAL EDUCATION REQUIREMENTS

All undergraduates in the College of Education must meet the general education requirements of 31 semester hours. Credit earned by examination may be applied toward these general education requirements. These requirements and the minimum hours are indicated below.

Humanities (6 hours) Must include courses from two of the following fields: music, foreign language, classical studies, philosophy, literature, humanities (General Honors), religion, theater and drama, and art. Early childhood majors and elementary majors must have two semester hours in art or music.

Written Communication (6 hours) Must include two English composition courses. Students excused from English 1, Composition (3) may satisfy the English requirement by completing English 60, Exposition (3) or its equivalent with a grade of C or better.

Social Studies (9 hours) Must include American history, American government and one additional course selected from geography, economics, sociology, anthropology or psychology.

Natural Science (7 hours) Must include courses in biological and physical or earth science, one of which has a laboratory.

Mathematics (3 hours) A college-level mathematics course(s) taught by a mathematics department. Elementary and early childhood majors must take Mathematics 7, Algebra for Elementary Teachers.

PREPROFESSIONAL REQUIREMENTS

In addition to the general education requirements, BS Ed candidates in the College of Education must earn five to 14 semester hours in preprofessional courses. The areas of study and the minimum required semester hours are as follows:

Early Childhood Education: health and nutrition (3), Mathematics 8, Geometry for Elementary Teachers (3), oral communication (3).

Elementary Education: economics (3), health (2), geography (3), Mathematics 8, Geometry for Elementary Teachers (3), oral communication (3).

Secondary Education: health (2), oral communication (3).

Special Education (single major): health (2), oral communication (3), Mathematics 8, Geometry for Elementary Teachers (3).

ELEMENTARY EDUCATION GRADES 1-8

Students majoring in elementary education are required to earn 21 semester hours in an area of concentration. Some of the semester hours earned to satisfy the general education and preprofessional requirements may be applied to the 21-semester-hour concentration. In addition to the general education requirements, preprofessional requirements and 21 semester hours in an area of concentration, students preparing to become elementary teachers are required to complete the core of courses listed below. Semester hours are in parentheses.

A205 The Psychology of Learning and Instruction (2)
B350, B351, B352 or B353 Educational Foundations (3)
C241 School Organization and Administration for Elementary Teachers (2)
H127 P.E. Activities for Elementary School (2)
L339 Education of Exceptional Children (3)
S35 Perspectives in Education (1-2)
T40 Advisory Seminar in Elementary Education (1)
T221 Teaching of Science in the Elementary School (2)
T230 Art Activities in the Elementary School (2) or
F101 Industrial Arts for Elementary Teachers (3)
T255 Elementary School Music (2)
T267 Mathematics in the Elementary School (3)
T299 Student Teaching in the Elementary School (8)
T309 Literature in the Elementary School (3)
T312 Teaching of Language Arts in the Elementary School (2)
T315 Teaching of Reading (3)
T317 Diagnostic and Corrective Reading in the Classroom (3)
T319 Practical Experiences in Reading (2)
T350 Social Studies in the Elementary School (3)
T371 Production of Instructional Media Materials (3)

DUAL PROGRAM: ELEMENTARY/EARLY CHILDHOOD

Students completing elementary education certification requirements and wishing to add early childhood education and, hence, be certified prekindergarten through grade 8, may do so by completing all elementary education requirements except A207, The Psychological and Educational Development of the Child, and adding the following courses:
H326 Motor Development in Early Childhood Education (3)
T301 Child Study (Child and Family Development 160) (3)
T303 Emerging Language in Early Childhood Education (3)
T304 Early Childhood Education Family and Community Resources (3)
T305 Early Childhood Education Curriculum and Methods (3)
T306 Early Childhood Education Diagnosis and Interventions in Early Childhood Education (3)

In addition, students completing the dual program must have field experiences—either student teaching or aiding—at all four levels: nursery/day care, kindergarten, primary grades and intermediate grades.

MIDDLE SCHOOL CERTIFICATION

Requirements for state certification as a middle school teacher can be fulfilled by completing the requirements for elementary education, a course in adolescent psychology, a course in reading in a content field, and an area of concentration appropriate to teaching in a middle school.

EARLY CHILDHOOD EDUCATION

PREKINDERGARTEN-GRADE 3

In addition to the general education and preprofessional requirements, students who plan to be certified as teachers of early childhood education are required to complete the core of required courses listed below. Students may work toward dual certification in elementary and early childhood education. In order to maximize their efforts, students desiring dual certification should plan carefully with the assistance of their advisers.

Semester hours are in parentheses.
A205 The Psychology of Learning and Instruction (2)
B350, B351, B352 or B353 Educational Foundations (3)
C241 School Organization and Administration for Elementary Teachers (2)
H326 Motor Development for Early Childhood (3)
L339 Education of Exceptional Children (3)
S35 Perspectives in Education (1-2)
T160 Aiding or CFD 264 Child Development Lab (2-3)
T211 Aiding (2)
T221 Science in the Elementary School (2)
T230 Art Activities in the Elementary School (2) or
F101 Industrial Arts for Elementary Teachers (3)
T255 Elementary School Music (2)
T267 Mathematics in the Elementary School (3)
T299 Student Teaching in the Elementary School (8)
T309 Literature in the Elementary School (3)
T312 Teaching of Language Arts in the Elementary School (2)
T315 Teaching of Reading (3)
T317 Diagnostic and Corrective Reading in the Classroom (3)
T319 Practical Experiences in Reading (2)
T350 Social Studies in the Elementary School (3)
T371 Production of Instructional Media Materials (3)

Students must have field experience at three levels: primary grades, kindergarten, and nursery/day care. They must select one or possibly both levels of preparation. Students must meet all field experiences requirements.
ART

KINDERGARTEN-GRADE 9

Students preparing to become teachers of art in the elementary school must complete the general education and the preprofessional requirements. The required elementary education, art and art history courses are listed below.

Semester hours are in parentheses.

Education Courses:
A205 Psychology of Learning (2)
A207 Psychology of the Child or A208 Psychology of Adolescents (2)
B350, B351, B352 or B353 Educational Foundations (3)
C241 School Organization and Administration for Elementary Teachers (2)
L220 Art Activities in the Elementary School (2)
L339 Education of Exceptional Children (3)
S35 Perspectives in Education (1)
T40 Advisory Seminar in Special Education (1)
T616, T617, T618 or T619 Aiding (2)
T332 Organization of the Public School Art (2)
T399 Student Teaching in the Elementary School (8)
Select two of the following:
T221 Science in the Elementary School (2)
T309 Literature in the Elementary School (3)
T312 Teaching the Language Arts in the Elementary School (2)

Art and Art History Courses: 46 semester hours
Art 1 Introduction to Art (3)
Art 2 Appreciation of Art (2)
Art 61 Beginning Drawing I (2)
Art 20 Basic Design I (3)
Art 21 Basic Design II (3)
Art 160 Beginning Drawing II (3)
Art 175 Beginning Water Color (3)
Art 177 Beginning Painting (3)
Art 285 Beginning Sculpture (3)
Art 390 Printmaking I (3)
Art 230 Ceramics I (3)
Art 330 Ceramics II (3)
Art 251 Jewelry I (3)
Art 55 Aircraft Fundamentals (3)
Art History 10 Introduction to Western Art (3)
Art History 141 American Art and Architecture (3)
Select Elective Specialization. In addition to the minimum 46 semester hours of preparation in art and art history, the election of one in-depth studio area of specialization is recommended. With proper long-range planning, the in-depth courses can be scheduled within the regular four-year program and normal course loads. Philosophy 317, Aesthetics (3), is recommended as partial fulfillment of the general education humanities requirement.

KINDERGARTEN-GRADE 12

Program for preparing to teach art in the elementary and secondary schools is described in the section Art, Grades 7-12.

PHYSICAL EDUCATION

KINDERGARTEN-GRADE 9

Students planning to teach physical education in the elementary school are required to take the general education and the preprofessional courses as well as the following courses in professional education and physical education.

Semester hours are in parentheses.

Education Courses: 29 semester hours
A207 Psychology of Learning (2)
A208 Psychology of Adolescence (2)
B350, B351, B352 or B353 Educational Foundations (3)
C241 School Organization and Administration for Elementary Teachers (2)
H300 Perspectives in Health (1)
T617, T618 or T619 Aiding (2)
T316 Teaching Reading in the Content Areas (2)
Physical Education Courses: 53-54 semester hours
H201 Introduction to Physical Education (2)
H30 Activity Proficiency (8)
H51 Underclass Practicum in Physical Education (1)
H58 First Aid (2)
H108 Introduction to Tests and Measurements in Physical Education (1)
H124 Dance for Elementary Schools (2)
H127 Physical Education Activities for Elementary School (2)
H133 Teaching of Gymnastics (1)
H300 Problems: Techniques of Swimming (1)
H300 Problems: Perceptual Motor (2)
H327 Health Education in Elementary School (3)
H327 Elementary School Physical Education (3)
H380 Kinesiology (3)
H382 Adapted Physical Education (2)
H383 Developmental Physical Activity (3)
H385 Psychology of Exercise (3)
Elect two:
H102, H103, H104, H105, H106 or H107 Coaching (2)
H162 Advanced Recreational Dance (2)
H172 Teaching of Individual and Dual Sports (2)
H173 Teaching of Team Sports (2)
Other required courses:
Physiology 201 Elements of Physiology (5)
Anatomy 201-202 Elementary Anatomy—Lecture and Lab (5)

SPECIAL EDUCATION

The College of Education has undergraduate programs in the area of special education designed to prepare students to teach the educable mentally retarded, the trainable and severely handicapped, the behaviorally disordered and the orthopedically handicapped. The program in early childhood special education is offered only at the graduate level.

Students seeking certification to teach in an area of special education are encouraged to have their advisor assist them in planning their programs. After the completion of 45 semester hours of course work, students must submit to the department chairperson an application form indicating their projected student teaching semester.

All students preparing to teach in special education are required to meet the general education, the preprofessional and the professional education requirements. Students majoring in special education have the choice of two options relative to their preparation programs. Option I requires a dual major—special education and elementary or secondary education. Option II requires a minimum of one special education major.

Students selecting Option I are required to fulfill all of the elementary or secondary education requirements (depending on the level at which they are preparing to teach), with a modification of the student teaching requirement. Students selecting Option II are required to take eight semester hours of student teaching within their area of specialization. In both Option I and Option II, all pertinent special education courses must be completed successfully before student teaching in special education is begun. (See requirements for student teaching.) The programs for Option I and Option II follow.

OPTION I

Dual Major: Special Education and Elementary or Secondary Education

All students selecting the Option I program are required to complete the general education, the preprofessional requirements and a teaching major in elementary or a field of secondary education. In addition, students must complete the special education core and the requirements for one of the areas of specialization.

OPTION II

Single Major in Special Education

The student selecting Option II must complete the general education and the preprofessional requirements (with the exception of economics and geography), the professional education requirements, the special education core and at least one of the majors in special education. Semester hours are in parentheses.

PROFESSIONAL EDUCATION REQUIREMENTS: 27-28 semester hours
A205 Psychology of Learning and Instruction (2)
A207 Psychological and Educational Development of the Child (2)
A208 Psychology of Adolescence (2)
B350, B351, B352 or B353 Educational Foundations (3)
C240 or C241 School Organization and Administration (2)
S35 Perspectives in Education (1)
T617, T618 or T619 Aiding (2)
T613 Aiding: Intermediate Grades (1)
T614 Aiding: Secondary Grades (1)
T627 Teaching Mathematics in the Elementary School (3)
T315 Teaching of Reading (3)
* T318 Analysis and Correction of Reading Disabilities (3)
* T319 Practical Experiences in Reading (2)
T360 Topics: Remedial Mathematics (2 or 3)
* Special Education Core: 29 semester hours
L40 Advisory Seminar in Special Education (1)
L50 Freshman Readings in Special Education (1)
L60 Survey of Special Education (3)
L399 Education of Exceptional Students (3)
L346 Language Problems of Exceptional Students (3)
L360 Topics: Consultation and Conferencing in Special Education (3)
L131 Psychoeducational Assessment of Exceptional Students (3)
L363 Behavioral Management with Exceptional Students (3)
L365 Instructional Programming for Exceptional Students (3)
L367 The Use of Instructional Materials with Exceptional Students (3)
*One Special Education introductory course other than the requirement in the student's area of specialization (e.g.,
AREAS OF SPECIALIZATION

Behavioral Disorders: 24-26 semester hours
L162 Field Experiences: Primary Special Education-Behavior Disorders (1-2)
L163 Field Experiences: Intermediate Special Education-Behavior Disorders (1-2)
L316 Field Experiences: Secondary Special Education-Behavior Disorders (1-2)
L351 Introduction to Education of Behaviorally Disordered Students (3)
L352 Teaching the Behaviorally Disordered (3)
L362 Psychoeducational Assessment of Exceptional Students-Lab (2)
L364 Behavioral Management with Exceptional Students-Lab (2)
L366 Instructional Programming for Exceptional Students-Lab (2)
L368 Instructional Materials with Exceptional Students-Lab (2)
L299 Student Teaching in Special Education: Behaviorally Disordered Students (8)

Mild and Moderate Mental Retardation: 26-28 semester hours
L162 Field Experiences: Primary Special Education—Mild and Moderate Mental Retardation (1-2)
L163 Field Experiences: Intermediate Special Education—Mild and Moderate Mental Retardation (1-2)
L164 Field Experiences: Secondary Special Education—Mild and Moderate Mental Retardation (1-2)
L299 Student Teaching in Special Education—Mild and Moderate Mental Retardation (8)
L321 Introduction to Mental Retardation (3)
L322 Secondary Methods in Mental Retardation (3)
L330 Teaching the Mentally Retarded (2)
L362 Psychoeducational Assessment of Exceptional Students-Lab (2)
L364 Behavioral Management with Exceptional Students-Lab (2)
L366 Instructional Programming for Exceptional Students-Lab (2)
L368 Instructional Materials with Exceptional Students-Lab (2)

Orthopedically Handicapped**: 35-37 semester hours
L162 Field Experiences: Primary Special Education—Orthopedically Handicapped (1-2) or
L163 Field Experiences: Intermediate Special Education—Orthopedically Handicapped (1-2) or
L164 Field Experiences: Secondary Special Education—Orthopedically Handicapped (1-2)
L329 Student Teaching in Special Education: Orthopedically Handicapped (8)
L334 Introduction to Severe Handicapped and Multihandicapped (3)
L335 Managing Health Problems of the Handicapped (3)
L336 Education of the Multihandicapped (2)
L342 Introduction to Learning Disabilities (3)
L361 Topics: Alternative Approaches to Communication for the Handicapped (3)
H382 Adapted Physical Education (3)

Severely Handicapped**: (37-39 semester hours)
L162 Field Experiences: Primary Special Education—Severely Handicapped (1-2)
L163 Field Experiences: Intermediate Special Education—Severely Handicapped (1-2)
L164 Field Experiences: Secondary Special Education—Severely Handicapped (1-2)
L299 Student Teaching in Special Education—Severely Handicapped (8)
L321 Introduction to Mental Retardation (3)
L323 Curriculum Development and Methods of Teaching the Severely Handicapped (4)
L324 Assessment of Functional Skills of Severely Handicapped Students (3)
L334 Introduction to Severely Handicapped and Multihandicapped (3)
L335 Managing Health Problems of the Handicapped (3)
L330 Teaching the Mentally Retarded (2)
H383 Perceptual Motor Development and the Severely Handicapped Child (3)
L360 Topics: Alternative Approaches to Communication for the Handicapped (3)
H382 Adapted Physical Education (3)

EDUCATIONAL AND COUNSELING PSYCHOLOGY

The Department of Educational and Counseling Psychology offers several programs designed to prepare undergraduate students for careers in the helping professions. These programs provide a foundation for a graduate program in one or more of the specialty areas offered by the department. Since all of the programs have a controlled admission policy, students should contact the appropriate area coordinator regarding admission requirements.

BS IN EDUCATION DEGREE PROGRAM

Elementary School Guidance Services
Students preparing for graduate work in elementary school counseling and related areas are encouraged to complete the requirements for endorsement in elementary guidance services. In addition to the required general education, preprofessional education courses and courses in the elementary major, qualified applicants may obtain endorsement in guidance services (elementary) by completing the courses listed below. Semester hours are in parentheses.
G40 Advisory Seminar in Counseling and Personnel Services (1)
G60 Introduction to Counseling and Personnel Services (2)
G152 Seminar in Counseling and Personnel Services (Program Evaluation) (1)
G160 Field Experience in Counseling and Personnel Services (4)
G352 Psychological Aspects of Disability (3)
G354 Work Adjustment II (3)
G225 Introduction to Rehabilitation Services (2)
G397 Career Development: Theories, Materials and Techniques (3)
R370 Educational Statistics I (3)

Secondary School Guidance Services
Students preparing for graduate work in secondary school counseling and related areas are encouraged to complete the requirements for endorsement in secondary guidance services. In addition to the required general education, preprofessional education courses and courses in the behavioral science major, qualified applicants may obtain endorsement in guidance services (secondary) by completing the courses listed below. Semester hours are in parentheses.
G40 Advisory Seminar in Counseling and Personnel Services (1)
G60 Introduction to Counseling and Personnel Services (2)
G152 Seminar in Counseling and Personnel Services (Program Evaluation) (1)
G160 Field Experience in Counseling and Personnel Services (4)
G397 Career Development: Theory, Materials and Techniques (3)
R370 Educational Statistics I (3)

BACHELOR OF EDUCATIONAL STUDIES DEGREE PROGRAMS

Students interested in counseling and personnel services preparation for non-school human services settings may select a program through the Bachelor of Educational Studies (BES) degree. In addition to the general education requirements, students are expected to complete the Educational and Counseling Psychology core requirements, a 12-semester-hour behavioral science foundation area, and at least one support area selected from student personnel services, correctional services, evaluation and adjustment services, marriage and family services, mental health services, personnel services or religious counseling. The program and the corresponding semester hours required are listed below.

Educational and Counseling Psychology Core Requirements: 24-29 semester hours
G40 Advisory Seminar in Counseling and Personnel Services (1)
G60 Introduction to Counseling and Personnel Services (2)
G152 Seminar in Counseling and Personnel Services (Program Evaluation) (1)
G225 Introduction to Rehabilitation Services (2)
G275 Internship in Counseling and Personnel Services (8)
G320 Planning and Implementing Guidance Programs (3)
G330 Parent Counseling and Consultation (3)
G397 Group Procedures in Counseling (3)
G397 Career Development: Theory, Materials and Techniques (3)
R370 Educational Statistics I (3)

Counseling Psychology Core Requirements (upper level): 35 semester hours
L321 Introduction to Mental Retardation (3)
L323 Curriculum Development and Methods of Teaching the Severely Handicapped (4)
L324 Assessment of Functional Skills of Severely Handicapped Students (3)
L334 Introduction to Severely Handicapped and Multihandicapped (3)
L335 Managing Health Problems of the Handicapped (3)
L330 Teaching the Mentally Retarded (2)
H383 Perceptual Motor Development and the Severely Handicapped Child (3)
L360 Topics: Alternative Approaches to Communication for the Handicapped (3)

G396 Group Procedures in Counseling I (3)
G397 Career Development I: Theories, Materials and Techniques (3)
G370 Educational Statistics I (3)
G225 Introduction to Rehabilitation Services (2)
G275 Internship in Counseling and Personnel Services (8)
G320 Planning and Implementing Guidance Programs (3)
G397 Career Development: Theory, Materials and Techniques (3)
R370 Educational Statistics I (3)
S35 Perspectives in Education (freshmen and sophomores only) (1)
Behavioral Science Foundation: 12 semester hours
Each program must include 12 semester hours of behavioral science courses selected from psychology, sociology and anthropology. The behavioral science foundation area must include at least one course above the introductory level. The 12 hours applicable to this area must be taken exclusive of general education and support area requirements.

Educational and Counseling Psychology Support Area: 30 semester hours
In consultation with the assigned academic adviser, students will be expected to develop a 30-semester-hour support area appropriate to their vocational/educational goals. Included are support areas in mental health services, religious counseling, marriage and family services, athletic counseling, correctional services, personnel services (business and industry), and evaluation and adjustment services. The courses required in each area are outlined below.

STUDENT PERSONNEL SERVICES
Required:
A205 The Psychology of Learning and Instruction (2)
B350, B351, B352 or B353 Educational Foundations (3)
G330 Planning and Implementing Guidance Programs (3)
G330 Parent Counseling and Consultation (3)
Sociology 323 Death and Dying
Child and Family Development 363 Family and Child Development (3)

Electives:
The student must select additional courses from the above and from the Department of Religious Studies in order to complete the 30-semester-hour support area in religious counseling. The additional course work must include at least four courses in religion.

SECONDARY EDUCATION
In addition to the prescribed general education and preprofessional education courses, students preparing to become secondary school teachers must complete the following professional education courses and the required courses of at least one teaching major.

SECONDARY PROFESSIONAL EDUCATION: 24 semester hours
A205 The Psychology of Learning and Instruction (2)
A206 The Psychological and Educational Development of the Adolescent (3)
B350, B351, B352 or B353 Educational Foundations (3)
C240 School Organization and Administration For Secondary Teachers (2)
S35 Perspectives in Education and Preprofessional Education Courses, Art AND Art Appreciation (2)

ART
GRADES 7-12
Students preparing to become teachers of art in the secondary school must complete the general education, the preprofessional and the secondary education requirements. They also must meet the following art education, and art and history requirements. Semester hours are in parentheses.

Secondary Art: 52 semester hours
*T233 Curriculum in Secondary Art Education (3)
T234 Secondary Art Methods, Media and Materials (3)
T235 Art History Core
Art 2 Introduction to Art (3)
Art 55 Artcraft Fundamentals (3)
Art History 10 and 141 or the equivalent approved by the adviser
Electives: 34 semester hours selected from the following courses or the equivalent approved by the adviser
Art 3 Art Appreciation (2)
One of the following:
Psychology 260 Social Psychology
Psychology 345 Advanced Abnormal Psychology
Anthropology 153 Cultural Anthropology
One of the following:
H936 Drug Education
G355 Introduction to Alcohol Abuse and Rehabilitation Programs
Sociology 50 Social Deviance
One of the following:
Sociology 214 The Family
Child and Family Development 363 Family Development
G330 Parent Counseling and Consultation
*One of these courses may be taken in partial fulfillment of the general education requirement in social studies.
**Meets the secondary professional education requirements.
***Recommended for students receiving an endorsement in either guidance services or rehabilitation services.
****Meet special methods requirement.

ENGLISH AND
LANGUAGE ARTS

GRADES 7-12

The language arts program is designed to certify a graduate to teach general language arts and English in junior and senior high schools. The program is comprised of a core of required courses in the teaching major, exclusive of the general education, the preprofessional and the secondary professional education requirements. Required courses are listed below. Semester hours are in parentheses.

*English 1 Composition (3) or English 65GH Honors Exposition (3)
English 2 Introduction to Poetry (3)
*English 60 Exposition (3) or English 65GH Honors Exposition (3)
English 210 (3)
*Humanities (6) Choose from among the following courses: English 91, 92, 92 Introduction to Film (3); General Humanities 101, 102, 103 or 104 (3 hours each); Art History and Archaeology 10 Introduction to Western Art (3); Art History and Archaeology 141 American Art and Architecture (3); Music 21 Introduction to Music Literature (3); Philosophy 1 Introduction to Philosophy (3); Classical Studies 60 Classical Mythology (3)
English 175 American Literature (3)
English 201 The Tradition of English Literature: Beginnings to 1785 (3)
English 202 The Tradition of English Literature: Romanticism to the Present (3)
English 319 The Structure of American English (3)
English 320 History of the English Language (3) or English 322 Regional and Social Dialects of American English (3)
At least 12 additional hours in English to be selected from four of the following categories:
English 135, 335, 336, 345
English 326, 331, 333, 351, 352, 355, 356, 357
English 365, 366, 367, 368, 369
English 104, 375, 377, 378
English 189, 304, 389, 391, 392, 393, 394, 395, 396
English 108, 110, 185, 301, 385
***T211 Teaching Grammar and Usage (3)
***T313 Literature in Secondary Schools (3)
***T314 Teaching Composition (3)
*Fulfills the general education requirement in communication skills.
**Fulfills the general education requirement in humanities.
***Meets special methods requirements.

Majors in English/language arts are encouraged but not required to select a teaching minor. The following areas are recommended not only for their intrinsic value but because they will enhance the student’s preparation as a teacher of English: instructional media, journalism, Romance languages, school library, speech and theater, and reading. Students with particular interest in creative writing or linguistics should consult with the English education advisor for approval of courses in those areas to fulfill certain requirements in the English/language arts major.
specializing in the teaching of Italian complete a second area of specialization.

**Language**

1. Elementary Italian I (5)
2. Elementary Italian II (5)
103 Italian Reading (3)
106 Italian Composition (3)
109 Italian Conversations (3)
206 Advanced Italian Composition (3)
209 Advanced Italian Conversation (3)

**Literature**

301 Topics in Literature (3)
311 Survey of Italian Literature I (3)
319 19th Century Italian Literature (3)
321 Dante (3)
350 Special Readings (1-3)

**Civilization**

110 Italian Civilization (3) recommended, but may not be counted toward minimum requirements.

**LATIN**

2 Elementary Latin II (5)
207 Intensive Beginning Latin II (3)
208 Intensive Beginning Latin I (3)
203 Latin Poetry (3)
206 Advanced Latin Literature (3)
235 Latin Grammar (3)
236 Latin Syntax (3)
299 Survey of Latin Literature (3)

**Classical Studies**

10 The Greek and Roman Achievement (3)
50 Greek and Latin in English Usage (3)
60 Classical Mythology (3)
115 Greek Culture (3)
116 Roman Culture (3)
224 Roman Classics in Translation (3)
225 Greek Classics in Translation (3)
226 Greek Drama (3)

Special methods course requirement met on an individual basis.

**SPANISH**

A student who is beginning the study of Spanish in college must complete the following courses or their equivalents.

Semester hours are in parentheses.

**Language**

1 Elementary Spanish I (5)
2 Elementary Spanish II (5)
103 Spanish Reading (3)
106 Spanish Composition (3)
109 Spanish Conversation (3)
203 Introduction to Hispanic Literature I (3)
204 Introduction to Hispanic Literature II (3)
206 Advanced Spanish Composition (3)
209 Advanced Spanish Conversation (3)

The policy on the placement of students who have studied Spanish at the high school level is the same as that for students who have studied French.

**Civilization**

110 Hispanic Civilization (3) or 112 Latin American Civilization (3) required of Spanish majors. Satisfies the general education requirement but cannot be counted toward requirements for Spanish.

**Recommended Spanish Courses**

331 Survey of Spanish-American Literature I (3)
332 Survey of Spanish-American Literature II (3)
360 Phonetics (3)
379 Structure of Modern Spanish (3)

Special methods requirement

T280 Teaching of Romance Languages in the Secondary School (3)

**HEALTH**

**GRADES 7-12**

In addition to general education, the preprofessional and the secondary professional education requirements, students preparing to teach health are required to take the courses prescribed below. This interdisciplinary program is comprised of 41 semester hours, some of which count toward the general and the preprofessional requirements. Semester hours are in parentheses.

**Health Education**

Psychology 20 Psychology of Personal Adjustment (3) 
H58 First Aid (2)

**Intensive Health**

Elements of Health Education (2)

**General Education**

HNF & FSM 34 Nutrition - Current Concepts and Controversies (3)
Anatomy 202 Elementary Anatomy (5)
**Physiology 201 Elements of Physiology (5)** 
Microbiology 205 Fundamentals of Medical and Public Health Microbiology (4)

**MATHEMATICS**

**GRADES 7-12**

Students preparing to be mathematics teachers must complete the general education, the preprofessional and the secondary professional education requirements in addition to a core of required courses in the content area. It is assumed that a prospective mathematics teacher will have earned three units of credit in high school mathematics. The courses required for mathematics teachers are listed below. Semester hours are in parentheses.

Mathematics 80 Analytic Geometry and Calculus I (5)
Mathematics 175 Calculus II (5)
Mathematics 201 Calculus III (3)
Mathematics 250 Survey of Mathematics (3)
Computer Science 104 Computers and Programming I (3)
**T268 Teaching of Mathematics in the Secondary School (3)**
**T368 Teaching of Algebra in Secondary Schools (3)**
**T369 Teaching of Geometry in Secondary Schools (3)**

One of the following:

Mathematics 331 Matrix Theory (3)
Mathematics 333 Higher Algebra (3)
Mathematics 340 Introduction to Abstract Algebra I (3)

One of the following:

Mathematics 362 Projective Geometry (3)
Mathematics 366 Foundations of Geometry (3)
Mathematics 367 Introduction to Non-Euclidean Geometry (3)

Mathematics 372 Introduction to Topology (3)

One of the following:

Statistics 320 Introduction to Mathematical Statistics (3)
Statistics 325 Introduction to Probability Theory (3)

**Electives in Mathematics**

Math courses at the 300-level or other courses approved by adviser (0-8)

**Other required courses:**

Physics 11 Elementary College Physics (5) or Physics 80 University Physics I (3) and Physics 123 University Physics II (3)

**Recommended course:**

Chemistry 11 General Chemistry (5)

*Meets special methods requirement.*

The required courses listed above should be considered minimum preparation for secondary school teachers whose major area is mathematics. To provide a more comprehensive background and a basis for graduate work in mathematics, additional electives should be selected from those listed above. Other appropriate mathematics courses include 301 Topics (History of Mathematics); 304 Differential Equations; 310 Advanced Calculus I; 323 Numerical Analysis; 335 Theory of Numbers; 358 Mathematical Logic; and 330 Theory of Equations.

**MUSIC**

**GRADES 7-12**

Students specializing in music education must complete the general education, the preprofessional and the secondary education professional requirements. In planning a major in music education, students choose one of the following three areas:

1. The general curriculum designed to prepare a student to teach both vocal and instrumental music. This program is practical for many school situations.
2. The instrumental curriculum which concentrates on preparation for the teaching of bands and orchestras.
3. The vocal music curriculum which prepares a student to teach vocal music in grades 7 through 12.

All students must establish proficiency in piano and complete four semester hours in a 200-level course in applied music. Normally, all students complete seven semesters of ensemble credits. Major requirements in music include:

*Applied Music (allocated according to the needs of the individual student) (20 hours)*
*Music Theory (18 hours)*
*Conducting (4 hours)*
*Music History and Literature (7 hours)*
*Ensembles (7-10 hours)*

**T268 Teaching of Secondary School Music (3)**

**T368 Teaching of Algebra in Secondary Schools (3)**

**T369 Teaching of Geometry in Secondary Schools (3)**

**KINDERGARTEN-GRADE 12**

For certification to teach music in both the elementary and secondary grades, the following courses, in addition to the secondary music major, are required. Semester hours are in parentheses.

T257 Teaching Music in the Elementary School (3)

One of the following: T268 Teaching of Secondary School Music (3)

**H361 Education in Human Sexuality (3)**

**T368 Teaching of Secondary School Music (3)**

**T369 Teaching of Geometry in Secondary Schools (3)**

**NATURAL SCIENCE**

**GRADES 7-12**

The College of Education offers teacher education programs in five of the natural sciences. Each program requires a core of required courses beyond the general education, the preprofessional and the secondary professional education courses.

**BIOLOGY**

The core of required courses is listed below. Semester hours are in parentheses.

Biological Science 21-22 General Biology Lecture and Lab (10)
Biological Science 202 General Genetics (3)
Biological Science 105 Introductory Microbiology (3)

**T224 Teaching of Science in the Secondary School (3)**

One of the following:

Biological Science 250 Community Biology (3)
Forestry, Fisheries and Wildlife 60 Ecological Wildlife and Man (3)
Biological Science 6 Basic Environmental Studies (3)

Two of the following:
Biological Science 203 Introduction to Cell Biology (3)
Biological Science 205 Developmental Biology (3)
Biological Science 206 Plant Taxonomy (4)
Anatomy 202 Elementary Anatomy (5)

Physiology 201 Elements of Physiology (5)

Biology Electives to complete 32 hours in biology selected in consultation with adviser.

Students preparing to teach biology are required to take

Physics 11, Chemistry 11 and 12 (General Chemistry), Chemistry 205, or 210 and 211 (Organic Chemistry) and Math 90 or 207 (Calculus).

Each student must elect at least one laboratory course beyond Biological Science 22. The lab may be a part of a lecture course or taught separately.

*Meets special methods requirement.

CHEMISTRY

A core of required courses in mathematics, physics and chemistry courses, exclusive of the general education, the preprofessional and the secondary professional education requirements, is required of the student preparing to teach chemistry. The required courses are listed below. Semester hours are in parentheses.

Mathematics 80 Analytic Geometry and Calculus I (5)
Mathematics 175 Calculus I (5)
Computer Science 105/106 Computers and Programming I (3)
Physics 11 Elementary College Physics (5)
Physics 12 Elementary College Physics (3)
Chemistry 11 General Chemistry (5)
Chemistry 12 General Chemistry (5)
Chemistry 150 Undergraduate Research (3)
Chemistry 221 Quantitative Instrumental Analysis (4)
Chemistry 329 Environmental Chemistry (3)

One of the following:

Chemistry 205 Organic Chemistry (5)
Chemistry 210/211 Organic Chemistry Lecture and Lab (5)

*Meets special methods requirement.

EARTH SCIENCE

A core of required courses in earth science, mathematics and related sciences, exclusive of the general education, the preprofessional and the secondary professional education requirements is required of students preparing to be teachers of earth science. The required courses are listed below. Semester hours are in parentheses.

Geology 1 Principles of Geology (5) or Geology 2 Physical Geology (3)
Geology 127 Surficial Earth Processes and Products (4)
Geology 128 Internal Earth Processes and Products (4)
Geology 220 Geology of Missouri (3)
Geology 224 Historical Geology (3)
Geology 331 Introduction to Paleontology (5)
Geography 111 Physical Geography I (3) or Geography 112 Physical Geography II (3)

Atmospheric Science 50 Introductory Meteorology (3)
Astronomy 1 Introduction to Astronomy (4)

Chemistry 1 General Chemistry (5)

Mathematics 80 Analytic Geometry and Calculus I (5) or Math 207 Calculus for Social and Natural Sciences I (3)

One of the following:

Biological Science 203 Introduction to Cell Biology (3)

One of the following:

Biological Science 205 Developmental Biology (3)

Mathematics 80 Analytic Geometry and Calculus I (5)

One of the following:

Biological Science 6 Basic Environmental Studies (3)

It is recommended that math, physics and chemistry be taken early in the program before Geology 127 and 128.

*Meets special methods requirement.

GENERAL SCIENCE

The student preparing to teach general science must complete the core of required courses listed below. Semester hours are in parentheses.

Astronomy 1 Introduction to Astronomy (4)
Atmospheric Science 50 Introductory Meteorology (3)

Geology 1 Principles of Geology (5)

Biological Science 21-22 General Biology (10)

Chemistry 11-12 General Chemistry (10)

Physics 11-12 Elementary College Physics (8)

*T224 Teaching of Science in the Secondary School (1)

One of the following:

Mathematics 207 Calculus for Social and Natural Sciences II (3)

Mathematics 80 Analytic Geometry and Calculus I (5)

One of the following:

Biological Science 6 Basic Environmental Studies (3)

Biological Science 205 Developmental Biology (3)

*Meets special methods requirement.

The courses listed above should be considered minimum preparation for secondary school teachers of general science. For a more comprehensive background and a basis for graduate work in science, additional elective courses are recommended.

PHYSICS

A core of required courses in mathematics, physics and related science courses, exclusive of the general education, the preprofessional and the secondary professional education courses, is required of the student preparing to teach physics. The required courses are listed below. Semester hours are in parentheses.

Mathematics 80 Analytic Geometry and Calculus I (5) or

Mathematics 175 Calculus I (5)

Computer Science 104 Computers and Programming I (3)

Physics 11 Elementary College Physics (5)

Physics 12 Elementary College Physics (3)

Chemistry 11 General Chemistry (5)

Chemistry 12 General Chemistry (5)

Physics 201 Introduction to Modern Astrophysics (3)

Physics 205 Environmental Physics (3)

Physics 310 Electricity and Magnetism I (3)

Physics 310 Electricity and Magnetism I (3)

Physics 314 Mechanics (3)

*T224 Teaching of Science in the Secondary School (3)

Physics Elective

Physics 225/226 Fundamentals of Physics for High School Teachers I and II (4)

One of the following:

Physics 304 Principles of Physical Measurements (3)

Physics 305 Applied Electronics Circuits (3)

Physics 306 Advanced Physics Lab I (3)

Physics 307 Advanced Physics Lab II (3)

*Meets special methods requirements.

PHYSICAL EDUCATION

GRADES 7-12

Students preparing to teach physical education in the secondary schools must complete the general education, the preprofessional and the secondary professional education requirements as well as the courses in physical education listed below. The requirements for special endorsements to teach other specialized areas of physical education also are listed. Semester hours are in parentheses.

H20 Introduction to Physical Education (2)
H50 Activity Proficiency (10)

H51 Underclass Practicum in Physical Education (1)
H58 First Aid (2)

H108 Introduction to Tests and Measurements in Physical Education (3)

*H119 Teaching of Physical Education (2) meets two hours of professional education requirements.

H133 Teaching of Gymnastics (2)

H152 Principles of Physical Education (2)

H172 Teaching of Individual Sports (2)

H173 Teaching of Team Sports (2)

H199 Organization and Administration of Physical Education (2)

H299 Student Teaching in Physical Education (8)

H380 Kinesiology (3)

H382 Adapted Physical Education (2-3)

H385 Physiological Experiences (3)

Physiology 201 Elements of Physiology (5)

Anatomy 202 Elementary Anatomy (5)

Elect One:

H102 Coaching of Volleyball (2)

H103 Coaching of Individual and Dual Sports (2)

H104 Coaching of Baseball and Softball (2)

H105 Coaching of Basketball

H106 Coaching of Football (2)

H107 Coaching of Track and Field (2)

Elect two:

H68 Water Safety Instructor (2)

H135 Teaching of Modern Dance (1)

H147 Fundamentals of Outdoor Education (3) or H347 Outdoor Education (2)

H162 Advanced Recreational Dance (2)

H170 Psychological-Sociological Perspectives of Sport (2)

H181 Care and Prevention of Athletic Injuries (2)

H320 Administration of Intercollegiate Athletics (3)

H327 Physical Education in the Elementary School (3)

H366 Intramural Sports (2)

*Meets special methods requirement.

Endorsement in Adapted Physical Education. Students who meet the requirements for teaching physical education at either the elementary or secondary level may obtain a special endorsement to teach adapted physical education by completing the following requirements. Semester hours are in parentheses.

L321 Introduction to Mental Retardation (3)

L334 Introduction to Severely Handicapped and Multi-handicapped (3)

L342 Introduction to Learning Disabilities (3)

L351 Introduction to Education of Behaviorally Disordered Children (3)

SOCIAL STUDIES

GRADES 7-12

Students preparing to become teachers of secondary school social studies need a broad background in history and the social sciences. In addition to general education, preprofessional and secondary professional education requirements, all secondary social studies education majors must complete the courses in the areas listed below. Semester hours are in parentheses.

Social Studies Education: 43 semester hours

Economics (3)
Geography (6)
Political Science (including American Government I) (6)
Sociology or Anthropology (3)
Psychology (3)

American History (12)

World History (including History I) (10)

*T224 Teaching of Social Studies in the Secondary School

*Meets special methods requirement.

SPEECH

GRADES 7-12

The program for teachers of speech requires a minimum of 33 semester hours in speech and dramatic art courses as well as fulfillment of the general education, the preprofessional and the secondary professional education requirements. The required speech and dramatic art courses are listed below. Semester hours are in parentheses.

2 Voice and Articulation (2)
20 Principles of Technical Theatre Production (2)
80 Principles of Script Analysis (2)
75 Introduction to Speech Communication (3)
171 Group Communication (3)
222 Communicative Disorders in the Classroom (3)
233 Oral Interpretation of Literature (3)
243 Acting I (3)
173 Argument and Advocacy (3)
276 Persuasive Speaking (3)
311 American Public Speaking (3)
381 Principles of Rhetoric (3)

*T223 Teaching of Speech in the Secondary School (3)

*Meets special methods requirement.

In addition to the above courses, students are advised to select one of the following options in speech and dramatic art:

Option I 344 Acting (3), 252 Stagecraft (3) or 253 Production Design (4) and 361 Theatrical Directing (4)
Option II 374 Persuasion (3) and 376 Communication in Organizations (3)

Students planning to teach speech are en-
couraged to participate in dramatics and forensic activities at UMC. The direction of public speaking, oral interpretation, and dramatic activities is often required of the high school teacher of speech. University experience in dramatics, oral interpretation and forensics is helpful to teachers of speech in securing placement and in maintaining a standard of excellence in teaching.

**PRACTICAL ARTS AND VOCATIONAL-TECHNICAL EDUCATION PROGRAMS**

The College of Education offers teacher preparation programs in agricultural education, business education, distributive education, home economics education and three areas of industrial education.

**VOCATIONAL AGRICULTURE**

**GRADES 9-12**

The agricultural education program prepares students to become teachers of vocational agriculture. The program is listed under the professional area of emphasis in the College of Agriculture section of this catalog.

The course for Foundations, is prerequisite to all courses in agricultural education and should be taken during the sophomore or junior year. A series of courses in education must be completed during the semesters prior to student teaching. Those courses are: B351, Historical Foundations of American Education; T316, Teaching Reading in the Content Areas; A205, Psychology of Learning and Instruction; and L339, Education of Exceptional Children.

During one of the last two semesters on the Columbia campus (usually the last semester), students in agricultural education enroll for a block of professional courses. This includes 12 semester hours of course work on the campus and six semester hours of student teaching. Under the supervision of an experienced teacher, students spend six weeks in student teaching.

Students at other Missouri colleges planning to transfer to UMC to earn a certificate to teach vocational agriculture should contact the Coordinator of Agricultural Education, 435 General Classroom Building, UMC, Columbia, Mo. 65211, prior to registration.

**BUSINESS EDUCATION GRADES 7-12**

In addition to the general education, the preprofessional and the secondary professional education requirements, students preparing to teach general business subjects at the secondary level must complete the courses specified under the general business core. To teach shorthand and secretarial practice, a student must meet the requirements for the endorsement in stenography. Students not electing to qualify for the endorsement in stenography must complete a comparable number of semester hours in additional business courses approved by the advisor.

Students transferring from junior colleges or other accredited institutions of collegiate rank may have their credits in business transferred to count toward the Bachelor of Science in Education degree. A maximum of four semester hours in typewriting and a maximum of eight semester hours in stenography may be transferred. Students in the business education program normally complete at least one course in typewriting at UMC. Those qualifying for endorsement in stenography are likewise expected to complete a minimum of one stenography course at UMC.

**General Business Core: 37 semester hours**

- Economics 51 General Economics (5)
- Economics 210 Labor Economics (3)
- Management 254 Introduction to Business Law (3)
- Management 255 Legal Aspects of Business Organization and Operation (3)
- Accountancy 36 Accounting I (3)
- Accountancy 37 Intermediate Accounting II (3)
- Accountancy 258 Computer-Based Data Systems (3)
- Computer Science 75 Introduction to Computer Science (3)
- F33 Intermediate Typewriting (3)
- F34 Advanced Typewriting (3)
- F35 Office Machines (3)
- F137 Business Communications (2)
- F142 Filing Systems and Records Management (2)

One of the following:

- Mathematics 4 Business Mathematics (3)
- Mathematics 155 The Mathematics of Finance (3)

**In addition to the secondary professional education requirements, business education majors must complete the following courses:**

- **F100 Foundations (1)**
- **F251 Teaching Basic Business Subjects (2)**
- **F252 Teaching Business Subjects (2)**
- **Endorsement in Stenography: 15 semester hours**
- **F36 Elementary Stenography (3)**
- **F37 Intermediate Stenography (3)**
- **F38 Advanced Stenography (3)**
- **F138 Touch Shorthand (3)**
- **F139 Secretarial Office Procedures and Administration (3)**
  
  *Meets general education requirements.

- **A student with high school or other non-collegiate training in stenography and business education majors must complete: 6 semester hours in the following:**

  - **F100 Foundations (1)**
  - **F251 Teaching Basic Business Subjects (2)**
  - **F252 Teaching Business Subjects (2)**
  - **Endorsement in Stenography: 15 semester hours**
  - **F35 Office Machines (3)**
  - **F137 Business Communications (2)**
  - **F142 Filing Systems and Records Management (2)**

**BACHELOR OF EDUCATIONAL STUDIES DEGREE PROGRAM**

The following program, with varied options, is available for students interested in business and/or secretarial studies but not in a professional program directed toward teacher certification. Students must complete the following general education, educational studies, and two support area requirements.

**General Education: 37 semester hours**

- Humanities (6)
- Communication Skills (9)
- Social Studies (9)
- Natural Sciences (7)
- Mathematics (3)
- Psychology (3)

**Education: 24 semester hours (to be selected from the following):**

- **F100 Foundations (1)**
- **A205 Psychology of Learning and Instruction (2)**
- **A208 The Psychological and Educational Development of the Adolescent (2)**
- **B350, B351, B352 or B353 Educational Foundations (3)**
- **F138 Touch Shorthand (3)**
- **F321 Vocational Guidance (3)**
- **G397 Career Development I: Theory, Materials and Techniques (3)**
- **H65 Elements of Health Education (2)**
- **L339 Education of Exceptional Children (3)**
- **S25 Perspectives in Education (1)**
- **T371 Production of Instructional Media Materials (3)**
- **T372 Selection, Utilization and Evaluation of Media Resources (3)**

**Academic Support Area I: 28 semester hours**

- **Accountancy 36 Accounting I (3)**
- **Management 254 Introduction to Business Law (3)**
- **F33 Intermediate Typewriting (3)**
- **F34 Advanced Typewriting (3)**
- **F35 Office Machines (3)**
- **F37 Intermediate Stenography (3)**
- **F38 Advanced Stenography (3)**
- **F137 Business Communications (2)**
- **F139 Secretarial Office Procedures and Administration (3)**
- **F142 Filing Systems and Records Management (2)**

In addition to Academic Support Area I, each enrollee must complete an Academic Support Area II comprised of a minimum of 15 semester hours of business, secretarial or related courses approved by the advisor. Suggested options for fulfilling the requirements of Academic Support Area II are the following:

**General Business: 15 semester hours (to be selected from the following list):**

- Economics 1 Fundamentals of Economics I (3)
- Accountancy 37 Accounting I (3)
- Mathematics 60 Finite Mathematics (3)
- Finance 123 Principles of Finance (3)
- Management 202 Fundamentals of Management (3)
- Marketing 204 Principles of Marketing (3)
- Management 255 Legal Aspects of Business Organization and Operation (3)
- F175 Directed Occupational Experience (1)*
- Elected general business related course (3)

**Educational Secretary: 15 semester hours (to be selected from the following list):**

- Computer Science 75 Introduction to Computer Science (3)
- Finance 123 Principles of Finance (3)
- Mathematics 155 The Mathematics of Finance (3)
- C240 School Organization and Administration for Secondary Teachers (2) or C241 School Organization and Administration for Elementary Teachers (2)
- T351 Teaching Legal Rights and Responsibilities of Citizenship (3)
- F175 Directed Occupational Experience (1)*
- Elected legal secretary related course (3)
- **Bilingual Secretary: 19 semester hours (to be selected from the following list):**
  
  - Romance Language of choice including: elementary courses in a specific language (or equivalent to) (10), a course in reading (3), a course in composition (3) or a course in conversation (3)
- **T351 Teaching Legal Rights and Responsibilities of Citizenship (3)**
- **F175 Directed Occupational Experience (1)*
- Elected bilingual secretary related course (3)
- **Certified Professional Secretary: 15 semester hours (to be selected from the following list):**
  
  - Economics 1 Fundamentals of Economics I (3)
  - Accountancy 37 Accounting I (3)
  - Computer Science 75 Introduction to Computer Science (3)
  - Mathematics 155 The Mathematics of Finance (3)
  - Management 202 Fundamentals of Management (3)
  - Elected certified professional secretary related course (3)
  - **Data Processing: 15 semester hours (to be selected from the following list):**
  
  - Computer Science 75 Introduction to Computer Science (3)
  - Computer Science 104 Computers and Programming I (3)
  - Computer Science 203 Computers and Programming II (3)
  - Accountancy 258 Computer-Based Data Systems (3)
  - F175 Directed Occupational Experience (1)*
  - Elected data processing related course (3)
  - **Banking and Finance: 15 semester hours (to be selected from the following list):**
  
  - Accountancy 37 Accounting I (3)
  - Computer Science 75 Introduction to Computer Science (3)
  - Finance 123 Principles of Finance (3)
  - Finance 202 Banking and Insurance I (3)
  - Economics 229 Money and Banking (3)
  - F175 Directed Occupational Experience (1)*
  - Elected banking and finance related course (3)
- **Elections: 12-16 semester hours**
  
  *Students who have had appropriate occupational experience are not permitted to enroll.

**DISTRIBUTIVE EDUCATION**

**GRADES 7-12**

Students preparing to teach marketing and distributive education must complete general education, the preprofessional and the secondary professional education requirements, as well as the required courses prescribed below. The program is tailor-made to each student's
program of study. Students may select a major portion of curriculum based upon their particular interest and occupational goals. University experience in DECA and internship opportunities in marketing and distributive education and business are available. Semester hours are in parentheses.

PAVTE: 31 semester hours*
F25 Principles of Salesmanship (3)
F75 Principles of Retailing (3)
F100 Foundations (2)
F125 Merchandising (3)
F175 Directed Occupational Experience (4)*
F195 Practicum in Vocational Education (3)
F304 Coordination of Cooperative Occupational Education (3)
F325 Field Study in Occupational Education (4)*
F397 Curriculum Construction for Marketing and Distributive Education (2)
*F398 Principles of Teaching Distributive Education (3)
Select 12 semester hours from courses such as:
Accountancy 36 Accounting I (3)
Accountancy 37 Accounting II (3)
Journalism 120 Advertising Principles and Practice (3)
Marketing 204 Principles of Marketing (3)
Marketing 206 Distribution Systems (3)
Marketing 312 Marketing Management (3)
Marketing 344 Analysis of the Consumer Market (3)
Management 254 Introduction to Business Law (3)
Finance 218 Risk and Insurance (3)
Finance 316 Credit and Collections (3)
*Students who have two or more years of full-time marketing and/or distributive occupational experience may be exempt from taking F175 and/or F325.
**Meets special method requirement

Bachelor of Educational Studies Degree Program
Students interested in marketing education may select a program through the Bachelor of Educational Studies (BES) degree. This program option is available for students preparing for training positions in sales, marketing or distributive enterprises. Students are expected to complete general education, the professional and secondary professional education requirements, as well as the required courses for certification-seeking majors, including directed occupational experience. The BES degree-seeking student will do an internship with a business and industry enterprise within the training for personal department in lieu of the student teaching requirement.

VOCATIONAL HOME ECONOMICS

GRADES 7-12

Two options are available for students preparing to teach home economics education. Option I is applicable to the majority of students.

Option I. Vocational certification to teach comprehensive home economics programs may be obtained by completing the general education, the professional and the secondary professional education requirements plus the required courses listed below. Semester hours are in parentheses.

Home Economics 150 semester hours

Human Nutrition, Foods and Food Systems Management 34 Nutrition—Current Concepts and Controversies (3)
Human Nutrition, Foods and Food Systems Management 112 Foods and Food Preparation (5)
Human Nutrition, Foods and Food Systems Management 122 Food Buying and Meal Management (3)
Clothing and Textiles 81 Clothing Construction (3)
Clothing and Textiles 182 Textiles (3)
Clothing and Textiles 285 Buying of Textiles and Clothing (2) or Clothing and Textiles 83 Contemporary Fashion Fundamentals (3)
Housing and Interior Design 40 Principles of Environmental Design (3)
Housing and Interior Design 140 Residential Design I (3) or Family Economics and Management 370 Housing the

Family (3)
Family Economics and Management 172 Management in Family Living (2)
Family Economics and Management 172 Home Management Lab (2)
Family Economics and Management 173 Personal and Family Finance (3)
Family Economics and Management 174 Selection of Home Equipment (3)
Child and Family Development 160 Early Childhood (3)
Child and Family Development 163 Interpersonal Relationships, Marriage and the Beginning Family (3)
Child and Family Development 264 Child Development Lab (5-6)
Child and Family Development 363 Family Development (3) or Sociology 214 The Family (3)

Home Economics Education Requirements
In addition to the general professional education requirements, the student must complete the following home economics education courses.

F100 Foundations (1)
F175 Directed Occupational Experience (2)
F235 Organization of Vocational Home Economics (2)
F275 Occupational Home Economics Programs (2)
*F280 Methods of Teaching Vocational Consumer-Home-making (3)
F315 Current Developments in Home Economics Education (3)

*Meets special methods requirement.

Other Requirements
A three-semester-hour course in economics and in sociology, psychology or anthropology is required. The health requirement for preprofessional education is met by completing F199 Introduction to Home Nursing and Family Health.

Option II. Students who intend to teach one specific home economics subject area may earn vocational certification by completing (1) the general, the preprofessional and the secondary professional educational courses and (2) a specific set of home economics subject matter courses. The courses must be selected in consultation with assigned advisers from the home economics area of the College of Education and from the College of Home Economics.

Bachelor of Educational Studies Degree Program
The Bachelor of Educational Studies degree was designed for those students wishing to prepare for an educational role in business and industry or human service professions. The courses are designed around individual career goals and include: (1) the general, the preprofessional and professional education courses and (2) a set of home economics subject matter courses. Students completing the program are not certified to teach.

Program options include:
Food Management Services
Consumer Education Services
Clothing and Apparel Services
Housing and Environmental Services
Human Services

INDUSTRIAL ARTS

KINDERGARTEN GRADE 12

Students preparing to teach industrial arts must complete the general education, the preprofessional and the secondary professional education requirements as well as the courses prescribed in the general industrial arts curriculum. The curriculum, comprised of 40 semester hours, prepares prospective teachers at the elementary and junior high school levels. University students in these programs may select a program through the Bachelor of Industrial Arts Curriculum (40 semester hours)

General Industrial Arts Curriculum: 40 semester hours
Mechanical and Aerospace Engineering 20 Engineering Drawing (3)

P9 Industrial Materials (3)
F10 Fundamentals of Woodwork (3)
F100 Foundations (2)
F112 Introduction to Metals Processing (3)
F154 Energy and Power Technology (3)
F155 Electricity/Electronics (3)
F221 Machine Woodworking (3)
F254 Power Technology (3) or F256 Alternative Energy Technology (3) or F355 Applied Electronics (3)
F341 Metals Processing Technology (3)
F350 Industrial Design (3)
F361 Architectural Drawing and Home Design (3)
F375 Selection and Organization of Subject Matter (3)
F390 Principles of Teaching Industrial Subjects (3)*
**Meets special methods requirement.

Certification to teach industrial arts at the senior high school level is obtained by meeting the requirements for the general industrial arts curriculum and by concentrating in one of the areas of specialization below. The subject or subjects which the holder is qualified to teach are specified on the certificate. The areas of specialization and the amount of additional course work for each are as follows:

Woodworking: 12 semester hours
F100 Foundations of Woodwork (3)
F221 Machine Woodworking (3)
F331 Technology of Woodworking (3)
F2004 Wood Technology (2)
Metallurgy: 11 semester hours
F112 Introduction to Metals Processing (3)
F341 Metals Processing Technology (3)
F420 Engineering 20 Welding (2) or Elective (3)
Drafting: 12 semester hours
Mechanical and Aerospace Eng. 20 Engineering Drawing(3)
F350 Industrial Design (3)
F361 Architectural Drawing and Home Design (3)
F375 Selection and Organization of Subject Matter (3) or Sociology 214 Architectural Design (3) or 344 Architectural Design II (3)
F50 Energy and Power: 15 semester hours
F145 Energy and Power Technology (3)
F155 Electricity/Electronics (3)
F254 Power Technology (3)
F256 Alternate Energy Technology (3)
F355 Applied Electronics (3)

TECHNICAL EDUCATION

GRADES 10-12

To qualify as teachers of technical subjects, students should include technical courses which are appropriate to their areas of specialization. This course work for 41-42 semester hours is required in addition to the general education, the preprofessional and the secondary education professional courses. The following list is an example of a general major in industrial-technical education. Semester hours are in parentheses.

Industrial-Technical Curriculum: 41-42 semester hours
**Management 202 Fundamentals of Management (3)
**Engineering 30 Engineering Graphics (3)
Economics 5 General Economics (5)
F100 Foundations (1)
Mathematics 9 Trigonometry (2)
Mathematics 80 Analytic Geometry and Calculus (5)
Physics 11 Elementary College Physics (5)
*Chemistry 1 Introductory Chemistry (5)
**F100 Fundamentals of Woodwork (3)
**F112 Introduction to Metals Processing (3)
F190 Programs and Issues in PAVTE (1)
**F355 Applied Electronics (3)
F375 Selection and Organization of Subject Matter (3)
F385 Materials Processing (2-3)
**F390 Principles of Industrial Subjects (3)
**Agricultural Engineering 20 Welding (2)
*Meets general education requirements.
**Students who have had appropriate industrial occupational experience or its equivalent through two or more units of credit in a given technical subject at the senior high or junior college level, may have their competency verified and thus exempt from specific University course work administered by the Industrial Education faculty after enrollment on the Columba campus.
***Meets special methods requirement.
TRADES AND INDUSTRIES GRADES 10-12

Industrial education majors who plan to qualify as teachers of trades and industries must complete the general education, the pre-professional and the secondary professional education requirements and should include the courses listed below in their programs. Semester hours are in parentheses.

**Trade and Industries Curriculum: 44-45 semester hours**

Chemistry I Introductory Chemistry (5)*

Economics 210 Labor Economics (3)

Economics 51 General Economics (5)*

Physics 11 Elementary College Physics (5)

Management 202 Fundamentals of Management (3)

F10 Fundamentals of Woodwork (3)**

F365 Occupational Analysis (2)

F375 Selection and Organization of Subject Matter (3)

F385 Manufacturing Processes (2-3)

F390 Principles of Teaching Industrial Subjects (3)

**Meet general education requirements.

**Students who have had appropriate industrial/occupational experience or its equivalent through two or more units of credit in a given technical subject at the senior high or junior college level, may have their competence verified and thus enable a university credit through tests administered by the Industrial Education faculty after enrollment on the Columbia campus.

MISSOURI DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION

Requirements for Extended Certificates

An individual completing a UMC program in teacher education leading to a Missouri certificate to teach may obtain certification to teach in additional areas by meeting the following requirements established by the Missouri Department of Elementary and Secondary Education.

**FACULTY**

Administration

Bob G. Woods, dean and professor, PhD, University of Iowa

W.R. Miller, associate dean and professor, EdD, University of Missouri-Columbia

Charles Koelling, associate dean and professor, EdD, University of Missouri-Columbia

EDUCATIONAL AND COUNSELING PSYCHOLOGY

Warren R. Seymour, professor and chairperson, PhD, University of Missouri-Columbia

Donn Brolin, professor, PhD, University of Wisconsin-Madison

Robert L. Burton, professor, EdD, University of Oklahoma

Robert Callis, professor, PhD, University of Minnesota

Richard Caple, professor, EdD, Columbia University

Robert J. Dollar, professor, EdD, University of Oklahoma

Richard A. English, professor, PhD, University of Arizona

John L. Ferguson, professor, EdD, University of Missouri-Columbia

Norman C. Gysbers, professor, PhD, University of Michigan

Joseph A. Johnston, professor, PhD, University of Michigan

Paul T. King, professor, PhD, Pennsylvania State University

James R. Koller, associate professor, PhD, University of Missouri-Columbia

Joseph T. Kunce, professor, PhD, University of Missouri-Columbia

John F. McGowan, professor, EdD, University of Missouri-Columbia

LeAdelle Phelps, assistant professor, PhD, Brigham Young University

C. Douglas Roberts, assistant professor, PhD, University of Arizona

Charles Schmitz, assistant professor, PhD, University of Missouri-Columbia

Terry D. TenBrink, professor, PhD, Michigan State University

James N. Thompson, assistant professor, EdD, University of Missouri-Columbia

Richard W. Thorton, professor, PhD, University of Missouri-Columbia

Robert R. Trimble, associate professor, PhD, Oklahoma State University

Frank E. Wellman, professor, PhD, University of Nebraska

Virginia R. Wheeler, assistant professor, EdD, University of Missouri-Columbia

Carl G. Willis, assistant professor, EdD, Oklahoma State University

CURRICULUM AND INSTRUCTION

W. Wayne Dumas, professor and chairperson, EdD, University of Arkansas

Betty M. Burchett, associate professor, EdD, University of Indiana

James L. Craigmille, professor, EdD, University of Nebraska

Allen T. Dunathan, professor, EdD, University of Utah

Carl C. Fehrle, professor, PhD, University of Iowa

Thomas L. Good, professor, PhD, University of Indiana

Douglas A. Grouws, professor, PhD, University of Wisconsin-Madison

Veralee B. Hardin, professor, EdD, University of Missouri-Columbia

Helen K. Harrison, assistant professor, MA, Iowa State University

Peter Hasselbring, professor, PhD, Syracuse University

Merlyn Herrick, associate professor, EdD, University of Indiana

Stevie Hoffman, associate professor, PhD, University of Florida

Larry A. Kantner, professor, EdD, Pennsylvania State University

Joe Kurfth, assistant professor, PhD, University of Missouri-Columbia

Stephen Lahr, assistant professor, EdD, University of Nebraska

John F. Lalande, assistant professor, PhD, Pennsylvania State University

John Benjamin Leake, associate professor, EdD, Oklahoma State University

Mary Lenox, associate professor, EdD, University of Massachusetts-Amherst

Leeanne D. Lilja, associate professor, PhD, University of Minnesota

Jacqueline McMahon, assistant professor, PhD, University of Missouri-Columbia

James A. Middleton, professor, DM Ed, Oklahoma State University

Mary Virginia Morgan, assistant professor, M Ed, University of Missouri-Columbia

Ben F. Nelson, professor, PhD, University of Iowa

Nelle C. Pettit, professor, PhD, University of Missouri-Columbia

Robert Reys, professor, EdD, University of Missouri-Columbia

Mary Marjorie Roberts, assistant professor, EdD, University of Missouri-Columbia

Richard D. Robinson, professor, EdD, University of Oregon

Carey T. Southall, professor, EdD, University of Florida

A.W. Sturges, professor, PhD, University of Iowa

John A. Voht, associate professor, PhD, University of Minnesota

Dorothy J. Watson, professor, PhD, Wayne State University

Thomas Weible, associate professor, PhD, University of Iowa

Bob G. Woods, professor, PhD, University of Iowa

EDUCATIONAL ADMINISTRATION

Richard V. Hatley, professor and chairperson, EdD, University of New Mexico

James L. Craigmille, professor, EdD, University of Nebraska

Charles Campbell, assistant professor, EdD, University of Missouri-Columbia

Floyd G. Delon, professor, EdD, University of Arizona

Robert R. Hartung, professor, EdD, University of Missouri-Columbia

Roger D. Hargis, professor, EdD, University of Missouri-Columbia

James E. Holland, EdD, University of Missouri-Columbia

Charles H. Koelling, professor, EdD, University of Missouri-Columbia

Robert E. Reifschneider, professor, EdD, University of Nebraska

Joseph Sarthory, professor, PhD, University of New Mexico

Robert C. Shaw, professor, EdD, University of Missouri-Columbia

Gary L. Smith, assistant professor, EdD, University of Missouri-Columbia

Jerry W. Valentine, associate professor, PhD, University of Nebraska

Carter D. Ward, assistant professor, PhD, University of Missouri-Columbia

HEALTH AND PHYSICAL EDUCATION

Ralph E. Stewart, professor and chairperson, EdD, University of Missouri-Columbia

James L. Ballinger, associate professor, EdD, University of Missouri-Columbia

Jane G. Bennett, assistant professor, MS, RPT, University of Wisconsin-Madison

James D. Brown, associate professor, PhD, University of Illinois

William M. Busch, assistant professor, MS, Southern Illinois University

Joseph Goldfarb, assistant professor, MS, University of Indiana

John M. Gorman, assistant professor, PhD, University of Nebraska

Marilee M. Howell, assistant professor, M Ed, University of Missouri-Columbia

Leon E. Johnson, professor, EdD, University of West Virginia

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A course in civil engineering was taught on the Columbia campus in 1849, giving the University of Missouri the distinction of being the first institution west of the Mississippi River to offer engineering education. Engineers must keep up with rapid technological changes. To do that, their education has to be broad enough to allow for continued development throughout their careers.

At UMC, engineering offers a liberalized, four-year, 126-hour curriculum designed to keep up with rapid technological changes. Electives allow the student to choose from a wide array of interdisciplinary opportunities, such as social science, ecology, premedicience, prelaw, politics, management, environmental sciences, health care systems, agriculture and biological sciences.

Bachelor, master and doctoral degrees are available in agricultural, chemical, civil, electrical, industrial, and mechanical/aerospace engineering at UMC. The bachelor’s degree in computer engineering also is offered. Master’s and doctoral degree programs are offered in nuclear engineering.

See the Graduate Catalog for details on graduate programs in engineering.

The curriculum gives a solid foundation of mathematics and physical sciences followed by the application of these sciences in engineering specialties. The rest of the curriculum encompasses social and humanistic courses, such as English, economics, public speaking, government, literature and history.

The College is organized into the Departments of Agricultural Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Engineering, Mechanical and Aerospace Engineering, Nuclear Engineering, and Naval Science (NAVROTC).

The College also administers undergraduate programs in civil, electrical, computer, and mechanical engineering on the University of Missouri-Kansas City campus. Admission details are available in the UMKC Undergraduate Catalog.

COLLEGE OF ENGINEERING

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ADMISSION

FRESHMAN ADMISSION REQUIREMENTS

Entering freshmen are expected to have completed 15 units of approved high school course work, including 3 units in English, 3 in mathematics and 2 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. Senior mathematics beyond this is recommended.

Deficiencies in high school mathematics must be removed by taking the appropriate precalculus mathematics course during the freshman year. These credits do not count toward the engineering degree.

Less than average ability on the Missouri English Placement Test (MEPT) requires enrollment in English 1, which does not count
toward the engineering degree. A superior score on the MEPT enables the freshman student to enroll in English 65GH Honors Exposition. If a student places out of English 1 but does not qualify for English 65GH, then the student must enroll in English 60 Exposition during the sophomore year.

INTERNATIONAL STUDENTS

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, each international student must take the UMC English Language Test (developed for international students). Students passing the UMC English Language Test will be eligible to take English 1, English 60 and other required English courses, if any.

All international students (even those with transferred English credit) whose test scores indicate that additional English training is needed, will be required to register for an English language support class (developed for international students) in 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 from the University. The English language support class taken must be satisfactorily completed before the student can enroll in English 1 or English 60. Students not satisfactorily completing the English language support class in the first semester of enrollment must re-enroll in the English language support class 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.

TRANSFER STUDENTS

Students wishing to transfer to UMC from another accredited college or university are subject to the regulations established by the UMC Faculty Council concerning transfer of credit. Transfer of credit is described in the Academic Regulations section of this catalog.

The UMC College of Engineering cooperates with 19 colleges in helping preengineering students transfer to UMC with maximum ease and no loss of credits.

A student may take the first two years at the participating school and then transfer to UMC for the junior and senior years in engineering. After the four-year program is completed, the students are awarded a BS in their chosen field of engineering.

Participating schools are:
- Crowder College, Neosho, Mo.
- East Central Junior College, Union, Mo.
- Florissant Valley Community College, MetroSt. Louis
- Forest Park Community College, Metropolitan St. Louis
- Hannibal-LaGrange College, Hannibal, Mo.
- Jefferson College, Hillsboro, Mo.
- Langley Community College, Metropolitan Kansas City
- Maple Woods Community College, Metropolitan Kansas City
- Meramec Community College, Metropolitan St. Louis
- Mineral Area Community College, Flat River, Mo.
- Missouri Western State College, St. Joseph, Mo.
- Missouri Southern State College, Rolla, Mo.
- Northeast Missouri State University, Kirksville, Mo.
- Pittsburg State University, Pittsburg, KS.
- Penn Valley Community College, Metropolitan Kansas City
- Southeast Missouri State University, Cape Girardeau, Mo.
- Southwest Missouri State University, Springfield, Mo.
- State Fair Community College, Sedalia, Mo.
- Three Rivers Community College, Poplar Bluff, Mo.
- Trenton Junior College, Trenton, Mo.
- Washington University, St. Louis, Mo.
- William Woods College, Fulton, Mo.
- Wyandotte County College, Kansas City, KS.

Transfer students are awarded a BS in their chosen field of engineering.

For the junior and senior years in engineering. After the four-year program is completed, the student will not be permitted to re-enroll in another accredited college or university are subject to the regulations established by the participating school and then transfer to UMC and no loss of credits.

One of the highlights for engineering students, dating back to 1903, is the annual celebration of St. Pat's week. Rumor has it St. Patrick was an engineer, so, in celebration of his birthday, engineering students stage a series of campus stunts, dances, banquets, lab exhibits (open to the public), a queen contest and general hoopla. Many alumni return to join in the festivities and to hold their annual meeting in Columbia at that time.

Some of the professional and professional organizations available to engineering students are:
- Alpha Epsilon, honor society for upper-class and graduate students in agricultural engineering
- Alpha Pi Mu, national industrial engineering honor society
- American Society of Agricultural Engineers, student chapter
- American Institute of Chemical Engineers, student chapter
- American Society of Civil Engineers, student chapters
- American Institute of Industrial Engineers, student chapters
- American Society of Mechanical Engineers, student chapter
- Associated General Contractors, student chapter
- American Society of Metals, student chapter
- American Nuclear Society, student chapter
- Chi Epsilon, national civil engineering honor fraternity
- Engineering Council (ECE), for all students and faculty of the College of Engineering, Sedalia, Mo.
- Eta Kappa Nu, national electrical engineering honor society
- Institute of Electrical and Electronics Engineers, student branch
- IEEE Computer Society, student branch

Midshipmen's Club, Navy ROTC
Missouri Shamrock, a magazine appearing four times during the academic year and containing articles on technical subjects and other matters of interest to the College, staffed by engineering students.

Pi Tau Sigma, national mechanical engineering honor fraternity

Seaboard and Blade, national ROTC honor fraternity

Society of Automotive Engineers, student branch

Society of Black Engineers

Society of Women Engineers, open to any person enrolled in the College of Engineering.

St. Pat's Board

Tau Beta Pi, national engineering honor society

SCHOLARSHIPS IN THE COLLEGE OF ENGINEERING

To be considered for any of the scholarships administered by the Engineering Scholarship Committee, students should fill out a form available in the dean's office. Deadline for application is March 1. Forms should be returned to the student's major department or to the department's representative on the Engineering Scholarship Committee. Students who have not decided on a major should return the form to the chairman of the scholarship committee. The scholarship committee matches scholarship criteria with the applicant's qualifications.

Students who have declared an engineering major are also eligible for scholarship awards through their department and should inquire at the department office.

During the 1982-83 academic year, 246 engineering scholarships totaling $141,185 were awarded. Specific information on scholarships is available in the dean's office.

Alcoa Foundation Engineering Scholarships: Scholarship awarded to the highest GPA students in electrical and mechanical engineering.

American Institute of Chemical Engineers Scholarship: Presented annually to the junior in chemical engineering who has the highest scholarship record for the freshman and sophomore years and shows greatest promise of professional success. Must be a member of the student chapter of AIChE.

AIEE Greater K-C. Chapter Stephen Gillespie Memorial Scholarship: For outstanding industrial engineering freshman.

American Institute of Industrial Engineers Greater St. Louis Chapter Scholarship: For an outstanding industrial engineering junior or senior.

American Society of Quality Control Scholarship: Given to a full-time sophomore, junior or senior (GPA of at least 2.8) Must be a U.S. citizen. Student must write brief statement why he/she is interested in quality control. Renewable on satisfactory academic progress.

AFCO Scholarships: Awards to outstanding industrial engineering freshmen.

Associated General Contractors of Missouri Scholarship: Award in construction or construction management; located in the Columbus-Kansas City area; with interest in working summers for sponsor. Renewable on satisfactory progress.

Bass-Haughnessy Inc. Scholarship: Scholarship awarded to deserving student in civil engineering with emphasis on construction.

Frederick G. Baender Scholarship: Awarded annually to mechanical engineering undergraduate.

R.P. Beasley Memorial Scholarship: Given to one or more agricultural engineering sophomores.

Black & Veatch Scholarships: To engineering students who have completed at least three semesters; GPA at least 3.0; have interest in a consulting engineering career; work summers for Black & Veatch.

Boeing Wichita Company Scholarship: For undergraduates in mechanical, electrical, aeronautical, or civil engineering.

Milo M. Bolstad Scholarship: To a mechanical engineering undergraduate.

Boeker/Moulder Freshman Engineering Scholarships: Two freshman scholarships. Applicants must be in the top 25

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percent of high school class and U.S. citizen. Preference is given to former employees of R.W. Booker and their children, to residents of Camden County and to children of CEC of Missouri members.

Joe B. Butler Memorial Award, Missouri Society of Professional Engineers: To an engineering junior.

Chester-Ponds Industrial Engineering Scholarship: Awarded annually to a sophomore, junior or senior in electrical engineering with a career interest in industry. Selection is by power systems group, department of electrical engineering.

Chevron Scholarship in Electrical Engineering: To an outstanding junior or senior in electrical engineering with a career interest in industry. Selection is by power systems group, department of electrical engineering.

Chevron Scholarship in Mechnical Engineering: To an outstanding mechanical engineering undergraduate.

Paul N. Doll Scholarship: To one or more agricultural engineering sophomores.

Dow Chemical USA Engineering Scholarship: Awarded to outstanding engineering students interested in energy systems and their technological and socioeconomic problems. Separate application required.

Engineering Faculty Wives Award: To a junior or senior on basis of financial need.

Engineers' Wives Auxiliary of The St. Louis Chapter of MSE: Award to a junior or senior of good scholastic standing; must have need; preference given to residents of Missouri and St. Louis County. Separate application required.

Epple Scholarship in Civil Engineering: For a senior civil engineering student with financial need and professional promise.

Engineering Freshman Scholarship: For a highly qualified entering freshman; must be in top 10 percent of high school graduating class and score in the 90th percentile on national tests.

Stanley and Jeanette Fiedsel Scholarship: Preference given to Missouri residents who are graduates of Missouri high schools, from rural areas and interested in civil engineering.

General Motors Scholarship: Applicants selected during their sophomore year for two final years of tuition and fees support, plus additional allotment. Recipients must work for General Motors during their last two undergraduate semesters.

H. William Gieschen Memorial Scholarship: Selection based on scholarship, financial need, professional promise. Must be U.S. citizen.

The Greater Kansas City Chapter, National Association of Women in Construction Scholarship: Awarded alternate years to a junior or senior interested in a construction industry career.

Roy P. Hart Scholarship: To a male student in engineering or architecture whose student must attend church regularly, be a student leader, distinguished in a major team sport, have completed four years of eligibility in athletic competition at UMC, have above-average scholastic record, and need financial assistance to complete BS Engineering degree or to pursue graduate study.

George and Eliza Hechler Memorial Scholarship: For a senior student from Chillicothe, Missouri, enrolled in engineering or home economics.

Glen J. and Elma P. Hopkins Scholarship in Civil Engineering: Preference to applicants from Kansas City or Plattsburg, Mo., whose parents are employed by the city of Kansas City.

Institute of Nuclear Power Operations Scholarship: Awarded on academic excellence and demonstrated interest in, and potential for, a career in nuclear utility industry. Must be U.S. citizen. Separate application required.

M.M. Jones Scholarship: To one or more freshmen in agricultural engineering.

The Lloyd and Margaret Ketcham Scholarship: Based on scholarship, financial need and indication of professional promise. Must be U.S. citizen.

James E. Kunkler/Armco Scholarship: For entering freshman in the top 10 percent of high school graduating class and scoring in the 90th percentile on national tests.

C.W. La Pierre Scholarship: Award based on scholarship, professional promise and financial need.

John and Mary Lockwood Scholarship: For outstanding upperclass students interested in mechanical engineering.

Forrest S. Lyman Scholarship: Based on scholarship, financial need and professional promise.

Gladyss C. and C. Myron Lytle Scholarship: To an engineering student who is a Missouri resident.

Edward and Dorothy Maran Scholarship: To engineering students from St. Charles County and graduate of any high school in that county. Must be U.S. citizen.

Dean E.J. McCaustland Scholarship for Working Students: For a working engineering student of good moral character and of good academic standing.

Christian and Clara Kincaid Meier Scholarship in Electrical Engineering: To an electrical engineering student who ranks in the upper 10 percent academically and has financial need. Must be a U.S. citizen.

Charles J. Miller Scholarship: Awarded to entering freshman.

3M Company Scholarship: To an engineering student having at least two regular semesters remaining before graduation.

Minority Scholarship in Engineering Program for Minority Students. Amount is based on scholastic ability and financial need.

Missouri Engineers of Chicago Scholarship: Awards are based on academic excellence and participation in student activities.

Monsanto Company Scholarship: To an outstanding freshman chemical engineering student recommended by department.

James S. Rollins Scholarship: To a junior in engineering in recognition of academic merit and character.

I.O. Royse Scholarship in Engineering: Two or more scholarships based on financial need. Recipients encouraged to contribute to the fund on completion of their academic goals.

Chaucey M. Saville Freshman Engineering Scholarship: Awarded to entering qualified freshmen in the top 10 percent of their graduating class and scoring in the 90th percentile on national tests.

Katherine Y. Saville Memorial Scholarship: For undergraduate members of the College of Engineering; preference given to female students.

Lionel O. Schott Memorial Scholarship: To qualified engineering students.

Ralph L. Scora Scholarship: To an undergraduate in mechanical engineering.

John R. Shelly Scholarship: Two awards to qualified engineering students.

Dwayne D. Smith Memorial Scholarship: To entering freshmen in the top 10 percent of their graduating class and scoring in the 90th percentile on national tests.

Society of Women Engineers Scholarship: To qualified and deserving women engineering students. Scholarship amounts vary. Eligibility: furnish official transcript; GPA 3.5 or better; complete separate application on, or before, Feb. 1 preceding the September in which recipient will use award. St. Louis Division of ASHRAE Scholarship: Awarded to an outstanding student in the field of environmental control; separate application required.

Robert Lee Tatsumi Scholarships: For qualified engineering undergraduates.

Transfers Scholarship: For transfer students from two-year community colleges. Applicants should have completed a two-year preengineering program with a 3.2 or better GPA.

Mendel P. and Regina Pews Weinbach Memorial Prize in Electrical Engineering: Award to highest ranking member of the graduating class in electrical engineering.

F.H. Wells Scholarship in Engineering: One or more scholarships to freshmen or sophomores with high GPAs and professional promise.

Rex M. Whittan Sr. Memorial Scholarship: To qualified engineering students; preference given to students from Jackson County, Mo.

Special Educational Programs

ENGINEERING FOR MINORITY STUDENTS

The program is designed to ensure that minority students have every opportunity to become professional engineers. Assistance is provided in academic advising, personal counseling, financial support and engineering-related work experience. An extensive scholarship program also is available to minority students.

CREDIT BY EXAMINATION

Advanced placement tests allow freshmen to obtain advanced standing quickly.

At UMC, some freshmen engineering students may earn up to 18 hours toward degrees through CLEP General Subject Matter Examination. The hours apply toward a degree in engineering as follows: English (3), social science (6), biological sciences (3) and humanities (6).

Students also may earn credit through exams given by various departments on the Columbia campus, such as chemistry, mathematics, political science, engineering graphics and foreign languages, and through A.P. (advanced placement) exams taken while still in high school. In addition, college credits earned during high school may apply toward an engineering degree.

Some of the advantages of earning advanced standing are:

1. Students can graduate with a BS degree in three years instead of four and begin a professional career a year sooner—a big gain in terms of today's high engineering salaries.

2. Students can enter graduate school a year sooner than the normal academic schedule provides—or use the extra time to broaden the undergraduate program.

3. Students have the opportunity to participate in more sophisticated interdisciplinary programs, cutting across several fields within or external to traditional engineering programs. Students interested in the accelerated program should contact their department chair.

FIVE-YEAR LIBERAL ARTS AND ENGINEERING

Some students prefer a thorough education in both liberal arts and engineering. At UMC, this can be done through a five-year program leading simultaneously to a BS degree in engineering and an AB degree from the College of Arts and Science. For more information, contact the dean's office in both colleges.

THREE-TWO-YEAR LIBERAL ARTS AND ENGINEERING

This is offered in cooperation with several Missouri colleges and universities. Participants in this program will receive an AB degree from the first college they attend and a BS in engineering from UMC. After three years of liberal arts study at one of the participating schools, at least two more years of work in engineering are required on the Columbia campus.

Cooperating schools are:

Central Methodist College, Fayette
Central Missouri State University, Warrensburg
Culver-Stockton College, Canton
Drury College, Springfield
Missouri Valley College, Marshall
Northeast Missouri State University, Kirksville
Northwest Missouri State University, Maryville
Stephens College, Columbia
Tarkio College, Tarkio
William Jewell College, Liberty

ENGINEERING COOPERATIVE EDUCATION

Participating companies establish eligibility for this cooperative work-study program. Most require at least one year of appropriate and successful college studies. A reasonably good grade record is required, and student activities and personal development are also considered. Financial need is not a factor. Most of the cooperative programs are arranged so that academic studies and company employment and training can be finished in five calendar years or less. For more information contact the engineering dean.
PROFESSIONAL OPPORTUNITIES

The average starting salary for May 1982 BS graduates was $25,000. A recent national survey ranked average starting salary highest among computer scientists, chemists, engineers, mathematicians, physicists and business people.

Engineers are in great demand. Graduates are succeeding better in job placement than those in any other four-year BS degree program. Engineering is a flexible profession. Future engineers have a wide range of career choices from highly abstract research to technical design. Engineers apply scientific knowledge to the use of natural resources to benefit people.

PROFESSIONAL ENGINEERING REGISTRATION

The revised statutes of Missouri (Section 327.221) require that all applicants for registration as a professional engineer in the state of Missouri be a graduate of, and hold a degree in, engineering in a curriculum accredited by the Accreditation Board for Engineering and Technology. The UMC undergraduate programs in agricultural, chemical, civil, electrical, industrial and mechanical engineering at Columbia are so accredited, as are the civil, electrical and mechanical engineering programs in Kansas City.

UNDERGRADUATE PROGRAM OF STUDY

At UMC, engineering offers a liberalized, four-year, 126-hour curriculum with electives to allow the student a choice from a wide array of interdisciplinary opportunities. With help from an adviser, students are free to plan much of their own study program.

Students must earn a grade point average of C (2.0 on 4.0 scale) in all courses required for graduation.

Students may receive up to nine hours of advanced ROTC credit toward graduation, provided all departmental degree requirements are met, all ROTC requirements are met and students are commissioned in a branch of the Armed Forces.

LOWER DIVISION PROGRAM

Freshman/Sophomore Years—62 credit hours required. There is one basic lower division program which includes a thorough preparation in mathematics and sciences and engineering electives. The similarity in the departmental lower division programs permits a student, in consultation with an adviser, to postpone declaring a major until the end of the sophomore year. Undecided students, who ultimately choose chemical engineering, should be cautioned that electives may be limited. Departmental advisers should be consulted for detailed information. If a student takes electives associated with a particular major, the similarity of engineering programs will permit a student to transfer to another major at the end of the sophomore year with no loss in credit.

Physics (9 hours)
Physics 80, 123, 124 University Physics I, II, III (3 hrs. each)
Chemistry (5 hours)
Either Chem 5 Chemistry for Engineers (5) or Chem 11 General Chemistry (5). Students who have a preference for chemical engineering should take Chem 11-12 General Chemistry (5 hrs. each), during the freshman year and Chem 210-212 Organic Chemistry during the sophomore year. Chemical engineers should take Chem Engr 225 Chemical Process Calculations in their sophomore year.

Mathematics (16 hours)
Mathematics 80 Analytic Geometry and Calculus I (5), Mathematics 175 Calculus II (5), Mathematics 201 Calculus III (3), and Mathematics 304 Differential Equations (3). A C or better is required in both Mathematics 80 and Mathematics 175 to continue the math sequence.

Communication Skills (8 hours)
Engineering 5 Digital Computer Computation (2), English 60 Exposition (3), English 161 or Speech 75 depending on departmental requirements.

Engineering and Science (12 hours)
Students undecided about their major should select courses from the following in consultation with an adviser:

Biological Science 1 General Biology Lecture (3)
Chemistry 12 Gen. Chemistry (5)
Chemistry 210-212 Organic Chemistry (3 hrs. each)
Geology 2 Physical Geology (3)
Engineering 85 Statics and Elementary Strength of Materials (3)
Engineering 99 Engineering Thermodynamics I (3)
Engineering 110 Software Engineering (3)
Engineering 124 Circuits, Theory I (3)
Engineering 126 Introduction to Computer Systems (3)
Engineering 132 Probabilistic Models (3)
Engineering 195 Intermediate Strength of Materials (3)
Those students definitely committed to a major should select the Engineering/Science electives from the following courses. These courses are required in the respective curriculum.

Agricultural Engineering: Biological Science 7, Engineering 30, 85, 99.
Chemical Engineering: Chemical Engineering 12, 210, 212, Chemical Engineering 225, Engineering 85, 124
Civil Engineering: Engineering 85, 99, 124, 195
Computer Engineering: Engineering 85, 99, 110, 124, 126
Electrical Engineering: Engineering 85, 99, 124, 126
Industrial Engineering: Engineering 85, 99, 124, 132
Mechanical Engineering: Engineering 85, 99, 124, 195

HUMANITIES AND SOCIAL SCIENCES (12 hours)
See Appendix B

UPPER DIVISION PROGRAM

Junior/Senior Years—64 credit hours required. The junior year is essentially devoted to the student’s major field. Although the program is stated in terms of specific courses, a student may, in consultation with an adviser, rearrange the program to suit particular needs and interests.

See Appendix A for specific course listings by curriculum.

The senior year has been made flexible to accommodate a student’s interest. In consultation with an adviser, the student has great freedom to plan an individual program.

Because the chemical engineering curriculum contains 17 hours of chemistry beyond that required of the other fields, senior-year flexibility is less than indicated below. Detailed chemical engineering curriculum outlines are available from the Department of Chemical Engineering upon request.

Students in other engineering departments also should check with advisers for any additional senior year course requirements.

Senior Year Curriculum
28-32 credit hours required.

Engineering Design and Synthesis (3-9 hours)
Students should consult an adviser for departmental requirements.

Humanities/Social Sciences (4-6 hours)
See Appendix B

Engineering (12-21 hours)

Since there is a wide variety of possibilities, depending on a student’s particular interest and career objectives, a student should, in consulta-
tion with an adviser, plan a total program as early as possible. Program possibilities could include prelaw studies, premedical studies, computer engineering, environmental engineering, ecology, health care systems engineering, energy engineering, biological sciences, nuclear engineering, agriculture, management...the possibilities are unlimited. See the departmental sections for further information.

APPENDIX A

The following are upper division course requirements by curriculum.

Agricultural Engineering (64 hours)

Civil Engineering 113 Engineering Measurements (3)
Civil Engineering 124 Circuit Theory I (3)
Civil Engineering 185 Intro to Dynamics (3)
195 Professional Practice in Ag Engineering (1)
Engineering 195 Intermediate Strength of Materials (3)
203 Environmental Control of Farm Buildings (3)
221 Soil Conservation Engineering (3)
241 Analysis of Farm Machines (3)
Civil Engineering 251 Fluid Mechanics (3)
Mechanical Aerospace Engineering 252 Instrumentation and Measurement Lab I (3)
Agronomy 100 Soil Systems (3)
English 161 Technical Writing (3)
English 60 Exposition (3) or Speech 75 Intro to Speech Communication (3)
Engineering Design Electives (9)
Engineering Science Electives (6)
Electives (12)

Chemical Engineering (47 hours)

170 Chemical Process Measurements (3)
234, 235 Principles of Chem. Engrs. I & II (6)
234 Chemical Engineering Laboratory I (2)
261, 262 Chemical Engineering I & II (6)
304 Digital Computer Application in Engineering (3)
363 Chemical Reaction Engineering and Technology (3)
370 Modern Methods of Chemical Process Control (3)
385 Chemical Engineering Design I (3)
Mechanical and Aerospace Engineering 224 Engineering Materials I (3)
Chemistry 231, 233 Physical Chemistry (6)
English 161 Technical Writing (3) or Speech 75 Intro to Speech Communication (3)
Engineering Science Electives (6)

Civil Engineering (40 hours)

113 Engineering Measurements (3)
185 Introduction to Dynamics (3)
212 Transportation Systems Engineering (3)
221 Structural Analysis I (3)
222 Design of Reinforced Concrete Members (3) or 223 Design of Steel Members (3)
232 Civil Engineering Materials (3)
241 Fluid Mechanics Laboratory I (1)
251 Fluid Mechanics (3)
340 Applied Fluid Mechanics (2)
341 Hydrology (3)
355 Soil Mechanics (3)
374 Civil Engineering Systems Design (3)
391 Intro. to Water Quality (3)
English 161 Technical Writing (3)

Computer Engineering (39 hours)
205 Circuit Theory II (3)
216 Linear Systems & Circuits (3)
226 Logic Design (4)
227 Assembly Language Programming (3)
235 Physical Electronics (3)
255 Experimental Electrical Engineering I (3)
286 Electronic Circuits & Signals I (3)
306 Operating Systems & Software Design (4)
326 Microcomputer Architecture & Interfacing (4)
328 Design of Digital Subsystems (3)
English 161 Technical Writing (3)
Math 226 Discrete Structures (3)

Electrical Engineering (34 hours)
205 Circuit Theory II (3)
206 Feedback Theory (3)
216 Linear Systems & Circuits (3)
225 Electromagnetic Fields (3)
226 Logic Design (4)
227 Electronic Circuits (3)
255, 256 Experimental Electrical Engineering I, II (6)
266 Power Engineering I (3)
286 Electronic Circuits & Signals I (3)
English 161 Technical Writing (3)
Industrial Engineering (63 hours)

Engeneering 195 Intermediate Strength of Materials or MAECE 185 Introduction to Dynamics (3)
339 Evaluation of Eng Design Data (3)
349 Engineering Quality Control (3)
351 Plant layout and materials handling (3)
358 Economic Studies in Engineering (3)
360 Measurement of Human Work (3)
361 Intro to Human Factors Engrs. (3)
381 Industrial Systems Design (4)
385 Manufacturing Systems Design (3)
387 Linear Programming (3)
388 Industrial Systems Simulation (3)
397 Operations Research Models (3)
398 Scheduling Systems (3)

Mechanical Engineering (64 hours)
185 Introduction to Dynamics (3)
199 Engineering Thermodynamics II (3)
224 Engineering Materials I (3)
234 Engineering Materials II (3)
251 Fluid Mechanics (3)
252, 262 Instrumentation & Measurements Laboratory I & II (6)
256 Design of Machine Elements (4)
285 Systems Dynamics (3)
296 Design Synthesis (3)
299 Heat Transfer (3)
Electrical Engineering 205 Circuit Theory II (3) or Engineer­ ing 126 Introduction to Computer Systems (3)
English 161 Technical Writing (3) or Speech 75 Intro to Speech Communication (3)
Engineering Design Elective (3)
Engineering/Math/Science Electives (9)
Free Electives (8)

Humanities/Social Studies Electives (4)

APPENDIX B

To satisfy the humanistic-social sciences requirement, each student must take a minimum of three courses, including at least one upper-class course (numbered 100 or higher), from one of the subgroups of the major areas listed. Students should consult their adviser about course selection.

The humanistic-social sciences requirement cannot be met by taking three courses in psychology.

In addition to the other humanistic-social sciences courses, a student must take an economics course, preferably Economics 41 Principles of Economics (3 hrs.).

The Missouri Constitution requires that graduates of Missouri state universities and colleges must have completed a course in American history or government, including study of Missouri government. Courses satisfying this requirement are listed in the course description section of this catalog.

Humanistic Studies

Fine Arts: All art history and appreciation; all music appreciation, history and literature; Speech 6. Applied art or music courses do not fulfill this requirement.

Foreign Civilizations: All courses in classical archaeology; French 110, German 110, Spanish 110, Italian 110, Asian Civilizations 181; Roman culture; Greek culture.

Humanities: Classical Studies 225 and 226; Humanities GH101, GH102, GH103 and GH104; Speech 110.

Literature: All courses in literature; all foreign language literature courses beyond basic skills series.

Mythology: All courses in classical civilization and literature in translation; Classical Studies 60, 115, 116, 225 and 226.

Philosophy: All courses

Religion: All courses except languages.

Social Sciences

Anthropology: All courses except 142, 143, 151, 185, 342, 367, 376 and 393 (research and methods courses).

Economics and Agricultural Economics: All courses except 317 and 372 (research and methods courses).

Geography: All courses except 303, 337 and 366 in cartography, meteorology and climatology.

History: All courses.

Psychology: Only Psychology 1 General Psychology (3 hrs.).

Sociology and Rural Sociology: All courses except 180 and 375 (research and methods courses).

AGRICULTURAL ENGINEERING

100 Agricultural Engineering Building, (314) 882-2350

The Department of Agricultural Engineering offers degrees both in the College of Agriculture and the College of Engineering. The student should enroll in the College of Engineering for the bachelor of science degree in agricultural engineering. Dual enrollment in both engineering and agriculture also is possible.

Agricultural engineering graduates are employed by industry for design, development, sales and management. State and federal agencies employ agricultural engineers to deal with environmental problems such as erosion control and water pollution. With an advanced degree, a graduate may be employed by a college or university in a teaching, research or extension position, or as a researcher for the federal government.

Agricultural engineering students take a lower division program in common with all other engineering students. Agricultural engineering courses, other required courses and electives are taken in the junior and senior years. A wide variety of course offerings are available on the Columbia campus and, through electives, the student can obtain a broad engineering education or specialize in a specific subject. Some of the specialties available through agricultural engineering include:

Agricultural structures
Agricultural wastes and pollution control
Crop storage and processing
Farmstead engineering

Safety engineering
Irrigation and drainage systems

Livestock environmental engineering
Machinery design and development

Pest control engineering

Soil conservation

Utilization and quality control of water resources

Specific course sequences for specialty programs are made in consultation with an adviser. The above list offers suggested areas, but it is not exhaustive.

CHEMICAL ENGINEERING

1630 Engineering Building, (314) 882-3563

The Department of Chemical Engineering offers undergraduate and graduate degrees in chemical engineering.

UIC chemical engineering graduates plan, design, research and establish equipment specifications for all aspects of industrial plants.
Chemical engineering students take a curriculum the first two years which is common to all engineering students. Chemistry 11 and 12 should be scheduled during the freshman year, Chemistry 210 and 212 during the sophomore year, and Engineering 85, 124 and MAE 224 in the junior year. During the junior year, the student takes chemical engineering subjects and in the senior year, specific design-oriented subjects.

With the approval of the department chairman, the student may design a program of study emphasizing business administration, prelaw or one of the following sciences: environmental engineering, engineering management, food processing, biology, geology, applied mathematics, statistics, nuclear engineering, biochemical engineering or solid-state engineering.

When the chemical engineering curriculum is completed, the student is adequately prepared for advanced study in business, law, medicine, science or chemical engineering.

Graduates work closely with industrial, legal and political leaders, as well as governmental agencies, to reduce the hazards posed by air and water pollution. Graduates are active in the fields of chemicals, synthetic textile fibers, plastics, aerospace, air and water pollution control, chemical and nuclear energy conversion, nuclear radiation, food and other bioengineering chemical productions, ceramics, petrochemicals and petroleum refining, material processing, and biochemical engineering physiology.

Graduates work closely with industrial, legal and political leaders, as well as governmental agencies, to reduce the hazards posed by air and water pollution. Graduates are active in the fields of chemicals, synthetic textile fibers, plastics, aerospace, air and water pollution control, chemical and nuclear energy conversion, nuclear radiation, food and other bioengineering chemical productions, ceramics, petrochemicals and petroleum refining, material processing, and biochemical engineering physiology.

Chemical engineering students take a curriculum the first two years which is common to all engineering students. Chemistry 11 and 12 should be scheduled during the freshman year, Chemistry 210 and 212 during the sophomore year, and Engineering 85, 124 and MAE 224 in the junior year. During the junior year, the student takes chemical engineering subjects and in the senior year, specific design-oriented subjects.

With the approval of the department chairman, the student may design a program of study emphasizing business administration, prelaw or one of the following sciences: environmental engineering, engineering management, food processing, biology, geology, applied mathematics, statistics, nuclear engineering, biochemical engineering or solid-state engineering.

When the chemical engineering curriculum is completed, the student is adequately prepared for advanced study in business, law, medicine, science or chemical engineering.

Undergraduates may arrange with individual faculty members for independent study work.

CIVIL ENGINEERING
107 Engineering Building, (314) 882-6269

Virtually every structure around—schools, housing projects, shopping centers, streets, sewers, tunnels, bridges, roads, airports, railways, dams, water systems, sewage treatment plants, just about every structure a city needs—was designed and built by a civil engineer. Everything from a sanitary landfill to one of the following sciences: environmental engineering, engineering management, food processing, biology, geology, applied mathematics, statistics, nuclear engineering, biochemical engineering or solid-state engineering.

Civil engineers work both indoors and out. Many work for consulting engineering firms where they conceive and draw the plans for construction. Others work for contractors as surveyors or construction supervisors. Still others work for municipalities and state agencies. In recent years, many civil engineers have been working to control water and air pollution as well as to solve solid waste disposal problems. This branch of civil engineering is known as environmental engineering. Civil engineers often direct the public work engineering programs of major municipalities. Virtually every major industry in the United States employs civil engineers.

At UMC, a civil engineering student can specialize in six basic areas:

2. Sanitary and environmental engineering (water supply, waste water treatment, solid waste disposal, pollution control, hazardous waste management).
3. Transportation and urban systems engineering (highways, railways, mass transit systems, land use planning, surveying and photogrammetry).
4. Construction planning and management (building equipment, methods and costs).
5. Hydraulic engineering and water resources planning and management (large scale water projects, systems and optimization techniques).
6. Municipal and public works engineering (the full range of municipal engineering services).

The Department of Civil Engineering is well equipped for classroom and laboratory instruction and research. In addition to advanced surveying equipment, extensive laboratories are available for concrete and steel materials testing, soils testing, hydraulics and fluid mechanics, and chemical and microbiological analysis related to water supply and wastewater treatment. Civil engineering is one of the most highly laboratory-oriented disciplines at the University. Excellent shop facilities and technicians are available to fabricate and maintain the laboratory and research equipment.

A civil engineering undergraduate student will share a program common to engineering students in other departments in the first two years of study. Statics (Engineering 85) and Strength of Materials (Engineering 195) will comprise 6 of the 12 hours of the engineering and science requirements. Thermodynamics (Engineering 99) and Circuits (Engineering 124) may be deferred in favor of required courses from the junior year. This enables the student to pursue specialty areas in greater depth in the last two years.

During the junior year, design-oriented coursework is taken in the specialty areas in civil engineering. In the senior year, the student may either elect a broad program of civil engineering or explore a specialty area in depth.

In the final semester, the student is required to take part in a comprehensive three-credit Civil Engineering Systems Design course (CE 374). This course simulates a consulting engineering office working on a major civil engineering design project. The project actually is derived from the current work in a regional consulting engineering office. This experience gives the opportunity to integrate all aspects of civil engineering design practice with the increasingly important management and organizational responsibilities of the civil engineer.

The Department of Civil Engineering also cooperates with the Department of Geology to administer a program which leads to a dual degree in civil engineering-geology.

COMPUTER ENGINEERING
213 Electrical Engineering Building, (314) 882-2648

This relatively new engineering discipline, growing from roots in electrical engineering and applied mathematics, offers exciting and challenging career opportunities. The explosive developments in such areas as microcomputers, robotics, and large scale integrated circuits promise to increase the demand for computer engineers.

The Bachelor of Science degree in computer engineering, offered in the Department of Electrical Engineering, provides a strong yet balanced emphasis in both hardware (digital electronics and computer architecture) and software (systems and application programming). Research programs in computer graphics, image processing, speech synthesis and recognition, and computer simulation significantly enhance the degree program. The curriculum receives additional support from the electrical engineering and the computer science curricula.

The computer engineering undergraduate student will take a two-year, lower-division program common to all branches of engineering as described earlier in this brochure.

In the two-year, upper-division program, one year of specialized course and laboratory work is directed to the core subjects of software design, systems programming, computer architecture, digital electronics and digital system design. During the final year, each individual pursues career objectives by selecting, with an adviser's help, a series of computer engineering electives.

Many students combine their BS degree in computer engineering with a BS degree in electrical engineering in a special 138-hour program. Others use their electives to pursue interdisciplinary studies in business, law, medicine, bioengineering, information science or other areas.

ELECTRICAL ENGINEERING
213 Electrical Engineering Building, (314) 882-2648

The Department of Electrical Engineering offers undergraduate degrees in electrical engineering and computer engineering.

UMC electrical engineering graduates are at the forefront of the technological growth leading to the dramatic increase in global communications; the accelerated use of electric power; the dominating influence of the computer on modern society; the increased use of electronic components and equipment for improved health care, transportation, recreation, agricultural production, marketing, manufacturing; and countless other activities. Two factors in particular, the continuing global energy problem and the rapid advances in microelectronics, assure a constant demand for electrical engineering graduates now and in the future.

An electrical engineering undergraduate will take a two-year lower-division program common to all branches of UMC engineering.

In the two-year upper-division program, one year of specialized work in electrical engineering is followed by a year in which, with the assistance of an adviser, an electrical engineering program can be planned around individual career objectives. The student will take three senior-level electrical engineering courses, each with an accompanying one-hour laboratory. These three courses, each in a different topic area, can be selected from a wide range of topical courses.

If a student is interested in interdisciplinary studies in such topics as medicine, law, business, computer systems, bioengineering or electronics, a variety of courses offered by the department and the campus can be chosen. Several specific program guidelines already
have been prepared to assist in selecting course sequences in energy systems, power electronics, computer systems, digital systems, electronics, communications, electromagnetics and acoustics, networks, system control and bioengineering.

The department emphasizes close interaction with industry. Industry engineers visit regularly, and industry-sponsored student projects are provided to give an extra dimension to the program to ensure an excellent electrical engineering education.

A student also may earn a second baccalaureate degree in computer engineering (described elsewhere in this brochure) through a special 138-hour BSEE/BSCoE degree program.

INDUSTRIAL ENGINEERING
213 Electrical Engineering Building, (314) 882-2691
The Department of Industrial Engineering offers undergraduate and graduate degrees in industrial engineering.

UMC industrial engineering graduates use physical laws and the principles of science in developing or designing systems which produce goods and provide services. Industrial engineers not only work in manufacturing industries but in hospitals, government agencies, commercial and financial institutions, and many other organizations.

An industrial engineer in a manufacturing organization may be concerned with the design of a single work place involving one or more persons and one or more machines. In designing such work places, the industrial engineer must not only consider the capabilities of machines, but also the physiological and psychological capabilities and limitations of humans. An industrial engineer also is involved in the design of computer-integrated manufacturing processes with robots, in the design of entire plants and in the design of systems to control the production, inventory and quality of large numbers of complex products. At higher corporate levels, there are concerns with plant and warehouse locations, the development of sales forecasts and the evaluation of proposals to produce new products and the building of 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, facilitating the judicial process, providing faster and more accurate diagnoses and treatments, improving airline reservation methods, controlling large space projects, and reducing air and water pollution. In effect, the engineer may be involved in the design of many systems which provide beneficial services at a cost that society can afford.

An industrial engineering undergraduate will take a curriculum common to all engineering students during the first two years. In addition to basic science, mathematics and communication skills, a knowledge of physiology, sociological, the tools of operations research and computer applications are necessary. This additional background in the behavioral sciences is necessary to design complex systems in which people can operate effectively. Because industrial engineers are involved in solving complex problems requiring an understanding of one or more organization, they become prime candidates for top management or administrative positions.

The industrial engineering curriculum provides a great amount of freedom for the student to tailor an individual program. On a multidisciplinary campus such as UMC, students will have many opportunities to satisfy individual needs or desires. Students can plan interdisciplinary programs in law, medicine, computers and control systems, health care systems design, management, human factors engineering, bioengineering, judicial systems design, educational systems design and management information system design.

MECHANICAL AND AEROSPACE ENGINEERING
1006 Engineering Building, (314) 882-2684 or 882-2785
UMC mechanical engineering graduates are involved in the design, analysis and control of machines; the understanding and use of materials; and the generation and use of mechanical power. Because mechanical engineering offers a broad base of preparation, mechanical engineers are employed by almost all industries.

Aerospace engineering represents an extension of mechanical engineering into the "off-the-ground" environment. If involved in this important area, the student is concerned with material properties, lightweight structural considerations, control systems analysis, heat transfer propulsion systems, aerodynamics and many other activities related to spacecraft and aircraft.

Students work in well-equipped laboratories in material science, structural integrity, interactive computer graphics, measurement and instrumentation, heat transfer and fluid dynamics, systems dynamics, and energy exchange processes. These laboratories are available for instructional and research purposes at both the undergraduate and graduate levels. Students also have the opportunity to become involved in special industrial laboratory projects and to use a growing array of computer terminals.

Students participate in a curriculum which offers maximum transferability among all departments for the first two years and a maximum of individuality for the last year.

Students concentrate on departmental requirements during the junior year. The student's senior year is primarily elective so an individual study program can be developed. This enables students to complete a traditional program or create a unique program with special emphasis on aerospace engineering, bioengineering, system design, materials, computer-aided design (CAD), energy and thermal systems.

Undergraduate courses in mechanics have been developed in both the civil engineering and mechanical engineering departments. They are now co-listed for your convenience under the course descriptions for both departments.

In addition to its BSME, MSME and PhD degree programs in Columbia, the Department of Mechanical and Aerospace Engineering offers parallel BSME and MSME programs in Kansas City.

NAVY/MARINE ROTC
105 Crowder Hall, (314) 882-6693
The Naval Reserve Officers Training Corps (NROTC) was established in 1926 to offer qualified college students the necessary naval science courses required to qualify them for commissions in the Naval or Marine Corps Reserve. Its mission has since been changed to supply regular naval officers to the fleet. Today, NROTC is the primary source of regular naval officers.

The NROTC unit at the University of Missouri-Columbia was established in 1946. The first NROTC midshipmen graduated in the class of 1950. Since that time, UMC NROTC graduates have served the country as shipboard officers, submariners and aviators attached to the fleets of the U.S. Navy.

NROTC graduates incur a three- or four-year military obligation and receive starting salaries ranging from $19,240 to more than $30,000 per year in certain specialties, all with regular raises, extensive travel opportunities, invaluable personnel and hardware management experience, on-the-job training and complete medical and dental care.

PROGRAMS
Navy/Marine ROTC students may major in approved courses of study leading to a baccalaureate degree, and take one naval science course for credit each semester. Each course provides the student with a better understanding and knowledge of various aspects of the Navy or Marine Corps. Associated with each course is a leadership laboratory designed to orient the student to the responsibilities of a junior naval officer. The activities taught include water survival, self-defense, physical fitness, orienteering, aviation, nuclear power orientation with associated field trips, pistol/rifle marksmanship and rappelling.

SCHOLARSHIPS
Navy/Marine ROTC has two- and four-year scholarships available. High school seniors and college freshmen and sophomores are eligible for the scholarship programs. Scholarship applicants are considered on the basis of a nationwide competition. Application must be made prior to December for the class entering the following fall. Qualified midshipmen in the college program may be appointed directly to the scholarship program depending upon quota limitations. The Navy pays tuition, costs of textbooks, miscellaneous fees and a tax-free subsistence allowance of $100 per month. One purpose of the NROTC program is to provide officers with a technical background. A large number of scholarship students are in technical majors and those scholarship students who are not in technical majors are required to complete basic calculus and physics courses.

Scholarship midshipmen make three summer cruises for which they receive full pay as midshipmen. Upon graduation, scholarship midshipmen are commissioned as ensigns in the regular Navy or second lieutenants in the regular Marine Corps.
TWO-YEAR SCHOLARSHIPS

The scholarship and college two-year programs are intended to allow students to enter Navy/Marine ROTC at the beginning of their junior year. The two-year program is especially suited for transfer students and for UMC students who did not participate in NROTC during the first two years. The programs are similar to the four-year programs described above. However, the first two years of naval science training is accomplished during a six-week summer session at the Naval Science Institute, U.S. Naval Base in Newport, R.I. All travel expenses and salary are paid by the Navy.

The two-year scholarship program is open to eligible students who have completed two semesters of calculus. Upon successful completion, students are eligible for scholarship benefits at the beginning of their junior year. These benefits are the same as stated for the four-year scholarship program.

Others may apply for the two-year college program. Students receive $100 per month subsistence allowance plus a cruise between the junior and senior years. This subsistence allowance amounts to about $2,500 for the junior and senior years. Non-scholarship college program students are not required to complete the calculus/physics sequence.

ACADEMICS

The freshmen and sophomore Naval Science course of study consists of four courses: 11 Introduction to Naval Science; 123 and 124 Naval High Seas I and II; and a seminar, 112 Seapower and Maritime Affairs. The latter addresses historic and modern applications of seapower and the influence of maritime affairs on international relations. During the junior year, NROTC students take 235 Navigation and 236 Naval Operations. These include theory and technique of surface and aerial navigation, theory of celestial navigation, basic principles of aerology, maneuvering board training, tactical and fleet communications, and rules of the nautical road. During the senior year, students take 247 Navy Management and 248 Administration in the Naval Profession.

Academic requirements for Marine option midshipmen are 155 Evolution of the Art of War and 156 Amphibious Warfare, taught in lieu of the junior and senior Navy courses listed above.

Academic credit for naval science courses toward a baccalaureate degree is accepted by most UMC schools and colleges, and is included in a student's grade point average.

MARINE CORPS OPTION

Any midshipman may apply for a commission in the Marine Corps instead of the Navy. If the student is selected by the Marine Corps, the last two years of naval science courses are taught by the Marine officer instructor. These courses prepare the midshipman for a commission as second lieutenant in the U.S. Marine Corps. After graduation and commissioning, Marine Corps officers report to the Marine Corps Basic School in Quantico, Va., for six months of officers' professional education prior to further assignment to duty with the operating forces. Some specialties available in the Marine Corps include field artillery, infantry, aviation, communications, data systems, supply and engineering.

MIDSHIPMAN ACTIVITIES

Midshipmen may elect to participate in a wide variety of activities sponsored by the NROTC unit. The unit's rifle, pistol and drill teams travel to several off-campus meets each year.

The midshipmen field athletic teams in volleyball, softball, football, basketball and soccer and are usually very competitive in the campus intramural and city leagues.

Yearly social activities include a Navy Ball, Marine Corps Ball, a formal 'Dining In' for graduating seniors, battalion picnics and informal social gatherings.

MILITARY OBLIGATION

NROTC college and scholarship program midshipmen incur absolutely no military obligation during their freshman year. This time is strictly a period to allow students to get a better understanding and appreciation of the life of a naval officer. Once commissioned, college program midshipmen serve in the fleet for three years while scholarship midshipmen serve for four years.

NUCLEAR ENGINEERING

1026 Engineering Building, (314) 882-3550

The junior and senior years as an undergradu­ate engineering student at UMC are the time students begin branching out, taking courses to mold their education to fit their particular career objective. During the junior and senior years, nuclear engineering can assist students to prepare for professional life or to launch their graduate school career.

With a background in nuclear engineering, students can choose among many different professional fields in which to work. Chemical engineers, for example, are involved in the preparation and reprocessing of reactor fuel and in a variety of chemical processes used in a nuclear power plant.

Mechanical engineers in nuclear-related fields deal with the stress and fatigue in materials that are subjected to radiation; they also are involved in thermal hydraulic design and analysis of power plants.

With an electrical engineering degree and knowledge of nuclear processes, students might be working with instrumentation analysis and design, computer design and applications, or with the distribution of power generated from a nuclear plant.

Through the cooperative efforts of UMC's mechanical, electrical, chemical and nuclear engineering faculty, undergraduate course sequences have been developed for mechanical, electrical and chemical engineering majors who want an elective sequence in nuclear engineering. These suggested sequences (listed below) should be particularly useful if students are interested in pursuing graduate work or a career in nuclear engineering.

CHEMICAL ENGINEERING

Junior Year Curriculum (32 hours)

Chemistry 12, 210, 212 (Taken in soph. yr., 11 hrs.)
170 Chem. Process Measurements (3)
234, 235 Principles of Chemical Engineering I and II (6)
243 Chem. Engr. Lab I (2)
261, 262 Chem. Engr. Thermodynamics (6)

Mechanical Engineering

Junior Year Curriculum (33 hours)

205 Circuit Theory II (3)
206 Feedback Theory (3)
216 Linear Systems and Circuits (3)
225 Electromagnetic Fields (3)
235 Physical Electronics (3)
255, 256, & 357 Experimental Electrical Engineering I, II, & III (9)
266 Power Engineering I (3)
286 Electronic Circuits and Signals I (3)
Electives* (3)

Senior Year Curriculum (31 hours)

Engineering Design and Synthesis (3-9)
Humanistic Social Studies (6)
Electives* (22-16)

Mechanical/Aerospace Engineering

Junior Year Curriculum (34 hours)

185 Intro to Dynamics (3)
199 Engineering Thermodynamics II (3)
224 Engineering Materials I (3)
234 Engineering Materials II (3)
251 Fluid Mechanics (3)
252, 256 Instrumentation and Measurement Lab I & II (6)
256 Design of Machine Elements (4)
253 Systems Dynamics (3)
EE 205 Circuit Theory I or Engr. 126 Intro to Computer Systems (3)

English 161 Technical Writing or Speech 75 Intro to Speech Communication (3)

Senior Year Curriculum (50 hrs)

296 Design Synthesis (3)
299 Heat Transfer (3)
Elective Engineering Design Elective* (3)
Elective/Math/Science Electives (9)*
Free Electives (8)*

Humanities/Social Studies Electives (4)

Elective suggested course includes the following:
Nuclear Engineering 305 Survey of Nuclear Engineering (3)
Nuclear Engineering 306 Engineering Analysis (3)
Nuclear Engineering 315 Engineering Evaluation of Energy Systems and Resources (3)
Nuclear Engineering 341 Nuclear Chemical Engineering (3)
Nuclear Engineering 346 Introduction to Nuclear Reactor Engineering (3)
Nuclear Engineering 349 Nuclear Engineering Materials (3)
Nuclear Engineering 353 Introduction to Fusion (3)
Nuclear Engineering 355 Nuclear Reactor Lab I (3)
Nuclear Engineering 365 Nuclear Power Engr. (3)
Mechanical and Aerospace Engineering/Nuclear Engineering 375 Introduction to Plasmas (3)
Mechanical and Aerospace Engineering/Nuclear Engineering 382 Lasers and Their Applications (3)
Nuclear Engineering 391 Radiation Detection and Measurement (3)
Mechanical and Aerospace Engineering 185 Introduction to Dynamics (3)
Mechanical and Aerospace Engineering 224 Science of Engineering Materials (3)
Mechanical and Aerospace Engineering 251 Fluid Mechanics (3)
Mechanical and Aerospace Engineering 351 Power Plant Design (3)
Mechanical and Aerospace Engineering 368 Principles of Turbomachinery (3)
Electrical Engineering 345 Electromechanical Conversion I (3)
Physics 215 Intermediate Modern Physics (3)

Several special research facilities and laboratories are available to students in the graduate curriculum of nuclear engineering. The University of Missouri Research Reactor (MURR), a 10-million watt research reactor, has the highest steady-state neutron flux of any university reactor in the United States. Surrounding the MURR is a 26,000-square-foot laboratory facility for nuclear research. Other facilities available include a 5,000-curie Cobalt-60 irradiation unit at the
MURR facility, a neutron generator, digital and analog computers, nuclear instrumentation devices and a nuclear reactor simulator.

Students interested in the undergraduate course sequences available in nuclear engineering should contact the chairman of the Department of Nuclear Engineering at 1026 Engineering Building.

FACULTY

ADMINISTRATION
William R. Kimel, dean, professor, PhD, University of Wisconsin PE

Jack W. Morgan, assistant dean, professor, EdD, University of Missouri-Columbia PE

Agricultural Engineering

Neil F. Mendon, professor, chairman, PhD, Michigan State University PE

Maynard E. Anderson, professor, PhD, University of Missouri-Columbia PE

David E. Baker, associate professor, PhD, University of Illinois PE

Donald B. Brooker, professor emeritus, MS, University of Missouri-Columbia PE

H. David Currence, associate professor, PhD, Iowa State University PE

C. Leroy Day, professor, PhD, Iowa State University PE

James R. Fischer, associate professor, PhD, University of Missouri-Columbia PE

James C. Frisby, professor, PhD, Iowa State University PE

Charles Fullhage, associate professor, PhD, University of Missouri-Columbia PE

Albert Garcia III, instructor, MS, San Jose State University PE

Maurice R. Gehhardt, professor, PhD, University of Missouri-Columbia PE

Robert M. George, professor, MS, University of Missouri-Columbia PE

James M. Gregory, assistant professor, PhD, Iowa State University PE

Franklin M. Harris, professor, PhD, University of Arkansas PE

Allen R. Hjelmfelt Jr., professor, PhD, Northwestern University PE

William G. Hires, assistant professor, PhD, University of Wisconsin PE

Eugene L. Iannotti, associate professor, PhD, University of Maryland PE

Alvin Larke, assistant professor, PhD, University of Wisconsin PE

Thomas R. McCarty, assistant professor, PhD, Cornell University PE

Kenneth L. McFate, professor, MS, University of Missouri-Columbia PE

Richard E. Phillips, professor, PhD, Michigan State University PE

Donald Plost, associate professor, PhD, The Ohio State University PE

Milton D. Shanklin, professor, PhD, University of Missouri-Columbia PE

Dennis M. Sievers, associate professor, PhD, University of Missouri-Columbia PE

David B. Smith, professor, PhD, University of Missouri-Columbia PE

Chemical Engineering

George W. Preckshot, chairman, professor, PhD, University of Michigan PE

Rakesh K. Bajpai, assistant professor, PhD, IIT, Kanpur, India

Paul C. H. Chan, assistant professor, PhD, California Institute of Technology PE

L. E. Marc de Chazal, professor, PhD, Oklahoma State University PE

James R. Lorah, professor emeritus, PhD, University of Washington PE

Ralph H. Luebbers, professor emeritus, PhD, Iowa State University PE

Richard H. Luecke, professor, PhD, University of Oklahoma PE

Thomas R. Marrero, associate professor, PhD, University of Maryland PE

David G. Retzloff, assistant professor, PhD, University of Pittsburgh PE

Truman S. Stervick, professor, PhD, Purdue University PE

John B. Sutherland, professor emeritus, PhD, University of Pittsburgh PE

Dahle S. Viewanaath, professor, PhD, University of Rochester PE

Civil Engineering

John T. O'Connor, chairman, professor, Eng D, Johns Hopkins University PE

James W. Baldwin Jr., professor, PhD, University of Illinois PE

Shankha K. Banerjii, professor, PhD, University of Illinois PE

Neal B. H. Benjamin, professor, PhD, Stanford University PE

Richard T. Douty, professor, PhD, Cornell University PE

Karl H. Evans, professor, MS, University of Illinois PE

Mirtagana M. Ghosh, professor, PhD, University of Illinois PE

David L. Guell, associate professor, PhD, Western University PE

Mark P. Harris, associate professor emeritus, MS, Georgia Institute of Technology PE

Gerard B. Hasselwalder, assistant professor, PhD, University of Texas-Austin PE

George F.W. Hauck, associate professor, PhD, Northwestern University PE

Louis Hempfling, professor, PhD, University of Missouri-Columbia PE

Jimmie W. Hinson, associate professor, PhD, Stanford University PE

Charles W. Lenna, professor, PhD, Stanford University PE

Henry Liu, professor, PhD, Colorado State University PE

Ray M. Minkenberg, professor, PhD, Purdue University PE

Helen P. Niu, associate professor, PhD, University of Wisconsin PE

Richard A. Novak, assistant professor, PhD, University of Pittsburgh PE

Joseph Vincent Rosanov Paiva, assistant professor, PhD, University of Missouri-Columbia PE

C. Dallas Reach, instructor, MS, University of Missouri-Columbia PE

Harry Rubey, professor emeritus, CE, University of Illinois PE

Harold J. Salone, professor, PhD, University of Texas PE

John R. Salmons, professor, PhD, University of Arizona PE

Mark R. Vinkler, assistant professor, PhD, University of Virginia PE

Horace W. Wood Jr., professor emeritus, MS, University of Michigan PE

Electrical Engineering

Charles E. Silinsky, chairman, professor, PhD, University of Arizona PE

Gayle E. Adams, professor, PhD, University of Wisconsin PE

Thomas J. Brown, associate professor, PhD, University of Missouri-Columbia PE

Robert L. Carter, professor, PhD, Duke University PE

Earl J. Charbon, professor, PhD, Carnegie Institute of Technology PE

Elaine Charlson, assistant professor, PhD, University of Missouri-Columbia PE

David H.S. Cheng, professor, PhD, University of Missouri-Columbia PE

Robert G. Combs, professor, PhD, University of Florida PE

Michael J. Devaney, associate professor, PhD, University of Missouri-Columbia PE

Dean E. Fagg, associate professor, PhD, Massachusetts Institute of Technology PE

Huber L. Graham, associate professor, PhD, Massachusetts Institute of Technology PE

Cyrus O. Harbort, professor, PhD, Syracuse University PE

Richard G. Hoft, professor, PhD, Iowa State University PE

Atsuo Kawamura, assistant professor, PhD, University of Tokyo PE

James M. Keller, assistant professor, PhD, University of Missouri-Columbia PE

Gladwyn V. Lago, professor, PhD, Purdue University PE

John F. Lamb, professor emeritus, ScD, University of Michigan PE

Gregory N. Laruen, associate professor, PhD, University of Missouri-Columbia PE

Robert W. Leavene Jr., associate professor, PhD, University of Missouri-Columbia PE

Friedrich W. Leonhard, professor, Dr. rer. nat., University of Tuebingen PE

William D. McFarland, professor, PhD, University of Missouri-Columbia PE

Robert W. McLaren, professor, PhD, Purdue University PE

Jon M. Meese, associate professor, PhD, Purdue University PE

Robert M. O'Connell, assistant professor, PhD, University of Illinois PE

Russell L. Pimble, professor, PhD, Iowa State University PE

James E. Rathke, associate professor, PhD, University of Kansas PE

David G. Skitek, assistant professor, PhD, University of Arizona PE

Byron W. Shermak, professor, PhD, University of Missouri-Columbia PE

M. Bala Subramaniam, associate professor, PhD, University of Iowa PE

James R. Tudor, professor, PhD, Illinois Institute of Technology PE

Harry Wukley Tyree, associate professor, PhD, Duke University PE

Kenneth Unkluebey, associate professor, PhD, University of Missouri-Columbia PE

Edward J. Vredenburgh, associate professor, MS, University of Missouri-Columbia PE

Rex A. Vaid, professor, PhD, University of Wisconsin PE

Donald L. Waidelich, professor, PhD, Iowa State University PE

Clifford L. Walls, professor emeritus, DSc, Harvard University PE

Kuno Zimmeiermann, associate professor, PhD, Lehigh University PE

Industrial Engineering

J. Goldman, chairman, professor, DSc, Washington University PE

Alec Chang, assistant professor, PhD, Mississippi State University PE

Larry G. David, professor, PhD, Purdue University PE

Antonio J. Dieck, assistant professor, PhD, Georgia Institute of Technology PE

Robert M. Eastman, professor, PhD, Pennsylvania State University PE

Michael S. Leonard, associate professor, PhD, University of Florida PE

Jack L. James, lecturer, MS, University of Nebraska PE

Owen W. Miller, professor, DSc, Washington University PE

Sencer Yeralan, assistant professor, PhD, University of Florida PE

Mechanical and Aerospace Engineering

Paul W. Braisted, chairman, professor, PhD, Stanford University PE

John P. Barton, assistant professor, PhD, Stanford University PE

J. Kenneth Blundell, associate professor, PhD, Nottingham (England)

C. Quinton Bowles, associate professor, PhD, Delft University PE

Gaylord H. Bunch, assistant professor, MS, University of Missouri-Columbia PE

Betty Butler, instructor, MTE, University of Missouri-Columbia PE

William L. Carson, professor, PhD, University of Iowa PE

Uee Wan Cho, assistant professor, PhD, Brown University PE

Donald L. Creighton, professor, PhD, University of Alabama PE

Roger C. Duffield, professor, PhD, University of Kansas PE

James H. Durand, lecturer, MS, Massachusetts Institute of Technology PE

Alfred S. Gaskell, professor emeritus, MS, Iowa State University PE

Donald L. Gibson, associate professor, PhD, Vanderbilt University PE

Aaron D. Krawlitz, associate professor, PhD, Northwam University of Pennsylvania PE

John Love Jr., professor, PhD, Oklahoma State University PE

John C. Lysen, professor, PhD, Iowa State University PE

John B. Miles, professor, PhD, University of Illinois PE

Gordon L. Moore, professor emeritus, PhD, University of Florida PE

Jack W. Morgan, professor, EdD, University of Missouri-Columbia PE

Oran A. Pringle, professor, PhD, University of Wisconsin PE

Eric Sandgren, assistant professor, PhD, Purdue University PE

Donald R. Smith, associate professor, PhD, University of Colorado PE

James J. Smith, instructor, MBA, University of Missouri-Columbia PE

Carl M. Sneed, associate professor, PhD, University of Michigan PE

William E. Stewart, assistant professor, PhD, University of Missouri-Rolla PE

George H. Sticken, associate professor, PhD, University of Michigan DEEng, University of Kansas PE

Abdurahman A. Sukere, assistant professor, PhD, Michigan State University PE
The School of Health Related Professions was established on the Columbia campus of the University of Missouri July 1, 1978. Incoming students interested in one of the programs offered are enrolled in the School of Health Related Professions for academic advisement and to complete preprofessional requirements, but must make formal application for admission to the professional component of a program and to candidacy for the degree.

Degree programs offered by the School include: the Clinical Laboratory Sciences with emphasis areas in Medical Technology and Cytotechnology, Health Services Management, Occupational Therapy, Physical Therapy, the Radiologic Sciences with emphasis areas in Radiography and Nuclear Medicine, Respiratory Therapy, and Speech Pathology/Audiology. In addition, degree programs in Dietetic Education with emphasis areas in Food Systems Management and Medical Dietetics are offered in collaboration with the College of Home Economics.

The curriculum for each program is designed to prepare the student to meet the clinical, teaching and management/administrative responsibilities of the fully qualified professional. All curricula meet the standards of the respective national accrediting agency.

ADMISSION

Students are admitted to the School of Health Related Professions to complete general education requirements and program prerequisites prior to making application for admission to the professional component of the program of their choice and degree candidacy. The general education requirements for the Bachelor of Health Science degree are outlined below. The prerequisites for each program are listed in the description of that program.

The selection procedure and time period during which students may make application for admission to the professional portion of the program of their choice follows. It should be understood that admission to the University and to the School of Health Related Professions as a preprofessional student does not constitute admission as a candidate for the Bachelor of Health Science degree.

CRITERIA AND APPLICATION PROCEDURES

Applicants are considered on a competitive basis each admissions period. Selection for participation in the professional component of a program is governed by an admissions committee using established criteria and procedures. Residents of Missouri are given priority for admission. Only those applicants who qualify as Missouri residents for tuition purposes are considered for admission to the programs in Occupational Therapy and Physical Therapy. Faculty do not participate in decisions regarding the determination of residency.

Admissions criteria include completion of the general education requirements and prerequisite courses with a minimum acceptable grade point average of 2.0. Consideration for admission to Physical Therapy requires a cumulative GPA of 2.5 and, similarly, consideration for admission to Speech/Audiology requires a cumulative GPA of 2.6.

Preprofessional Curriculum Requirements

Semester Hours

8 Courses

9 Humanities. Must include at least one course from two of the following fields: art, classical studies, foreign language, humanities, literature, music theory/appreciation, philosophy, religion or theater/drama.

9 Communicative Skills. Must include two courses in writing and one in oral communication. Students must take English Composition (3) or its equivalent with a grade of C or better. One course must be taken in speaking.

9 Social Sciences. Must include one course in American History or American Government; one course from either sociology, anthropology or economics; and one course in psychology.

While the general education requirements outlined above are required for the Bachelor of Health Science degree regardless of emphasis, each program requires specific prerequisite courses related to that field.

In addition to the criteria stated above, students are selected on the basis of evidence of interest, knowledge of the field, letters of recommendation, and personal interviews.

Applicants for the Occupational Therapy program and the Physical Therapy program also are evaluated on extracurricular activities, work and volunteer experiences, school and college aptitude tests, pattern of academic achievement, verbal expression, and motivation demonstrated by employment and volunteer activities.

TRANSFER STUDENTS

Students wishing to transfer to UMC from another accredited institution are subject to the academic regulations established by the faculty. Transfer of credit is described in the Academic Regulations section of this catalog.

A maximum of 64 semester hours of credit may be transferred from a community/junior college. Course work completed at an accredited four-year institution will be accepted without limitation. Students must, however, complete a minimum of the last 24 semester hours of a degree program enrolled in the School of Health Related Professions.

Work completed at a school which is not accredited (e.g., some technical schools, hospital schools, or foreign institutions) will require validation and evaluation for advanced standing.

CREDIT BY EXAMINATION

Students may be awarded advanced standing credit on the basis of the following:

1. The Advanced Placement Program (APP) of the College Entrance Examination Board.
2. The University of Missouri-Columbia Freshman Placement Tests.
3. The College Level Examination Program (CLEP) general and subject examinations.
4. University of Missouri-Columbia departmental examinations.

Students with previous training and/or experience may be allowed to earn advanced standing through challenge or equivalency evaluation in certain programs.

PROFESSIONAL OPPORTUNITIES

Professional opportunities for graduates of programs of the School of Health Related Professions are excellent. Graduates serve in all areas and levels of management, patient care and treatment in many types of health care facilities including state and federal schools and hospitals, veterans hospitals, nursing homes and other health care agencies. Graduates in some areas may go into private practice as well as into teaching and administration.

STUDENT SERVICES

ADVISEMENT

Advisement is considered a major responsibility of the faculty in the School of Health Related Professions, and every effort is made to give the student the best advisement possible. Each student is assigned a faculty advisor in the student’s program of study.

It is helpful if the student has selected an area of interest prior to completing the first two years of college. To assist with career decision making, the School of Health Related Professions offers introductory courses and experiences aimed at providing information on various programs and career opportunities in these areas.

STUDENT ORGANIZATIONS

School of Health Related Professions Student Council
Alpha Eta National Honor Society in Allied Health
Student Occupational Therapy Association
Student Physical Therapy Association
Student Respiratory Therapy Association
Local Chapter of National Student Speech-Language-Hearing Association

PLACEMENT

Because of the high demand for graduates, the School of Health Related Professions operates no formal placement office.

INSURANCE

Liability insurance coverage is provided for students enrolled in courses of instruction at, or under, the direction of a medical facility by the University of Missouri self-insurance plan. A requirement that students provide evidence of medical insurance coverage prior to admission.

THE BACHELOR OF HEALTH SCIENCE DEGREE

GENERAL REQUIREMENTS

The Bachelor of Health Science degree is granted to candidates who have successfully fulfilled all prescribed requirements, including the following: (1) a minimum of 120 semester hours of credit with a cumulative GPA of at least 2.0; (2) a minimum of the last 24 semester hours of the degree program completed in residency with the School of Health Related Professions; and (3) completed all didactic and clinical requirements outlined by the program. Fulfillment of all requirements for graduation is the responsibility of the student.

ADMISSION AND SELECTION DATES

Freshmen and transfer students are enrolled in the School of Health Related Professions for academic advisement and to complete pre-professional course requirements prior to making application for admission to the major. Priority for admission to all programs is given to residents of Missouri. Because of the press of applicants, applications from non-residents are not considered for Occupational Therapy and Physical Therapy.

Preprofessional students are admitted to candidacy for the degree only when they have been selected to participate in the professional component of a program. Admission and selection dates for the professional component of each program and degree candidacy are shown below.

CLINICAL LABORATORY SCIENCES

M722 Medical Sciences Building, (314) 882-1121

There are two emphasis areas in the Clinical Laboratory Sciences—Medical Technology and Cytotechnology.

In addition, a special program in Histotechnology is offered to certain students who complete selected coursework outlined within the program.

MEDICAL TECHNOLOGY

Medical technologists are highly skilled health professionals who are involved in performance and supervision of routine and specialized tests in the clinical laboratory areas of microbiology, chemistry, hematology, blood banking, immunology and urinalysis. About three-fourths of all medical technologists work in hospital laboratories. Other employers are clinics, physicians in private practice, research laboratories, teaching institutions, and biomedical reagent and equipment manufacturers.

Prerequisite Courses

The following are UMC courses. (Students from other institutions need to be in touch with the program to select appropriate prerequisite courses to meet qualifications for admission.)

HRP 22 Introduction to the Health Related Professions
Biochemistry 110 Introductory Biological Chemistry
Anatomy 202 Elementary Anatomy
Biological Science 210 Parasitology
Biological Science 202 General Genetics
Biological Science 205 Developmental Biology
Biological Science 222 Vertebrate Embryology
Biological Science 270 Vertebrate Physiology
Microbiology 205 Fundamentals of Medical and Public Health

Professional Certification

Graduates of this program are eligible for examination and certification by the Board of Registry of the American Society of Clinical Pathologists (ASCP).
Accreditation
The program is accredited by the American Society of Cytology and the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association.

DIETETIC EDUCATION
318 Clark Hall, (314) 882-4136
The Coordinated Undergraduate Program (CUP) in Dietetic Education offers two emphasis areas: Food Systems Management and Medical Dietetics.

These programs are offered by the College of Home Economics (Department of Human Nutrition, Foods and Food Systems Management) in collaboration with the School of Health Related Professions. Students in these programs enroll in the College of Home Economics with dual enrollment in the School of Health Related Professions.

FOOD SYSTEMS MANAGEMENT
Graduates with this emphasis function as members of the management team in hospitals, college residence halls, school food service, government or community facilities and agencies, and industrial or commercial food service facilities. The management dietitian makes critical decisions related to food procurement, production and service, personnel, facilities and financial resources.

Prerequisite Courses
The following are UMC courses. (Students from other institutions need to be in touch with the program to select appropriate prerequisite courses to meet qualifications for admission.)

Statistics 31 Elementary Statistics (3)
Agricultural Economics 50 Agricultural Economics (5)
Economics 51 General Economics (5)
Chemistry 205 Organic Chemistry (5)
HNPSM 121 Principles of Food Preparation (5)
HNPSM 234 Human Nutrition I (3)

Professional Certification
A national certification examination is offered twice each year by the Council of Registration, American Dietetic Association. Accreditation
Accreditation of the program is granted by the American Dietetic Association.

MEDICAL DIETETICS
Graduates with this emphasis function as clinical dietitians in hospitals, outpatient clinics and community agencies. In all of these settings, the clinical dietitian uses the basic tenets of the behavioral sciences in applying the science of nutrition to dietary care. The major roles of the clinical dietitian in any setting are nutritional assessment, counseling and education.

Prerequisite courses
The following are UMC courses. (Students from other institutions need to be in touch with the program to select appropriate prerequisite courses to meet qualifications for admission.)

Physiology 201 Elements of Physiology (5)
Chemistry 205 Organic Chemistry (5)
Biological Science 105 Introductory Microbiology (3)
HNPSM 121 Principles of Food Preparation (5)
HNPSM 234 Human Nutrition I (3)

Professional Certification
A national certification examination is offered twice each year by the Council of Registration, American Dietetic Association. Accreditation
Accreditation of the program is granted by the American Dietetic Association.

HEALTH SERVICES MANAGEMENT
324 Clark Hall, (314) 882-6178
The baccalaureate degree program in Health Services Management is designed to prepare individuals for careers in the field of health administration. Typical organizations in which graduates of the program gain employment include hospitals, nursing homes, clinics, governmental agencies, non-profit organizations, and other health related entities. This degree also prepares individuals for further specialization at the graduate level.

Established in 1980, the program consists of a residential degree offering for full-time, on-campus students and an extended degree offering for individuals throughout the state who wish to retain their full-time position while pursuing the Bachelor of Health Science (BHS) degree on a part-time basis.

EXTENDED DEGREE PROGRAM
The Extended Degree Program is designed to enhance managerial skills and knowledge of those individuals who currently are employed in the health care industry and are not able to take advantage of a full-time degree program. Students in this program attend class sessions at a designated learning center approximately every third Saturday of the semester. Each course meets for three- to four-hour sessions, and is conducted in seminar mode, generally involving a combination of lectures, case studies, group exercises/discussions and projects.

The instructors utilized in the program are regular members of the faculty of the program in Health Services Management. Credit may be earned through a variety of means such as previous college courses, approved certificate or diploma programs, correspondence courses, challenge examinations, military credits, CLEP, or portfolio assessment.

RESIDENTIAL DEGREE PROGRAM
The Residential Degree Program accepts students each fall semester. The curriculum focuses on a combination of health and general business administration coursework. Students may utilize professional elective coursework to develop a specific area of concentration or choose to enroll in a broad range of professional elective courses. Specific areas of concentration include Community Health, Finance/Accounting/Data Systems, Long-term Care Administration, Marketing/Public Relations, Personnel Administration, and Planning/Policy/Regulation. A three credit hour, eight-week practicum in a health care facility or agency is required for those students who have not had previous management experience in a health care institution. This practicum typically is completed during the summer between the junior and senior year although a student also may take it following the completion of didactic work.

OCCUPATIONAL THERAPY
305 McHaney Hall, (314) 882-3988
Occupational therapists are health professionals who are concerned with alleviating physical or emotional problems, modifying functional ability, and encouraging health adaptations as illustrated by the skills of daily living, play, recreation and work. Through these activities, selected for their therapeutic value, the occupational therapist calls for a response from individuals which alters or influences their physical or emotional condition, tests and evaluates capacity for employment and broadens their independent living ability and social well-being.

PREREQUISITE COURSES
The following are UMC courses. (Students from other institutions need to be in touch with the program to select appropriate prerequisite courses to meet qualifications for admission.)

HNPSM 121 Principles of Food Preparation (5)
HNPSM 234 Human Nutrition I (3)

PROFESSIONAL CERTIFICATION
Upon successful completion of all coursework including the field work experience, students will be permitted to take the American Occupational Therapy Association's certification examination. The examination is given in January and June.
ACCREDITATION
Accreditation of the program is granted by the American Occupational Therapy Association in collaboration with the American Medical Association.

PHYSICAL THERAPY
206 Rusk Rehabilitation Center, (314) 882-7103

Physical therapy means the examination, treatment and instruction of people to detect, assess, prevent, correct, alleviate and limit the effects of injury, disease and any other bodily and mental condition. It includes administration, interpretation and evaluation of tests and measurements of bodily function and structure; the planning, administration, evaluation and modification of treatment and instruction, including the use of physical measures, activities and devices for preventive and therapeutic purposes; and the provision of consultative, educational and other advisory services for reducing the incidence and severity of physical disability, bodily malfunction and pain. Because of better emergency treatment, more persons now survive serious accidents and often require prolonged therapy. Improved health care also has resulted in greater numbers of aged people who must cope with chronic illnesses. The result is a continuing need for physical therapists to treat patients with conditions such as strokes, arthritis, amputations, head and spinal cord injuries, burns, and cerebral palsy.

PREREQUISITE COURSES
The following are UMC courses. (Students from other institutions need to contact the program to select appropriate prerequisite courses to meet qualifications for admission.)

HRP 22 Introduction to the Health Related Professions (1)
Psychology 2 General Experimental Psychology plus one additional psychology course (7-8)
Chemistry 11 General Chemistry (5)
Biological Science 11 Introduction to Zoology (5)
Physics 11 Elementary College Physics (5)
Physics 201 Elements of Physiology (5)
Anatomy 202 Elementary Anatomy (5)
Sociology 320 Sociological Concepts and Health (3)
Education R370 Educational Statistics (3)
Education H380 Kinesiology (3)
Mathematics 9 Trigonometry (2)
Mathematics 9 Trigonometry (2)

LECTURE
Upon graduation, the student is eligible for testing and licensure in any state. Licensure is required before entry into professional practice.

ACCREDITATION
Accreditation of the program is granted by the American Physical Therapy Association.

RADIOLOGIC SCIENCES
203 Clark Hall, (314) 882-8011

There are two emphasis areas in the Radiologic Sciences: Radiography and Nuclear Medicine.

Students planning a major in either of these emphasis areas should correspond with a representative of the program to determine eligibility for admission.

RADIOGRAPHY
Radiographers are health professionals who work closely with physicians specializing in the use of X-ray and radioisotopes in patient diagnosis and treatment. They are responsible for operating equipment, positioning, and taking X-ray films of internal parts of the body. The radiographer must be capable of keeping delicate and complicated equipment in working order and must often deal with patients who are under stress. Radioactive substances involved with the use of X-ray and patient treatment are potentially dangerous, requiring specialized knowledge and expertise in the performance of professional tasks.

Students are given an opportunity, in this emphasis area, to follow an Education Track (Track I) as part of the coursework or a Management/Administrative Track (Track II). Students interested in teaching in the field of radiography would follow Education Track I. Those students wishing to pursue a management/administrative position after graduation may choose Track II. Either track is designed to enrich the education and enhance the professional marketability of the student. One track is required to complete the required semester hours of credit for graduation.

Course Requirements
The following are UMC courses. (Students from other institutions need to be in touch with the program to select appropriate prerequisite courses to meet qualifications for admission.)

HRP 22 Introduction to the Health Related Professions (1)
Mathematics 9 Trigonometry (2)
Physics 11 Elementary College Physics (5)
Chemistry 12 General Chemistry (5)
Statistics 11 Elementary Statistics (3)
computer science 75 Introduction to Computer Science (3)
Physiology 201 Elements of Physiology (5)
Anatomy 202 Elementary Anatomy (5)
Chemistry 205 Organic Chemistry (5)
Biological Science 11 Introduction to Zoology (5)

Professional Certification
Upon completion of the program, students are eligible to sit for the national certifying examinations given by the American Society of Radiologic Technologists, and the Nuclear Medicine Technology Certification Board.

Accreditation
Accreditation of the program is granted by the American Medical Association.

RESPIRATORY THERAPY
203 Clark Hall, (314) 882-8011

Respiratory therapists are health professionals who specialize in diagnostic evaluation and care of patients with deficiencies and abnormalities of the cardiopulmonary system. Involved are the therapeutic use of medical gases and administration apparatus, ventilatory support, rehabilitation, assistance with cardiopulmonary resuscitation, and maintenance of natural and artificial airways. Specific testing techniques are employed in respiratory therapy to assist in diagnosis, monitoring, treatment and research. These activities include measurement of ventilatory volumes, pressures and flows, blood gas analysis and other related physiological monitoring.

The professional component of the program consists of the last two years. During this time, students are enrolled in laboratory, didactic and clinical education courses. During the supervised clinical education students will demonstrate competencies consistent with the current standards of practice for equipment and techniques associated with the profession. This includes such techniques as intubation, arterial blood gases, and other physiologic monitoring. Students also will be directly and extensively involved in the care of postsurgical patients as well as those with cardiopulmonary, neurologic and other disorders.

While students are enrolled in their professional courses, they also enroll in either an education or a management track (depending upon their interest), which will give them additional skills and add a unique dimension to their professional opportunities.

Course Requirements
The following are UMC courses. (Students from other institutions need to be in touch with the program to select appropriate courses to meet qualifications for admission.)

HRP 22 Introduction to the Health Related Professions (1)
Mathematics 9 Trigonometry (2)
Physics 11 Elementary College Physics (5)
Chemistry 12 General Chemistry (5)
Statistics 31 Elementary Statistics (3)
Computer Science 75 Introduction to Computer Science (3)
Physiology 201 Elements of Physiology (5)
Anatomy 202 Elementary Anatomy (5)
Chemistry 205 Organic Chemistry (5)
Biological Science 11 Introduction to Zoology (5)

Professional Credentialing
After graduation, students will be eligible to
take the Registry Examination for registration as a therapist, which is given by the National Board for Respiratory Care (NBRC).

ACCREDITATION
Accreditation of the program is granted by the Joint Review Committee for Respiratory Therapy Education. JRCRTE is sponsored by the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association.

SPEECH PATHOLOGY/AUDIOLOGY
125 Parker Hall, (314) 882-4082

Speech-language pathologists are health professionals who specialize in human communication, its normal development and its disorders. They are trained to deal with communication disorders and are best qualified to offer assistance to persons with speech and language disorders. An audiologist is an individual qualified to provide professional assistance concerning communication problems associated with hearing impairment. An audiologist is a person with graduate professional training who specializes in prevention, identification, and assessment of hearing impairment; in habilitation and rehabilitation of persons with hearing impairment, including the dispensing and fitting of hearing aids.

Because hearing problems are often related to communication disorders, audiologists and speech-language pathologists work together to determine both the sources of a problem and a coordinated program of rehabilitation. Speech-language pathologists, and audiologists often work with other professionals in education, medicine, social work, psychology, rehabilitation, and dentistry to provide the necessary help for the person who has a communication disorder. Both provide professional services in many different types of facilities such as: hospitals, rehabilitation centers, private practice, colleges and universities, public and private schools, state and federal government agencies, nursing care facilities, health departments and community clinics.

COURSE REQUIREMENTS
The following is a representative listing of the types of UMC courses in which a student in the undergraduate component of the program will enroll. For complete course requirements, prospective students should contact the program.

IHRP 22 Introduction to the Health Related Professions (1)
SPA 22 Introduction to Speech Pathology/Audiology (1)
Biology Sciences 11 Introduction to Zoology (5)
Physics 11 Elementary College Physics (5)
Education A205 Psychology of Learning (3)
Education G330 Parent Counseling (3)
Education R370 Elementary Statistics (3)
Education L339 Education of the Exceptional Child (3)
English 319 The Structure of American English (3)
SPA 120 Communication Disorders (3)
SPA 202 Development of Spoken Language (3)
SPA 210 Speech Science (3)
SPA 320 Articulation Disorders (3)
SPA 325 Clinical Practice (1-3)
SPA 330 Introduction to Audiology (3)

The undergraduate program in Speech Pathology/Audiology leads to a preprofessional baccalaureate degree in Speech Pathology/Audiology, which presently fulfills the requirements for a certificate to work as a speech-language pathologist in Missouri public schools.

PROFESSIONAL CERTIFICATION
The American Speech-Language-Hearing Association issues Certificates of Clinical Competence to individuals who have a graduate degree or the equivalent in speech-language pathology or audiology and who present satisfactory evidence of their ability to provide independent clinical service to persons who have disorders of communication (speech, language, and/or hearing). An individual who meets these requirements may be awarded the Certificate of Clinical Competence in speech-language pathology or in audiology, depending on the emphasis in academic and clinical preparation.

Upon notification by the Clinical Certification Board of approval of the academic coursework and clinical practicum requirements, the applicant will be sent registration material for the National Examinations in Speech Pathology and Audiology. Upon approval of the clinical fellowship year, achieving a passing score on the national examination, and payment of all fees and current dues, the applicant will become certified. Refer to the Graduate Catalog for information concerning the professional master’s program in speech-language pathology and audiology.

ACCREDITATION
The master’s degree program in speech-language pathology is accredited by the Education and Training Board of the American Boards of Examiners in Speech Pathology and Audiology of the American Speech-Language-Hearing Association.

FACULTY
ADMINISTRATION
Roger D. Harting, interim director, professor, EdD, University of Missouri-Columbia

CLINICAL LABORATORY SCIENCES
Richard E. Oliver, director, associate professor, PhD, University of Missouri-Columbia
Stanley Hansen, clinical instructor, MA, University of Missouri-Columbia
Ellis A. Ingram, assistant professor, MD, University of Michigan
Claude K. Leeper, professor, MD, Washington University
Lois J. Long, assistant professor, M Ed, University of Missouri-Columbia
Martha Mitchell, assistant professor, M Ed, University of Missouri-Columbia
Ranadhir Mitra, associate professor, PhD, University of Missouri-Columbia
Wallace A. Rogers, associate professor, MD, University of Minnesota
Wellington B. Stewart, professor, MD, University of Rochester
Henry M. Taylor, assistant professor, MD, Wayne State University
Angela Welthin, instructor, MA, University of Missouri-Columbia

HEALTH SERVICES MANAGEMENT
Gordon D. Brown, professor, director, PhD, University of Iowa
Keith E. Bates, assistant professor, PhD, University of Arizona
Kenneth D. Bopp, lecturer, MA, Washington University (St. Louis)
Elizabeth A. Dickhaus, assistant professor, PhD, University of Missouri-Columbia
John Glenn, associate professor, PhD, University of Missouri-Columbia
Daniel M. Harris, assistant professor, PhD, State University of New York at Stony Brook
Lanis L. Hicks, assistant professor, PhD, University of Missouri-Columbia
James A. Irvin, associate professor, PhD, University of Missouri-Columbia
Andrew A. Lasser, assistant professor, Dr. PH, University of Pittsburgh

Kenneth C. Steiner, assistant professor, director, Continuing Education for the Health Related Professions, PhD, University of Maryland
Vee Ann Steponovich, instructor, MS, University of Missouri-Columbia
Warren A. Thompson, professor, PhD, University of Missouri-Columbia
David A. West, professor, PhD, University of Arkansas

Dietetic Education
Aimee N. Moore, professor director, PhD, University of Michigan
Esther Digh, instructor, MS, Purdue University
Loretta W. Hoover, associate professor, PhD, University of Missouri-Columbia
Donna Jeffery, assistant professor, PhD, University of California-Berkeley
Mary Ann Klie, instructor, MS, The Ohio State University
Pauline M. Landhuis, assistant professor, MS, University of California-Davis
Mary Belle McDonald, assistant professor, MS, University of Iowa
Byrdine H. Tuthill, professor, MS, University of Wisconsin
Ellen Völkers, instructor, MS, University of Missouri-Columbia

Occupational Therapy
William J. Wikoff, instructor, director, BS, University of Cincinnati
Mary Brown, instructor, BS, Temple University
H. Dwyer Dunson, associate professor, MA, University of Missouri-Columbia
Beverly Polasky, instructor, MA, University of Southern California

Physical Therapy
Gerald W. Brownings, assistant professor, director, PhD, University of Missouri-Columbia
James A. Martin, instructor, M Ed, University of Missouri-Columbia
Carole Riggan, instructor, MS, Southern Illinois University
Marilyn Sanford, instructor, M Ed, University of Missouri-Columbia
Cindy Steiner, instructor, BS, University of Missouri-Columbia
Deborah Whitley, instructor, MS, Medical College of Virginia

Radiologic Sciences
Mary Sebacher, assistant professor, director, M Ed, University of Missouri-Columbia
Rushdy Abadir, professor, MD, Cairo University
Anna J. DeClue, instructor, BS, University of Missouri-Columbia
F. Mark Edwards, assistant professor, PhD, University of Colorado
Philip K. Lee, assistant professor, PhD, Purdue University
Gwilym S. Lodwick, professor, MD, University of Iowa
Kenneth W. Logan, associate professor, PhD, University of Missouri-Columbia
Henry McCauley, professor, PhD, Washington University (St. Louis)
Debra Marcy, instructor, BHS, University of Missouri-Columbia
Wynn A. Volkert, associate professor, PhD, University of Missouri-Columbia

Respiratory Therapy
Michael W. Previtt, assistant professor, director, PhD, University of Missouri-Columbia
Timothy H. Hogan, instructor, M Ed, University of Missouri-Columbia
James F. Whitacre, instructor, MS, University of Rochester
Thomas A. Wicks, clinical instructor, M Ed, University of Missouri-Columbia

Speech Pathology/Audiology
James D. Amerman, professor, director, PhD, University of Illinois
Linda Susan Day, clinic director, MA, University of Missouri-Columbia
Arlene Johnson, instructor, MA, University of Michigan
Martha M. Parnell, assistant professor, PhD, University of Missouri-Columbia
Shirley S. Patterson, instructor, MA, University of Missouri-Columbia
James Thelin, assistant professor, PhD, University of Iowa
Kim A. Wilcox, assistant professor, PhD, Purdue University
Donald G. Williamson, associate professor, PhD, Michigan State University
The College of Home Economics was established at UMC in 1900 as the Department of Household Economics. In 1906, the department was renamed Home Economics. The aim at this time was to correlate work in art and physical, and biological and social sciences with studies in home economics. In 1981, the College was among the largest home economics units in the nation.

Today’s concerns confronted by home economics graduates can be read in the daily newspapers and heard on every newscast. Consumer issues, nutrition, family finances, housing, ecology, education, marriage stability, child development and aesthetics all relate back to the home. A major in one of the many diverse fields of home economics provides a professional education within the framework of the liberal arts and sciences.

The purpose of home economics is to improve the quality of life for individuals and families. Men and women in the College of Home Economics receive a liberal education and work toward a professional goal in an area of special interest to them.

Cooperative programs with other schools and colleges on the campus provide opportunities for students to develop programs which are the basis for professional service in a variety of ways. Such programs are found in cooperation with the Colleges of Education, School of Journalism, Schools of Medicine, College of Agriculture, College of Arts and Science, College of Business and Public Administration, College of Engineering, and with individuals and departments within those units.

More than 900 undergraduates in the College are preparing themselves for diverse careers and professions. Each student and department within those units.

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The College of Home Economics was one of the first in the nation to be accredited for undergraduate professional programs by the American Home Economics Association. In addition, the teacher education programs have been accredited by their respective agencies. The American Dietetics Association has certified the dietetics program, and the Department of Housing and Interior Design’s program is accredited by the Foundation for Interior Design Education and Research.

Review teams involved in these and other program appraisals have commended the faculty for their academic qualifications, professional competencies and national visibility in professional organizations. The faculty’s dedication to maintaining excellent programs and to developing potential of both undergraduate and graduate students also has been cited.

The College is organized into the departments of Child and Family Development; Clothing and Textiles; Family Economics and Management; Housing and Interior Design; and Human Nutrition, Foods and Food Systems Management.

ADMISSION

Undergraduate students may enter the College of Home Economics as freshmen. For information on admissions procedures, see Admission in the General Information section of this catalog.

TRANSFER STUDENTS

For specific information on transfer policies, see transfer of credit in the Academic Regulations section of this catalog.

Transfer From Other Accredited Schools and Colleges. It is advisable to receive prior approval from the College of Home Economics for taking courses in the major area before entering UMC. This helps minimize the number of additional courses that may be necessary.

Up to 64 hours may be transferred from junior colleges. Up to 75 hours may be transferred from four-year colleges or from a combination of junior and four-year colleges.

Courses taken on a pass/fail basis are accepted only if comparable to the UMC grading system. A course carrying a transfer grade of D may be used to meet a requirement only if a grade above D is earned in a more advanced course in the same sequence.

From University of Missouri schools and colleges. Students in another UMC school or college or from other University of Missouri campuses, must have a cumulative and semester average of 2.0 or better to be eligible for admission to the College of Home Economics.

A student with a cumulative average below 2.0 may be admitted on probation only on approval of both the assistant dean and the Committee on Academic Status of the College of Home Economics.

Credit for D grades earned by a student transferring from another UMC school or college is accepted by the College of Home Economics. A student who transfers to the University system from another institution and then applies for transfer into the College will have the transcript re-evaluated by the College. Questions regarding transfer credit should be addressed to the assistant dean of home economics, 117 Gwynn Hall.

SCHOLARSHIPS

Application and inquiries should be made to the assistant dean’s office, 117 Gwynn Hall.

Veta Bird Adams Annual Award: The College of Home Economics established an endowment in honor of Veta Adams, a member of the faculty for 20 years. The income will provide scholarships to students who show professional potential and who earn a part of their college expenses. The award is intended for the special deserving student who may not meet guidelines for other awards.

Henry and Mary Cornelia Crumbaugh Medal: Awarded annually to Missouri residents from Carl Junction, Mo. and enrolled in first, agriculture; secondly, veterinary medicine; or thirdly, home economics. If there is no suitable applicant from Carl Junction, the scholarship is available to

The student need not select a major until after exploring the various career possibilities. An entering freshman has the first year to explore the areas in home economics and combinations of subject matter areas for positions in such fields as education, health and welfare, business, extension, journalism, rehabilitation and government.

All freshmen entering the College of Home Economics enroll in 10 Introduction to Home Economics. This course emphasizes career decision making, provides an orientation to the campus and the College, and brings into focus the role of home economics in the improvement of the quality of life in the near environment.

PLACEMENT

The Career Planning and Placement Center, 110 Noyes Hall, serves home economics students. Students also have the advantage of placement services which cover a wide spectrum of career options. These include business, education, journalism and agriculture placement offices located on the campus. The assistant dean’s office and individual advisers provide information regarding procedures and contacts.

STUDENT ORGANIZATIONS

Students desiring more information on the following student organizations should contact the assistant dean of home economics, 117 Gwynn Hall.

Association of Clothing and Textiles
American Society of Interior Designers
Campbell-Harrison Cooperative House
Child and Family Development Club
Family Economics and Management Student Association
Food and Nutrition Organization
Home Economics Graduate Student Association
Home Economics Journalism Club
Home Economics Rehabilitation Student Association
National Association of Home Builders
Omicron Nu
Phi Upsilon Omicron
Student Council
Student Dietetic Association
Teachers of Home Economics
University of Missouri Home Economics Association

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Student Council
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Henry and Mary Cornelia Crumbaugh Medal: Awarded annually to Missouri residents from Carl Junction, Mo. and enrolled in first, agriculture; secondly, veterinary medicine; or thirdly, home economics. If there is no suitable applicant from Carl Junction, the scholarship is available to
any student from Jasper County. Preference is given to a veteran or a student from a large family.

Pauline L. Garrett: Upon Dr. Garrett’s retirement from the home economics education faculty, professional colleagues and friends established a scholarship fund in her name. The scholarship is awarded with preference given to students preparing to teach home economics.

Greater Kansas City Home Economics Association Scholarships: Awarded to a junior or senior majoring in home economics at a Kansas or Missouri college or university.

Gregory Scholarship Fund: Scholarships to students who most exemplify the professional characteristics of Cecil L. Gregory or Orrine Z. Gregory. Recipients include students in rural sociology, home economics, communication, extension or any combination of these areas. Preference given to graduate students; priority given to those demonstrating professional potential. Financial need considered, but not a determining factor; awarded to recipients in home economics in succeeding years.

Walter E. Haas Memorial Scholarship: Established through a gift from Mrs. Haas in her husband’s memory, a sophomore in the College of Home Economics who has a high cumulative grade point average and is enrolled full time. The scholarship may be maintained a second or third year while an undergraduate. Also, a loan for a full-time student.

Florence Harrison Scholarship: For students majoring in home economics areas who are in need of financial assistance and show professional promise. Funds provided by donations to a memorial fund of Florence Harrison.

Hechler Memorial Scholarships: Awarded to outstanding seniors who are residents of Chariton County, Mo., and enrolled in agriculture, engineering or home economics on the Columbia campus. Applicants must be in the upper one-half of the graduating class, have high potential leadership qualifications and be of good moral character. Financial need is not considered in determining eligibility.

Amy Kelly Scholarships: Awarded to a junior from a college in Missouri who is not enrolled in home economics, to a student from a college in Missouri with a sincere interest in home economics. Established by the Production Credit Association of Missouri.

Kelly’s years of dedicated leadership in University extension work.

SPECIAL SERVICES

A child development laboratory provides preschool and day-care experiences for children, and professional training for students interested in early childhood education.

The Council on Consumer Interests, a national organization, is housed in the family economics and management department. The executive director is a faculty member of the College. Other faculty members also have served as officers.

PROFESSIONAL OPPORTUNITIES

Nationally, home economics continues to have good positions available to graduates. Estimates indicate that during the 1980s, there will be two jobs for each graduate in the country. Graduates with advanced degrees are particularly in demand for college and university teaching positions.

The U.S. Department of Agriculture reports that jobs for home economists are expected to outnumber graduates throughout the 1980s with an annual shortage of about 7,000 people with home economics or related degrees.

One of the largest growth areas will be in dietetics where the number of jobs will increase an estimated 43 percent by 1990, according to a study from the Bureau of Labor Statistics.

REQUIREMENTS FOR THE BS DEGREE

The completion of all requirements for graduation is the responsibility of the student.

To receive the degree of bachelor of science in home economics a student must have:

1. Satisfactorily completed a minimum of 120 semester hours, including the required general education and home economics foundations courses.
2. Completed requirements for a professional area of competence in one of the departments.
3. Completed a minimum of 45 hours in residence.
4. Acquired a minimum cumulative grade point average of 2.0.

DEGREE PROGRAM

In consultation with the adviser, a degree program is prepared to meet the student’s professional objectives. This program must be on file not later than the first half of the fifth semester. It is the responsibility of the student to initiate the planning during the sophomore year.

After approval, the program becomes the student’s official curriculum and copies are furnished to the student, the adviser and the assistant dean’s office. Changes may be made in a student’s curriculum upon recommendation of the adviser and approval of the assistant dean.

Courses taken off-campus in either the area of competence or general education requirements, must have prior approval of the adviser and assistant dean. In the area of competence, 15 hours may be taken at another school, provided permission is granted by the adviser and the work is completed at an approved school or college.

Prior to the beginning of the last term, the student must check graduation requirements in the assistant dean’s office.

Second BS Degree. A student may be granted two baccalaureate degrees if all requirements for both degrees have been met and the student has completed at least 12 semester hours of course work beyond that required for the first degree.

GENERAL EDUCATION REQUIREMENTS

A minimum of 42 hours is necessary to meet the general education requirements. Courses should be taken in the classifications shown. Courses of similar content transferred from accredited schools may be substituted for courses listed. If there is a question about a course, write the assistant dean, 114 Gwynn Hall. CLEP or other advanced credit is accepted where applicable.

Biological and Physical Sciences: 8 hours All 8 hours may be selected from one department, or may be selected from different departments; one course must include a laboratory. Courses may be selected from the following: General Biology I (5) or (7), Introductory Zoology I (3), General Zoology I (5), Introduction to Microbiology I (5), Nutrition for the Health Professions I (5), General Chemistry I (5), General Chemistry II (4), Principles of Geology I (5) or Physical Geology 2 (3), Physical Science I (5), Elementary College Physics I (5), Introduction to Astronomy I (4).

Humanistic Studies and Fine Arts: 8 hours Appreciation of art, music, theater and broadcasting such as Art 3; Music I, 21, 30; Speech 3 and 6.

Foreign civilization courses, classical archaeology and mythology, civilization courses taught in foreign language departments or in area studies programs.

Literature courses in the Department of English and literature courses numbered above 101 in foreign language department.

Philosophy and Logic: Humanities 101, 102, 103, 104

Religion (except languages)

Social and Behavioral Science: 9 hours Required: sociology, three hours; psychology, three hours; principles of economics, three or five hours (Clothing and textiles, family economics & management, housing design, design management and merchandising each require five hours of economics). Courses may be selected from General Psychology (3) or General Experimental Psychology (3); Introduction to Psychology I (3); Psychology I (3); Fundamentals of Economics I (3) and/or II (3), General Economics 51 (5), or Agricultural Economics 50 (5). (Social Psychology may be used for either the sociology or psychology requirement.)

English: 6 hours (3 hours if student passes placement test in English) Must include two courses in English composition, unless Eng 1 is waived through placement test or English 65 GH is completed.

American History or Political Science: 3-5 hours Select from the following: 3 Survey of American History to 1865 (3), Survey of American History from 1865 (3), Themes in American History 11 (3), American History 10 (5), American Government 1 (3), and Introduction to Political Science 11 (3).

Mathematics: 3 hours Mathematics 9, 10, or 12; Mathematics 7 & 8 is required for any Child and Family Development elementary certification; Math 10 is required for dietetics majors.

Communication Skills: 3 hours Select from the following: Introduction to Speech Communication 75 (3), Group
work, business, and health. For some students, courses in the arts, humanities, or biological sciences may be appropriate.

CHILDREN IN GROUP SETTINGS

This major is designed to prepare graduates for positions of responsibility and leadership in public and private nursery schools, day-care centers, infant-care programs, after-school programs, and other educational and welfare facilities for children. Additional job opportunities include group homes, adolescent drop-in centers, hospital play groups, and YMCA/YWCA.

The general goal of the option is to provide instruction and experience to help students gain competence in understanding, guiding, and teaching children. Emphasis is on understanding human development, with primary focus on child development, behavior and learning; family planning and evaluation in addition to working relationships with children, parents, professional colleagues and community workers.

A. Preprofessional Requirements (General Education)

Speech 75 Introduction to Speech Communication (3) or Speech 171 Group Communication (3)

B. Requirements in Child and Family Development (32 hours minimum)

CFD 66 Principles of Human Development (3)
CFD 160 Early and Middle Childhood (3) or 260 Adolescence and Adulthood (3) or 367 Aging and the Near Environment (3)
CFD 163 Interpersonal Relationships, Marriage and the Beginning Family (3)
CFD 225 Introduction to Family Studies (3)
CFD 264 Child Development Laboratory (5)
CFD 341 Multi-Cultural Study of Children and Families (3)
CFD 358 Administration of Programs for Children and Families (3)
CFD 361 Working With Parents (3)
CFD 364 Advanced Child Development Lab (6) and/or CFD 363 Family Development (3)

C. Supporting Coursework from Child and Family Development (B, C, D, & E must total at least 60 hours in CFD and related areas)

D. Requirements in Related Areas

Edu T305 Early Childhood Curriculum and Methods (3)
Edu T306 Diagnosis and Intervention in Early Childhood Education (3)
Edu G359 Introduction to Helping Professions (3) or SW 101 Topics in Social Work

E. Supporting Coursework from Related Areas

B, C, D, & E must total at least 60 hours from CFD and related areas

EARLY CHILDHOOD CERTIFICATION

A. Preprofessional (General Education)

Political Science 1 or 11
History 3, 4, 5, or 11
Math 7 and 8
HNFFSM 34
Speech 75, or Speech 171

B. Child and Family Development (30 hours minimum)

CFD 66 Principles of Human Development (3)
CFD 160 Early and Middle Childhood (3)
CFD 163 Interpersonal Relationships, Marriage and the Beginning Family (3)
CFD 225 Introduction to Family Studies (3)
CFD 264 Child Development Laboratory (5)
CFD 361 Working With Parents (3)

Select courses to total 30 hours in CFD

Support Courses and Electives

Edu H326 Motor Development in Early Childhood (3)
Edu L339 Education of Exceptional Children (3)
Edu T161 Aiding: Kindergarten (2) (Preferred) or Edu T162 Aiding: Grades 1-3 (2)
Edu T209 Literature in the Elementary School (3)
Edu T221 Science in the Elementary School (2)
Edu T230 Art Activities in the Elementary School (2)

CHILDS AND FAMILY DEVELOPMENT

31 Stanley Hall, (314) 882-4035

The Department of Child and Family Development combines basic understanding of human development with preparation for professional service to individuals and families. Career opportunities for child and family development specialists are found in community, government and extension services; elementary and secondary education; business; and journalism. The child and family development major also prepares the graduate student for graduate study in related and related fields. The program is individually planned to fit the interest and career objectives of the student.

AREAS OF EMPHASIS

The student's program is developed from a base of human and family development courses. It is essential for the student working with children to understand and be able to maximize the resources offered by the family. It is equally important for the student concerned with the quality of family life to recognize the intricate spiral of changing needs in the growing individual. The child and family development area focuses on this synthesis and allows for further specialization, if desired, with emphasis in either human or family development.

Professional competence in either the human or family development emphasis is gained by coursework and through experiences that develop skills in interpersonal relationships, problem solving and analysis, leadership, program organization, resource management, and communication with varied clientele.

In addition to required CFD courses, the program is completed with courses selected from child and family development, other areas of home economics, the social sciences, and allied professional fields, such as education, community development, recreation, social
FAMILY STUDIES

The option is designed to acquaint the student with the concepts and principles basic to the development of a broad understanding of families—and how such families function in an ever-changing environment. Families are studied in relation to their immediate (household) and near (neighborhood-society) environments. The family studies program emphasizes a normative family life as opposed to a clinical perspective.

A. Preprofessional (General Education)

B. Family Core required for both Option 1 (Family Studies) and Option 2 (Extension in Family Studies)

C. Professional Competency Requirements and Additional Early Childhood Certification Requirements for Missouri and/or other states.

To teach child and/or family development in secondary school (specialized teaching certificate), the student should complete the following:

Other specified programs are available for the student who wishes to prepare for a professional career in teaching, business, journalism, or community, extension or government services. Students in the clothing and textiles program are required to achieve a grade of C or better in all clothing and textiles courses.

AREA OF COMPETENCE

The following courses are required (21 hours):

C. Seminars and workshops required (3 hours):

D. Internship required (6 hours):
Writer and editor for newspapers and magazines.
Writer, coordinator of consumer educational materials.
Teacher in junior and senior high schools, adult and community programs.
Extension specialist and area staff member in clothing and textiles.
Technician for testing and research laboratories for producers and retailers.
Research and testing specialist for consumer products.

**FAMILY ECONOMICS AND MANAGEMENT**

238 Stanley Hall, (314) 882-7836

This department offers three professional program options: family-consumer economics and management, consumer affairs, and rehabilitation.

In each program, the student must complete requirements for (1) general education, (2) area of competence, and (3) where indicated, professional objective. The student must complete 5 hours of economics with a grade of C or above and must earn a grade of C in all courses identified under area of competence, area of emphasis or professional objective, with the exception that a grade of D is allowed in only one course.

**AREA OF COMPETENCE**

The following are required (17 credit hours):

- FEM 72 Management in Family Living (2)
- FEM 173 Personal & Family Finance (3)
- FEM 175 The Consumer in Our Society (3)
- FEM 178 Community Agencies (1)
- FEM 372 Family Values and Resource Management (2)
- FEM 376 Management of Financial Resources (3)
- CFD 255 Introduction to Study of the Family (3)

**AREAS OF EMPHASIS**

**Family-Consumer Economics and Management**

This program incorporates work in family and consumer economics, home management, home equipment, and other areas of home economics. By selecting suitable courses, a student may prepare for a variety of careers including the following: family financial counseling; secondary teaching of consumer education, family finance, and home management; extension teaching; or equipment testing and demonstration for utility firms or appliance manufacturers.

The following courses are required for Family-Consumer Economics and Management majors (29-37 hours): FEM 172 Home Management Practicum (2) FEM 174 Selection of Home Equipment (3) FEM 370 Housing the Family (3) FEM 377 Economics and the Consumer (3) FEM 378 Effective Consumer Decision Making (3) C&T 182 Textiles (3) C&T 285 Buying of Textiles and Clothing (2) Econ. 251 Theory of the Firm (3)

**Rehabilitation**

The rehabilitation program prepares students to work in rehabilitation centers, hospitals, extension programs, and private agencies, with physically, mentally or emotionally disabled persons and their families. Professional responsibilities may include recommending adaptive clothing and equipment for the handicapped person, planning renovation in housing to eliminate physical barriers within the home, adapting both living and work areas to the disabled person’s needs, teaching work simplification procedures in personal care and housekeeping tasks, and counseling with the entire family regarding adjustments to the handicapped person’s disability.

The following courses are required for rehabilitation majors (51-54 hours):

- FEM 73 Introduction to Rehabilitation (1)
- FEM 170 Work Simplification in Home Processes (2)
- FEM 171 Working with the Visually Limited (1)
- FEM 172 Home Management (2)
- FEM 174 Selection of Home Equipment (3)
- FEM 350 Readings (cr. arr.)
- FEM 370 Housing the Family (3)
- FEM 374 Use and Care of Home Equipment (3)
- FEM 390 Field Training (1-4) (Recommended but not required)

**Professional Objective**

With help from the adviser, a student in this major selects additional courses appropriate to the career objective. For careers in business and industry, extension, and community or government service, a minimum of 15 hours will be selected from home economics, sociology, extension, education, management, marketing, accountancy, and other fields. A student preparing for a career in journalism must complete 30 hours in journalism (see Home Economics Journalism). To attain a specialized teaching certificate for secondary schools, the student must complete the following: general education courses to meet both College of Home Economics and College of Education requirements (see Home Economics Education), required professional education courses, and either C&T 83, Contemporary Fashion Fundamentals or HID 349 Housing Fundamentals.

**Consumer Affairs**

The consumer affairs program prepares students for positions as consumer affairs professionals and other consumer service position in business, government and consumer organizations.

The following courses are required for consumer affairs majors (36-43 credit hours): FEM 318 Topics—Consumer Protection & Public Policy (2) or Pol Sci 317 Public Policy (3) FEM 377 Economics and the Consumer (3) FEM 378 Effective Consumer Decision Making (3) FEM 390 Field Training (1-4) Accy. 36 Accounting I (3) Econ. 251 Theory of the Firm (3) Econ. 256 Economics of Public Policy: Antitrust Economics (3)

HE 115 Media Techniques (3)
Mgmt. 202 Fundamentals of Management (3)
Mgmt. 254 Introduction to Business Law (3) Mktg. 204 Prin. of Marketing (3) Mktg. 350 Society & Government (3) or Mktg. 314 Consumer Behavior (3) Pol. Sci. 311 Administrative Regulation of Business (3)

The student may choose elective courses appropriate for personal interests and/or career goals. These may be selected from general education or professional courses offered by other UMC colleges or from appropriate home economics courses.
MAE 20 Engineering Drawing (3)
Phys. 201 Elements of Physiology (5)
Psych. 20 Psychology of Personal Adjustment (3) or Psych. 180 Fundamentals of Abnormal Psychology (3)

Professional Objective
If the student plans to work under the state merit system, the following are required: Ed. Psych. A 102 Educational Psychology (2)
Special Ed. L 101 Survey of Special Education (2) or Special Ed. L 321 Intro. to Mental Retardation (3)

CAREER OPPORTUNITIES IN FAMILY ECONOMICS AND MANAGEMENT

Career opportunities in family economics and management extension specialist. Teacher in family finance, home management, and consumer education in secondary schools. Demonstration home economist working with a utility company. Equipment tester, writer, or demonstrator for an equipment or appliance manufacturer. Consumer interests specialist in business, government, or communications media.

Financial counselor. Rehabilitation home economist working with physically, mentally or emotionally disabled persons in extension, rehabilitation centers, hospitals, and private agencies. College teacher or researcher (following advanced study).

HOUSING AND INTERIOR DESIGN

137 Stanley Hall, (314) 882-7224

The overall purpose of housing and interior design is the improvement of the quality of the socio-physical or man-made environment through the education of designers and related professionals. The interior design program in the department is accredited by the Foundation for Interior Design Education and Research (FIDER).

INTERIOR DESIGN

Basic Creative Development. Select at least 18 credit hours from the following:

HID 40 Principles of Environmental Design (3)*
HID 41 Design I (3)**
HID 42 Design II (3)**
HID 347 Design Tech. for Environ. Components I (3)
HID 348 Design Tech. for Environ. Components II (3)
Art 2 Introduction to Art (3)
Art 60 Beginning Drawing I (2)
Art 120 Color Theory (3)
Art 160 Beginning Drawing II (3)
Art 165 Anatomy for Designers (3)
Art 175 Beginning Water Color (3)
Art 177 Beginning Painting (3)
Art 220 Beginning Spatial Design (3)
Art 222 Graphic Design I (3)
Art 270 Experimental Media I (3)
Art 320 Space, Light and Color (3)

Design Planning and Analysis. Select at least 18 credit hours from the following:

HID 140 Residential Design I (3)**
HID 141 Architectural Design I (3)**
HID 149 Contract Design I (3)**
HID 141 Architectural Design I (3)**
HID 140 Residential Design I (3)**
HID 141 Architectural Design I (3)**
HID 140 Residential Design I (3)**
Art. 10. Intro. to Western Art (3)**

Design Communications. Select 6 credit hours from the following:

HID 147 Presentation Graphics (3)
HID 20 Engineering Drawing (3)**
HID 147 Field Training (3)**

Design Information (6 credit hours)
C&T 182 Textiles (3)* (fulfills requirement for one of the home economics foundation courses)
C&T 285 The Textiles/Consuming Consumer (2)
Computer Sci. 104 Computers & Programming I (3)
Elect. Eng. 101 Computer Basics & Applications (3)
FEM 174 Selection of Home Equipment (3)
Hort. 60 Flower Arranging (2)
Hort. 150 Micro-Environmental Design (3)
Hort. 151 Plants for Interior Design (2)
Hort. 250 Landscape Graphics (3)
Hort. 254 Landscape Design (3)
Journ. 120 Advertising Prin. & Practice (3)
Mgmt. 202 Fundamentals of Management (3)
Mgmt. 204 Principles of Management (3)
Mgmt. 316 Sales Management (3)
MAE 20 Engineering Drawing (3)**
Spec. 1 Television & Radio in Modern Society (2)
Spec. 105 Principles of Radio & Television (2)
Stat. 31 Elementary Statistics (3)

Family and Environmental Studies (3 credit hours)

HID 349 Housing Fundamentals (3)*
HID 390 Field Training (Interior Design) (2-4)

Professional and Supportive Courses. These courses can be selected under any section in the field program depending upon the advisor.

HID 300 Problems (2-3)
HID 318 Topics (3)
HID 341 Computer-Aided Graphic Applications to Design (3)

MAE 117 Experimental Course (relating to ID) (3)
GHI 100 Interdepartmental Colloquium (2-3)

Hist. 201 Topics (courses relating to ID) (cr. arr.)

HOUSING DESIGN

Basic Creative Development. The following courses are required:

HID 40 Principles of Environmental Design (3)*
HID 41 Design I (3)**
HID 42 Design II (3)**

Design, Structure and Analysis. (15 cr. hrs. req.)

HID 140 Residential Design I (3)**
HID 141 Architectural Design I (3)**
HID 344 Architectural Design II (3)**
MAE 20 Engineering Drawing (3)**
Mgmt. 202 Fundamentals of Management (3)*
Mgmt. 204 Principles of Management (3)

History of Art, Architecture and Interiors. (6 credit hours required.)

HID 340 History of the House and Its Furnishings (3)
HID 343 Contemporary Designers (3)
Art History 10 Introduction to Western Art (3)*
Art History 101 American Art and Architecture (3)
Art History 365 American Architecture (3)

Design Communication. (6 credit hours required.)

HID 147 Presentation Graphics (3)**
HID 148 Design III (3)

Field Training
HID 390 Field Training (4)

Housing Emphasis Units. Students must choose a minimum of 15 credit hours from any of the units listed below, 9 from another unit, and 6 credit hours from the remaining unit.

UNIT I: Business, Finance, Real Estate and Marketing
Acct. 36 Accounting I (3)
Acct. 388 Rural Real Estate Appraisal (3)
Econ. 229 Money and Banking (3)
Fin. 340 Principles of Real Estate (3)
Fin. 341 Real Estate Appraisal (3)
Jour. 120 Advertising Prin. & Practice (3)
Mgmt. 202 Fundamentals of Management (3)*
Mgmt. 254 Introduction to Business Law (3)*
Mgmt. 356 The Law of Commercial Credit Transactions (3)
Mkt. 204 Principles of Marketing (3)
Mkt. 336 Sales Management (3)

UNIT II: Community Planning, Political Science and Social Science
HID 349 Housing Fundamentals (3)*
Pol. Sci. 102 State Government (3)
Pol. Sci. 306 Municipal Government (3)
Pol. Sci. 308 Comparative Urban Politics (3)
Pol. Sci. 310 Introduction to Public Administration (3)
Pol. Sci. 317 Public Policy (3)
RCA 360 Principles and Practices of Planning (3)
RCA 362 The Implementation of the Local Planning Process (3)
RCA 364 Area and Regional Planning (3)
Soc. 120 Population and Ecology (3)
Soc. 184 Social Impact Analysis (3)
Soc. 216 Urban Sociology (3)

UNIT III: Construction and Technical Knowledge
Ag. Eng. 215 Electricity on the Farm (3)
Civ. Eng. 20 Surveying (3)
Civ. Eng. 301 Building, Design, Construction Analysis (3)
Civ. Eng. 305 Engineering Administration (3)
Civ. Eng. 367 Construction Contracts and Specifications (3)
Civ. Eng. 368 Construction Planning and Scheduling (3)
Civ. Eng. 369 Construction Methods and Equipment (3)
MAE 117 Experimental Course (Housing) (cr. arr.)

Electives. Electives may be selected from any of the previous areas or from the following courses:

Art. 222 Graphic Design I (3)
Art. 225 Beginning Photography (3)
FEM 174 Selection of Home Equipment (3)
GHI 100 Interdepartmental Colloquium (Solar Energy/Therapy
and Application) (3)
Hort. 254 Landscape Design (3)
Hort. 354 Advanced Landscape Design (4)

HID 147 Computer Applications to Design (3)
HID 342 Residential Design II (3)

Psych. 30 Applied Psychology (3)
PROFESSIONAL OBJECTIVES

Extension and other Government or Community Service. The student preparing for a career in extension or other government service should choose supportive courses from the following suggested subject areas to complete requirements:
- Ed. Psych. A102 Education Psychology (2)
- Ext. Ed. 210 Fundamentals of Communications (3)
- Rural Soc. 201 Org. & Leadership in Modern Society (3)
- Rural Soc. 225 Social Processes of Communication & Diffusion (3)
- Rural Soc. 335 Social Change & Trends (3)
- Rural Soc. 340 Community Social Structure (3)
- Soc. 214 The Family (3)
- Soc. 216 Urban Sociology (3)
- Soc. 120 Populations and Ecology (3)
- Soc. 184 Social Impact Analysis (3)

Journalism. A student preparing for a career combining journalism with housing and interior design must complete 30 hours in journalism (see Home Economics Journalism), plus 30 hours in housing and interior design.

Teaching. To teach housing and interior design in secondary school, the student should complete the following: general education courses to meet both College of Education and College of Home Economics requirements, required professional education courses, home economics courses as indicated in general education requirements, and HHD 349 Housing Fundamentals. The student may be excused from HHD 42 and 147, C&T 182, and MAE 20 Engineering Drawing.

CAREER OPPORTUNITIES IN HOUSING AND INTERIOR DESIGN

Professional interior designer specializing in residential and/or commercial design.

Housing or interior design consultant.

Professional interior designer specializing in residential and/or commercial design.

Housing or interior design consultant.

Professional interior designer with a department store, architectural or interior design firm, space planner, contract interior firm, or with a manufacturer.

Journalist specializing in housing or interior design.

Housing and interior design teacher in secondary schools, adult education, or extension programs.

College teacher or researcher (following advanced study).

Store, studio or showroom manager.

Retail buyer of textiles and furnishings.

Sales representative for manufacturers of furnishings and architectural products.

Coordinator of bidding, purchasing and construction.

Writer or editor for newspaper or magazine.

Consumer products consultant.

Housing designer.

Estimator.

Construction administrator and planner.

Housing finance and real estate specialist.

Marketing specialist.

Community planner.

Housing inspector.

Housing conservationist.

Presentation illustrator.

Energy conservationist or auditor.

HUMAN NUTRITION, FOODS AND FOOD SYSTEMS MANAGEMENT

217 Gwynn Hall, (314) 882-4288

Whether the student's interest is in the natural or social sciences, the Department of Human Nutrition, Foods & Food Systems Management offers many program options. At both the undergraduate and graduate levels, graduates from this department are in demand.

PREPROFESSIONAL (General Education)

General education courses are selected to provide a suitable background for programs in the human nutrition, foods and food systems management areas. Biological Sciences I (5) or Biological Sciences II (5) and Chemistry I (5) or Chemistry II (5) must be taken. Majors in nutrition research and food research options must take Chemistry I (5) and 12 (5).

AREAS OF COMPETENCE

The following courses are required.

HNFFSM 121 Principles of Food Preparation (5)
HNFFSM 234 Human Nutrition I (3)

Organic chemistry 5-8 hours. Select from the following:

Chemistry 205 (5) or Chemistry 210-211 (5) and 212 (3). Students may choose a course.

MCBiology or bacteriology 3-4 hours. From Microbiology 205 (4), Biological Sciences 105 (3) or 212 (4).

Physiology 4-5 hours. Physiology 201 (5).

Biochemistry 3-5 hours. Select either Biochemistry 193 (3) or Biochemistry 193-195 (5). Medical dietetics and general food and nutrition emphasis must take Biochemistry 193-195 (5).

Biochemistry is not required for journalism, food research or food systems management dietetics emphasis.

MINIMUM GRADES

Students in human nutrition, foods and food systems management are expected to meet the following grade standards.

1. A minimum grade of C in all departmental courses.

2. A minimum grade of C in biochemistry, microbiology and physiology for dietetics and nutrition research emphasis.

3. A minimum competency of 75 percent in all professional courses (with practicum or clinical experiences) for food systems management and medical dietetics in the coordinated program. Medical dietetics majors must also obtain a 75 percent competency in HNF&FSM 334.

AREAS OF EMPHASIS

Food and Nutrition

A student in food and nutrition may choose general food and nutrition, nutrition research or food research.

The broader aspects of this combination serve as a professional basis for positions in business and industry, extension, government and community service, teaching, and communications-journalism.

The following courses are required.

HNFFSM 221 Science of Food Preparation (3)
HNFFSM 334 Human Nutrition II Lecture (3)
Select 14-15 credit hours in other HNF&FSM courses above 100 level (excluding 121, 221, 234 and 334).
Select a minimum of 6 credit hours from other Home Economics departments including at least one from FEM and at least one from CFD of the following:

FEM 173 Personal and Family Finance (3)
FEM 175 The Consumer in Our Society (3)
FEM 372 Family Values and Resource Management (2)
FEM 377 Economics and the Consumer (3) and at least one of the following courses.

CFD 66 Principles of Human Development (3)
CFD 160 Early and Middle Childhood (3)

CFD 163 Interpersonal Relationships, Marriage and the Beginning Family (3)

CFD 225 Intro to Family Studies (3)

CFD 260 The Child from Six Through Adolescence (3)

CFD 264 Child Development Laboratory 3-6

Other appropriate areas are home management, housing, home equipment, and design.

Select 3 credit hours of Statistics from the following:

Stat 207 Statistical Analysis (3)

Stat 207 Statistical Analysis (3)

Ag Econ 225 Statistical Analysis (3)

Select 3 credit hours of Computer Science from the following:

Comp Sci 215 Introduction to Computer Science (3)

Comp Sci 215 Introduction to Computer Science (3)

Comp Sci 201 Programming as a Research Tool (3)

Select 3 credit hours of Technical Writing:

Eng 161 Technical Writing (3)

Select an additional 12 credit hours from at least two of the following departments: accountancy, agricultural economics, animal husbandry, anthropology, computer science, economics, family and community medicine, food science and nutrition, horticulture, marketing, psychology, rural sociology, sociology, statistics and foreign language departments. These courses are in addition to the general education requirements.

General Food and Nutrition. In addition to the required courses listed above, the student will select additional courses in consultation with the adviser.

Nutrition Research. This area is for the student who plans to work in research or graduate study in human nutrition. It may also be used as preparation for those planning to enter a professional program in medicine.

The following courses are required.

HNFFSM 333 Human Nutrition II Laboratory (1)
Chem. 221 Quantitative Instrumental Analysis (4)

Math 80 Analytic Geometry & Calculus I (5)

Math 207 Statistical Analysis (3) or Ag. Econ. 225 Statistical Analysis (3)

Select 9 hours from the following:

HNFFSM 321 Experimental Lab Animal Nutrition (3)
HNFFSM 321 Experimental Foods (3)
HNFFSM 335 Nutrition During the Life Cycle (3)
HNFFSM 338 Diet Therapy (3)
Biochem. 270-272 Biochemistry (3 hrs. each)
Biochem. 274 Biochemistry Lab (3)
Biochem. 304 General Biochemistry Lectures (5)
Biochem. 305 Biochemistry Lab (3)
Math 175 Calculus II (5)
Physics 11-12 Elementary College Physics (5)

Social Sciences: psychology, sociology, or anthropology courses in addition to general education requirements.

Food Research. This area is for students who plan to work in research or do graduate study in the natural science aspects of foods.

The following are required courses.

HNFFSM 221 Science of Food Preparation (3)
HNFFSM 321 Experimental Foods (3)
HNFFSM 375 Sensory Analysis of Food (3)
Chem. 221 Quantitative Instrumental Analysis (4)
FSN 309 Food Chemistry I (3)
Math 80 Analytic Geometry & Calculus I (5)
Select 9 hours from the following:

Ag Econ. 311 Food Marketing (3)
FSN 321 Experimental Foods (3)
FSN 335 Nutrition During the Life Cycle (3)
FSN 323 Modern Methods of Food Preservation (3)
FSN 335 Nutrition During the Life Cycle (3)
FSN 350 Food Analysis (3)
FSN 372 Food Microbiology (3)
FSN 373 Food Microbiology Laboratory (2)
HNFFSM 376 Microwave Heating of Food (2)
Phys 11-12 Elementary College Physics (5)
Select 3 credit hours of Statistics from the following:

Stat 207 Statistical Analysis (3) or Ag. Econ. 225 Statistical Analysis (3)

Social Sciences: psychology, sociology, or anthropology courses in addition to general education requirements.

Food and Nutrition Journalism. Students in food and nutrition journalism are required to take the following courses to fulfill the 30 hours of HNF&FSM.
earn a bachelor's degree at the end of four years. Dietetics

HNFFSM 324 Food Procurement & Production in Foodservice

CUP program should be obtained as early as possible.

HNFFSM 235 Nutrition Education (3)

such as a 6-12 month internship. The following

HNFFSM 326 Development, Utilization & Maintenance of Physical Resources (4*)

HNFFSM 327 Operations Analysis in Food Systems (4*)

HNFFSM 328 Management of Food Systems (8*)

Mgmt. 202 Fundamentals of Management (3)

Mgmt. 308 Operations Management (3)

Mgmt. 329 Organizational Behavior (3)

Statistics 31 Elementary Statistics (3) or Statistics 207 Statistical Analysis (3) or Ag Economics 225 Statistical Analysis (3)

Select 6 hours of management electives.

Select electives to complete required 120 hours.

Medical Dietetics Coordinated Undergraduate Program. Clinical experiences in nutrition care of patients in the University Hospital and Clinics and other health care facilities are coordinated with classes so that after four academic years, plus one summer (eight weeks), the student earns a bachelor’s degree and is eligible to apply for Active Membership in The American Dietetic Association and to write the registration examination.

The following courses are required.

HNFFSM 222 Food Buying & Meal Management (1)

HNFFSM 221 Science of Food Preparation (3)

HNFFSM 228 Principles of Food Systems Management (4)

HNFFSM 235 Nutrition Education (5*)

HNFFSM 236 Evaluation of Nutritional Status (3*)

HNFFSM 333 Human Nutrition II Laboratory (1)

HNFFSM 334 Human Nutrition II Lecture (3)

HNFFSM 338 Diet Therapy (4)

HNFFSM 339 Medical Dietetics (3)

Acct. 36 Accounting I

Soc. 218 Industrial Sociology (3) or Mgmt. 311 Collective Bargaining (3)

Select electives to complete required 120 hours.

Food Systems Management Coordinated Undergraduate Program. Practicum (experiences in managing food service operations) in the University Hospital and Clinics and other food service facilities are coordinated with classes so that after four academic years the student will earn a bachelor’s degree and is eligible to apply for active membership in The American Dietetic Association.

The following courses are required.

HNFFSM 221 Science of Food Preparation (3)

HNFFSM 228 Principles of Food Systems Management (4*)

HNFFSM 238 Diet Therapy for Health Professionals (3*)

HNFFSM 324 Food Procurement & Production in Foodservice Systems (5)

HNFFSM 325 Mgmt. of Food Procurement & Production in Foodservice Systems (6*)

HNFFSM 326 Development Utilization & Maintenance of Physical Resources (4*)

HNFFSM 327 Operations Analysis in Food Systems (4*)

HNFFSM 328 Management of Food Systems (8*)

Mgmt. 202 Fundamentals of Management (3)

Mgmt. 308 Operations Management (3)

Mgmt. 329 Organizational Behavior (3)

Statistics 31 Elementary Statistics (3) or Statistics 207 Statistical Analysis (3) or Ag Economics 225 Statistical Analysis (3)

Select 6 hours of management electives.

Select electives to complete required 120 hours.

Food and Nutrition. In addition to the required courses, the student should choose supportive courses in the department and related departments to broaden the scope of career opportunities.

Journalism. A student preparing for a career of journalism in food and nutrition must complete 30 hours in journalism (see Home Economics Journalism), and 30 hours in HNFFSM to include the department's minimum requirements for all majors.

Teaching. To teach food and nutrition in secondary schools, the student should complete the following: general education courses to meet both College of Home Economics and College of Education requirements; required professional education courses; and home economics courses as indicated. HNFF&FSM 122 is a requirement.

Research and Graduate Study. A student planning to continue study at the graduate level may follow the undergraduate food and/or nutrition research option. However, an advanced degree program may be developed around an individual's professional goals and interests.

CAREER OPPORTUNITIES IN HUMAN NUTRITION, FOODS AND FOOD SYSTEMS MANAGEMENT

Food and nutrition specialist in extension. Teacher of food and nutrition in secondary schools, adult education, special occupational programs, colleges and universities. Teaching dietitian in outpatient clinics, public health, and community nutrition programs.

Clinical dietitian as a member of a team in clinical research units.

Specialist developing and demonstrating new products in the food industry.

Administrative dietitian managing food systems in hospitals, colleges, the armed services, and other food service operations.

Food and nutrition editor and writer for radio, TV, magazines and newspapers, textbooks, and advertising.

HOME ECONOMICS EDUCATION

Certification to teach home economics is obtained through the College of Education. Home Economics education is an area in the Department of Practical Arts and Vocational-Technical Education (PAVTE) in the College of Education. A student preparing to teach vocational home economics has three options.

Option 1 applies to the vast majority of students.

Option 1. The student must enroll in the College of Education. A bachelor of Science in Education and vocational certification to teach comprehensive home economics programs may be obtained by completing the courses listed below in addition to the requirements in general education, preprofessional education, and secondary professional education as identified in the College of Education section of this catalog.

Option 2. A College of Home Economics student who intends to teach one specific home economics subject area may dually enroll in the College of Education and complete the following: the College of Home Economics requirements for a BS in the chosen subject and the College of Education requirements in general, preprofessional and professional education for a BS in education.

Option 3. Vocational certification to teach home economics related skills in occupational programs may be obtained by accumulating a specific number of hours of work experience in addition to completing the requirements for Option 1 or Option 2. Work-hour requirements vary according to the student's professional goals.

REQUIRED PROFESSIONAL COURSES

The following courses are required for Options 1, 2, and 3.

PAVTE F100 Foundations (1)

PAVTE F175 Directed Occupational Experience (2)

PAVTE F235 Organization of Vocational Home Economics Programs (2)

PAVTE F275 Occupational Home Economics Programs (2)

PAVTE F280 Methods of Teaching Vocational Consumer-Homesmaking (3)

PAVTE F315 Current Developments in Home Economics Education (3)

SUBJECT MATTER COURSES

The following courses are required for Options 1 and 3.

HNFF&FSM 34 Nutrition-Concepts and Controversies (3)

HNFF&FSM 121 Principles of Food Preparation (5)

HNFF&FSM 122 Food Buying and Meal Mgmt. (3)

C&T 81 Clothing Construction (3)

C&T 182 Textiles (3)

C&T 285 The Textiles /Clothing Consumer (2)

HID 40 Prin. of Environmental Design (3)

HID 140 Residential Design I (3)

FEM 72 Management in Family Living (2)

FEM 173 Personal & Family Finance (3)

FEM 174 Selection of Hom e Equipment (3)

FEM 175 The Consumer in Our Society

C&FD 160 Early and Middle Childhood (3)

C&FD 163 Interpersonal Relationships, Marriage and the Beginning Family (3)

C&FD 225 Intro to Study of the Family (3)

C&FD 264 Child Development Lab (3-6)
HOME ECONOMICS EXTENSION

A student who plans to be an extension home economist, youth specialist, or extension specialist may choose a subject matter area of interest or a general program such as Interdepartmental Studies. 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 might be chosen appropriately from such areas as adult education, communications and the social sciences.

HOME ECONOMICS JOURNALISM

The College of Home Economics, cooperating with the School of Journalism, offers a curriculum in home economics journalism. This program prepares men and women for work in one or more media—newspaper, magazine, television, and radio—or for positions in public relations, advertising or editorial offices where a home economics background is helpful or essential.

A home economics journalism degree is awarded to a student who satisfactorily completes:

1. General education requirements for home economics
2. 30 hours in a major area in one of the departments in home economics or a minimum of two courses from each department for a general home economics background. A grade of C or above is required in all home economics courses selected; and
3. 30 hours of journalism courses. To be assured of admission, the student must have a 3.0 grade point average and have completed 60 credit hours at the time of enrollment in the School of Journalism courses. Students with less than a 3.0 will be admitted on a space available basis. Courses required are:

- 120 Advertising Principles & Practice (2 or 3)
- 300 Mass Media & Society (2)
- 309 History & Principles of Journalism

Plus completion of a sequence in Journalism (see Journalism requirements under School of Journalism) OR completion of the following for general journalism or public relations: 105 News (3)
106 Reporting (3)
110 Editing (3)
360 Intermediate Writing (3)
Electives in Journalism (10)
Also recommended: Journalism Careers (0)

INTERDEPARTMENTAL STUDIES IN HOME ECONOMICS

The major offers the student an opportunity to develop a highly individualized curriculum to meet academic and career goals. Students may select this program if other established academic programs in the college do not meet their specialized needs. It provides for a liberal education and breadth in home economics.

A written statement of goals and an outline of study is approved by the student's advising committee, which is composed of three home economics advisers from different departments. These advisers are selected by the student with one adviser serving as the permanent adviser. The assistant dean is a member of the advising committee.

Graduates find opportunities in business, communication, international service, home service, social service agencies, administration and management, and extension.

The program of study includes:
1. 42 hours in general education with five hours minimum in economics.
2. Appropriate physical and biological sciences with chemistry required for certain options.
3. 11 credit hours in each of four of the five departments in the College with a minimum of 6 credit hours of formal, structured courses numbered 300 or above (all must be completed with a C or above).
4. 34 hours of supporting courses either within or outside of home economics allowing for flexibility to meet student interests and career choices.

FACULTY

ADMINISTRATION
Bea Litherland, dean, professor, PhD, University of Minnesota
Gail L. Imig, associate dean, professor, PhD, Michigan State University
Martha Jo Martin, assistant dean, assistant professor, EdD, University of Missouri-Columbia
Margaret Mangel, dean emeritus, professor emeritus, PhD, University of Chicago

CHILD AND FAMILY DEVELOPMENT
Marilyn Coleman, associate professor, chair, EdD, University of Missouri-Columbia
Ruth Cook, professor emeritus, PhD, University of Chicago
Lois Bryant, assistant instructor, BS, University of Missouri-Columbia
Virginia Fisher, professor emeritus, PhD, University of Missouri-Columbia
Mary McPhail Gray, assistant professor, PhD, Michigan State University
David Imig, associate professor, PhD, Michigan State University
Carol Irvin, instructor, MS, University of Missouri-Columbia
Lou Isbell, assistant professor, MS, University of Missouri-Columbia
Jean Ispa, assistant professor, PhD, Cornell University
Mary Beth Mann, assistant instructor, MS, University of Missouri-Columbia
Arthur McArthur, associate professor emeritus, PhD, Stanford University
Kathy Thornburg, professor, PhD, University of Missouri-Columbia

Marion Typpo, assistant professor, PhD, University of Missouri-Columbia
George Wise, associate professor, PhD, University of Connecticut

CLOTHING AND TEXTILES
Kitty Dickerson, associate professor, chair, PhD, St. Louis University
Helene Allen, professor emeritus, MS, Iowa State University
Nancy Fair, assistant professor, PhD, North Carolina State University
Betty Feather, associate professor, PhD, University of Missouri-Columbia
Jean Griffin, assistant professor, MS, University of Missouri-Columbia
Jean Hamilton, assistant professor, PhD, University of Missouri-Columbia
Josephine Holik, associate professor, MS, Virginia Polytechnic Institute and State University
Lois Korslund, associate professor, PhD, Purdue University

John Typpo, professor, PhD, University of Minnesota

Elinor Nugent, professor, PhD, Louisiana State University
Doris Saxon, professor, MS, University of Alabama

FAMILY ECONOMICS AND MANAGEMENT
Edward J. Metzen, professor, chair, EdD, University of Missouri-Columbia

Marilyn Caselman, associate professor, MS, The Ohio State University
Sandra A. Helmcick, associate professor, PhD, University of Missouri-Columbia

Ennie Luehrance, associate professor, MS, Michigan State University
Anna Cathryn Yost, associate professor, MS, Purdue University
Mel J. Zelenek, associate professor, PhD, University of Missouri-Columbia

HOME ECONOMICS JOURNALISM
Orrin Z. Gregory, professor emeritus, MS, University of Missouri-Columbia
Martha Jo Martin, assistant professor, EdD, University of Missouri-Columbia

HOUSING AND INTERIOR DESIGN
Kate Ellen Rogers, professor, chair, EdD, Columbia University
Richard Helmick, associate professor, MFA, Ohio University
Gary Henning, associate professor, MFA, University of Colorado-Boulder
Patricia Ann Hildbrandt, assistant professor, MS, University of Missouri
Robert Kabak, professor, MFA, Yale University
C. Bud Kaufmann, professor, PhD, Florida State University
Ruth Stumpe Brent, assistant professor, PhD, University of Minnesota
Joe Logan, assistant professor, PhD, University of Missouri-Columbia

HUMAN NUTRITION, FOODS AND FOOD SYSTEMS MANAGEMENT
Richard P. Dowdy, assistant professor, chair, PhD, North Carolina State University
Helene Anderson, professor, PhD, University of Wisconsin
Esther Digh, instructor, MS, Purdue University
Margaret Flynn, professor, PhD, University of Missouri-Columbia
Elizabeth Hensley, professor, MS, Cornell University
Loreta Hoover, associate professor, PhD, University of Missouri-Columbia
Karla Hughes, assistant professor, PhD, University of Tennessee
Donna Jeffery, associate professor, PhD, University of Missouri-Columbia
Treva Kintner, assistant professor, MS, University of Missouri-Columbia
Mary Ann Kile, instructor, MS, The Ohio State University
Pauline Landhuis, assistant professor, MS, University of California-Davis
Mary McDonald, assistant professor, MS, University of Iowa
L.G. Molinar, associate professor, PhD, Vanderbilt University
Karen Morgan, assistant professor, PhD, University of Missouri-Columbia
Aimee Moore, professor, PhD, Michigan State University
Ruby Moore, instructor, MS, Oklahoma State University
James Nordstrom, associate professor, PhD, University of Minnesota
Byrdine Tuthill, professor, MS, University of Wisconsin

Ellen Volders, instructor, MS, University of Missouri-Columbia
EDUCATIONAL PHILOSOPHY

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 faculty has a basic commitment to educate 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 the communications media. 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 Missouri Plan assures the journalism graduate a broad liberal education, considered essential for a journalist whose work may span many segments of today’s complex society. In addition to a broad liberal arts education, students complete practical laboratory work in a variety of settings, including a public radio station, a commercial daily newspaper and network television station.

The School offers the Bachelor of Journalism, Master of Arts and Doctor of Philosophy degrees. Currently, 700 undergraduates and 246 graduate students are enrolled.

The Accrediting Council on Education in Journalism and Mass Communications has accredited the following sequences offered by the School of Journalism: Advertising, Magazine, News, Editorial, Photojournalism, Radio, Television News and the Professional Master’s Degree Program.

The Council also has accredited the University’s agricultural journalism program.

The School’s medical writing program is approved by the American Medical Writers Association.

The School also offers programs combining study in journalism and home economics, business, sociology, education, or public administration, and a sequence in newspaper publishing.

CAMPUS AND FACILITIES

The School of Journalism is housed in Jay H. Neff Hall, Walter Williams Hall, the Neff Addition, and Gannett Hall—a four-building unit located on a northern corner of the UMC campus—and laboratory work is carried on at radio station KBIA, television station KOMU-TV, and the Columbia Missourian.

COLUMBIA MISSOURIAN

Students, supervised by faculty members with professional experience, produce news, editorials, feature, photographic and advertising work on the Columbia Missourian, a Tuesday through Sunday general circulation newspaper for the city of Columbia and Boone County.

Vibrations, a magazine and entertainment supplement to the Sunday Missourian, is researched, photographed, written and edited by magazine and photojournalism students.

KBIA, KOMU-TV

Since 1953, the University of Missouri has operated its own television station on Channel 8. As on the Missourian, students work with professional faculty and staff members at the station to prepare and broadcast the daily news report from early morning through 10 p.m. and to produce public affairs and other broadcasts. KOMU-TV is an ABC affiliate.

KBIA, UMC’s public FM radio station, covers central Missouri with a 100,000-watt stereo signal. The School of Journalism produces a full schedule of news and public affairs programming on the station, an affiliate of National Public Radio.

JOURNALISM LIBRARY

The Frank Lee Martin Library in Walter Williams Hall regularly receives periodicals devoted to journalism. It also gets some 200 newspapers—at least one daily from most states, and one or two from each major foreign country. It contains more than half of the 35,000 volumes relating to journalism that are available to students. The remainder are shelved in UMC’s Elmer Ellis Library, which contains more than 2.6 million volumes and an equal number of microfilm files.

SERVICE TO PROFESSION

Since its inception, the School has had the support and respect of professional journalists. The tradition of support that began in 1920 with an alumni’s gift to build Neff Hall continues today. A recent gift of $460,000 from the Frank E. Gannett Foundation, on behalf of the country’s largest newspaper chain, resulted in Gannett Hall, providing space for newswriting and broadcast laboratories, classrooms, an auditorium and a conference center for professional development programs conducted by the School.

In its commitment to continuing education for professional journalists, the School budgets more than a half million dollars annually for workshops, competition and other programs.

BUSINESS JOURNALISM

The School sponsors the Business Journalism Awards, made possible by a continuing educational grant from INGAA (Interstate Natural Gas Association of America). Award-winning writers come to the campus for the fall for a two-day Business Journalism Workshop.

The Herbert J. Davenport Fellowships in Business and Economics Reporting give 15 practicing reporters and editors a month of intensive study of economics, accounting, finance and techniques of reporting business and economics news.

FOI CENTER

The Freedom of Information Center, established in 1958, collects and disseminates materials about the flow and control of information. It serves subscribers with its bi-monthly Freedom of Information Digest and its Monthly Center Reports.

INVESTIGATIVE REPORTING

Investigative Reporters and Editors Inc., established its national headquarters at the School of Journalism in 1978. IRE, organized in 1975 by a group of Pulitzer Prize winners, provides educational services to reporters, editors and others interested in investigative journalism and seeks to maintain high professional and ethical standards.

The quarterly IRE Journal examines successful investigative projects and includes how-to tips and techniques.

LIFESTYLE JOURNALISM

The J.C. Penney-University of Missouri Journalism Awards have encouraged excellence in newspaper lifestyle sections and reporting since 1960.

Each March, the newspaper competition winners join lifestyle reporters and editors in a five-day workshop.

Penney-Missouri flying workshops, begun in 1978, offer one-day seminars for lifestyle editors in cooperation with state press associations.

MINORITIES DEVELOPMENT

Recruiting talented minority high school and college students for journalism careers is a year-round School goal because of the minority shortage in the media. The School, the Newspaper Fund of Princeton, N.J., and Missouri papers have offered a two-week summer Urban Journalism Workshop since 1971. A Minority Broadcasting Workshop operates concurrently. Sponsors include the School, the Missouri Broadcasters Association and more than 25 stations.

PHOTOJOURNALISM

The Pictures of the Year competition, begun in 1943, selects the best photojournalism from newspaper, magazine and picture editing categories.

More than 13,000 photos are submitted annually in the world’s largest news-oriented photo contest. The competition is cosponsored with the National Press Photographers Association under an educational grant from Canon Inc.

Since 1976, a book based on the competition, The Best of Photojournalism, has been published annually.

A one-week Photojournalism Workshop has been held each year since 1945 in a Missouri
complete an acceptable prejournalism course of study, as long as in the judgement of the committee they possess cultural, ethnic, or other attributes especially desirable in journalism, when by previous educational disadvantage the student does not meet the grade point requirements— as long as in the judgement of the committee the student otherwise shows the potential for doing satisfactory work in the School of Journalism.

COURSE REQUIREMENTS
Completion of a course of study that includes at least 60 semester credit hours of work at UMC or another accredited two- or four-year institution.

The course of study must include the following:

1. Foreign Language: Unless students have completed four or more high school units (years) in a single foreign language, they must complete college work through a reading, composition or conversation course beyond the intermediate level (generally 11 to 13 hours), or demonstrate the equivalent by an acceptable proficiency examination.

Elementary courses must be taken before admission to the School. The reading, composition or conversation course may be completed after admission. In that case, it will count as an elective.

2. Behavioral, Biological, Physical and Mathematical Science: At least 14 hours from four of six areas: biological (includes biology, botany, zoology), physical (includes physics, chemistry, geology), mathematical (Math 10, 12 and above, statistics, computer science), anthropological, psychological, sociological science. The 14 hours must include at least one course with a lab (minimum four hours credit).

3. Social Science: At least nine hours in three of three areas: economics, history, political science.

4. Humanistic Studies: At least eight hours in three of six areas: appreciation or history of art or music (includes Art 3, art history, music history and music literature 21 and above); foreign civilization or classics (each foreign language department has a civilization class, usually 110 or 111); literature; philosophy; humanities (honors sequence 101, 102, 103, 104; religion courses 25, 110 and above); literature and music literature 21 and above); literature; philosophy; humanities (honors sequence 101, 102, 103, 104; religion courses 25, 110 and above); linguistics 20 or 120); speech and dramatic art (Speech 3, 6, 60, 110, 283).

5. English: The student must present evidence of proficiency in English composition, which may be fulfilled by completing one or more of the following or the equivalent: English 60 Exposition or 65GH Honors Exposition with a grade of B or higher; or English 60 or 65GH with a grade of C and a satisfactory grade on the English Proficiency Examination. In addition, students whose native language is other than English must present a TOEFL score of at least 525. TOEFL is a test of English as a foreign language.

CREDIT REQUIREMENTS
1. CLEP (College Level Examination Program). Advanced Placement and bonus credit. The School grants no academic credit in these categories. The School grants credit only for college courses successfully completed by the student.

2. Credit earned as a high school student. The School of Journalism may recognize coursework completed by high school students in other institutions of higher education provided it appears on a transcript from an accredited college or university.

3. Unacceptable college courses. The School accepts no journalism or communication credit in transfer the 60 hours required for admission. In certain instances, students may be excused from repeating some introductory journalism courses, but they are still required to complete a minimum of 30 hours of journalism credit at UMC.

The School does not accept credit in basic mathematics, basic physical education, typing or shorthand, and no more than three hours each of applied or performance music, dance, drama, or studio art.

4. Junior college coursework. Students may offer for admission a maximum of 64 hours of junior college work. Junior college work taken after admission to the School is not acceptable.

5. Typing skill. Journalism courses require the use of the typewriter. In the second semester students are enrolled, they must demonstrate a typing proficiency of 40 words per minute.

APPLICATIONS AND ADMISSION DEADLINES
To enroll, obtain an application from the director of admissions. The deadlines for applying for admission to the School of Journalism are Feb. 1 for the fall semester and Sept. 1 for the winter semester.

ADMISSION WITH BACHELOR'S DEGREE
Students who have been graduated with acceptable bachelor's degrees may apply for admission to the undergraduate program of the School of Journalism in a program leading to the Bachelor of Journalism degree.

Students so admitted are required to complete all specific entrance requirements which they did not complete as undergraduates, including the advanced course in a foreign language. Advertising majors must complete at least 24 hours of marketing, before or after admission.

An acceptable degree is one for which the student has completed at least 120 semester hours or the equivalent, including at least 90 hours of liberal arts, science and social science credit as determined by the Journalism Admissions Committee.

GRADUATION REQUIREMENTS
Up upon admission to the School of Journalism, students choose advisers in their major field who assist them in planning a program. How-
ever, fulfillment of all requirements for graduation is the responsibility of the student.

Early in the semester preceding the one in which the student expects to complete degree requirements, the student must file with the dean an application for graduation, and at the same time supply requested information for his or her permanent file.

The School of Journalism confers one undergraduate degree, Bachelor of Journalism (B.J.). To obtain the degree, students must fulfill the following conditions: They must be regularly admitted to the School, must complete at least 30 hours of acceptable journalism coursework, must complete at least 30 hours of acceptable coursework outside the School, must earn a cumulative GPA of at least 2.0 for all work taken while in the School of Journalism and a GPA of at least 2.0 for all journalism courses.

COURSES REQUIRED

OUTSIDE JOURNALISM

A. Fifteen hours numbered 100 or above from these areas:
   1. Behavioral: biological, physical and mathematical science.
   2. Social Science: At least six hours from two of four areas: economics, geography, history, political science (to meet Missouri state law requirements, students must take at least one course in either U.S. History or American Government).

B. Upperclass Non-Journalism Electives: Nine hours are required, and all must be numbered 200 or above or 100 GH.

C. General Electives: Six hours are required. Any non-journalism course acceptable to the adviser is allowed. The advanced course in the foreign language must be completed, the credit to count only in the six hours of general electives.

Some students will enter Journalism with more than the required 60 hours. The excess over 60 may be counted in the elective credit for graduation or upperclass hours may be counted in appropriate categories.

COURSES REQUIRED IN JOURNALISM

Students must complete 30 credit hours in professional journalism, including these basic courses:

120 Advertising Principles & Practice (2-3)
180 Journalism Careers (0)
300 Mass Media and Society (2)
309 History & Principles of Journalism (3)

Three hours of Advertising Principles is a prerequisite for all other advertising courses.

SEQUENCE REQUIREMENTS

Advertising Major: An additional 11 credit hours required:

105 News (3) or 119 Promotional Writing (3)
121 Advertising Copy, Layout & Production (3)
141 Introduction to Selling (3)
136 The Graphics of Journalism (2)

Advertising majors also must complete at least six hours of marketing.

At least 10 hours from the following group:

222 Psychology in Advertising (2)
223 Advertising Salesmanship (3)
232 Advertising Campaigns (2)
226 Broadcast Advertising (2)
225 Direct & Mail Order Advertising (2)
221 Retail Advertising (2)
220 Creative Strategy and Tactics (2)
230 Advertising Markets & Media (2)
311 Advertising Management (2)
312 Public Relations (3)
316 Research in Advertising (2)
348 International Advertising (2)
357 Sales Promotion (2)

Suggested Electives:

110 Editing (3)
140 Basic Press Photography (3)
304 Communications Law (3)
306 Reporting (3)
310 Newspaper Editing (3)
338 Business and Economics Reporting (3)
340 Visual Communication (3)
345 General Semantics in Journalism (2)
362 Magazine Design (3)
364 Organization Communications in Public Relations (2)
375 Newspaper Design (2)
376 Newspaper Circulation and Marketing (2)
387 Journalism as Communications (2)

Magazine Major: An additional 20 credit hours required:

110 News (3)
110 Editing (3)
105 News (3)
304 Communications Law (3)
336 The Graphics of Journalism (2)
345 General Semantics in Journalism (2)
360 Intermediate Writing (3)
362 Magazine Design (3)
363 Magazine Editing (3)
373 The Community Newspaper (3)
387 Journalism as Communications (2)

Radio-Television Major: An additional 18 credit hours required:

101 Introduction to Broadcast News (3)
105 News (3)
304 Communications Law (3)
353 Broadcast Reporting (3)
355 Radio Reporting and Editing (3)
358 Television Reporting and Editing (3)

Suggested Electives:

110 Editing (3)
140 Basic Press Photography (3)
306 Reporting (3)
308 Law and the Courts (2)
326 Broadcast Advertising (3)
328 Retail Advertising (2)
332 Public Relations (3)
345 General Semantics in Journalism (2)
351 Television News Photography (2)
356 Television News Production (3)
357 Issues in Broadcast Management
359 Television Seminar (3)
382 Broadcast Public Affairs (3)
387 Journalism as Communications (2)

SEQUENCE OF REQUIRED COURSES

FIRST SEMESTER

Advertising: News (3) or Promotional Writing; Advertising Principles; The Graphics of Journalism; Marketing course.

Magazine: History and Principles (3); Mass Media and Society (2); News (3).

Newspaper-Editorial: News (3); History and Principles (3); Mass Media and Society (2).

Photojournalism: News (3); History and Principles (3) or Mass Media and Society (2); Basic Press Photography.

Publishing: History and Principles (3) or Mass Media and Society (2); News (3); Advertising Principles (3).

Radio-Television: News (3); Advertising Principles (2-3); Introduction to Broadcast News.

SECOND SEMESTER

Advertising: History and Principles (3) or Mass Media and Society (2); Advertising Copy, Layout and Production (3); Introduction to Selling; Marketing course.

Magazine: Advertising Principles (2-3) or The Graphics of Journalism (2); Editing (3); Reporting (3)

Newspaper-Editorial: Advertising Principles (2-3); Editing (3); Reporting (3).

Photojournalism: History and Principles (3) or Mass Media and Society (2); Advertising Principles (2-3) or Editing (3); Intermediate Press Photography 2.

Publishing: Editing (3); Reporting (3) or The Graphics of Journalism (2); History and Principles (3) or Mass Media and Society (2).

Radio-Television: History and Principles (3) or Mass Media and Society (2); Communications Law (3); Broadcast Reporting (3).

THIRD SEMESTER

Advertising: History and Principles (3) or Mass Media (2) plus electives; Journalism Careers (0).

Magazine: Magazine Editing (3); Magazine Production (3) or Magazine Article Writing (3) or Advertising Principles (2-3) or The Graphics of Journalism (2); Journalism Careers (0).

Newspaper-Editorial: Newspaper Editing (3); Advanced Reporting (3); Communications Law (3); Journalism Careers (0).

Photojournalism: Advertising Principles (2-3) or Editing (3); Staff Photography (3); Reporting (3); Journalism Careers (0).

Publishing: Newspaper Editing (3); Newspaper Management (3); Reporting (3) or The Graphics of Journalism (2); Journalism Careers (0).

Radio-Television: History and Principles (3) or Mass Media and Society (2); Radio Reporting and Editing (3) or
SPECIALIZATIONS AND COOPERATIVE AGREEMENTS

The School of Journalism welcomes cooperative agreements with other disciplines. It expects those programs to enhance the education of journalism students and to provide a base for graduate work later.

The School offers students from other disciplines a program designed to provide an understanding of the news process—an understanding valuable to students and to the communications industry—and to allow them to enter the School's graduate program without delay upon completion of a bachelor's degree.

The School expects that cooperative agreements will result in formal programs for 12 to 15 hours of undergraduate study in each discipline by interested journalism students.

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 dean (initials on enrollment card) is required. Because of crowding in the School's media, courses directly related to the three media are usually not open to the outside students while they are undergraduates in another discipline.

AB-BJ COMBINATION

Students who combine their studies in the School of Journalism with studies in the College of Arts and Science may obtain degrees from both. Two degrees may be granted to students when they have completed all requirements for the BJ degree and in addition have completed the equivalent of one semester's work, amounting to at least 12 hours of credit (a total of at least 132 credit hours) and all other requirements for the arts and science degree.

BUSINESS AND ECONOMICS REPORTING

To obtain the degree of Bachelor of Journalism with a concentration in business and economics reporting, students must meet requirements for the news-editorial major and pass 338, Business and Economics Reporting. They also must complete 12 hours of courses in the College of Business Administration or in the Department of Economics.

The School offers a program of concentration in business and economics reporting, students must prepare a curriculum which can prepare them for positions in newspaper management, in newspaper business offices and in offices of broadcast management.

To obtain the degree of Bachelor of Journalism with a concentration in management, students must fulfill the following conditions:
1. They must be regularly admitted to the School.
2. They must meet the requirements for any one of the six sequences in the School and pass Journalism 399, Management in Media.
3. They must complete 12 credit hours of courses in the College of Business Administration. The following courses are highly recommended: Accountancy 36; Accountancy 37; Management 310, Personnel Management; Management 311, Collective Bargaining; Management 329, Organizational Behavior; Marketing 204, Principles of Marketing; Marketing 312, Marketing Management; and Finance 203, Corporation Finance.
4. They must pass one of the following courses in the School of Journalism: Journalism 332, Retail Advertising; Journalism 331, Advertising Management; Journalism 357, Issues in Broadcast Management; Journalism 368, Magazine Publishing; Journalism 375, Newspaper Management; or Journalism 376, Newspaper Circulation and Marketing.
5. They must complete a total of 120 credit hours and otherwise meet the conditions and regulations governing the awarding of the BJ degree. Students may earn six hours of upper-class credit in the College of Business and Public Administration.

SCIENCE, MEDICAL AND ENVIRONMENTAL REPORTING

Students who wish to take science, medical, environmental or outdoor writing as an area of concentration may do so while enrolled in the news-editorial or magazine sequence leading to a Bachelor of Journalism degree. Requirements for these areas include the following:
1. Be regularly admitted to the School of Journalism.
2. Complete at least 30 hours in journalism, including History and Principles, News Editing, Newspaper Editing, Advertising Principles and Practice, Journalism Careers, Mass Media and Society, Reporting, and Science Writing.
3. Complete at least 30 hours in the physical, biological and social sciences, and environmental studies. See the faculty coordinator for these areas for listings of suggested courses.
4. Complete a total of 120 credit hours and otherwise meet requirements for the BJ degree.

PUBLIC RELATIONS

There is no public relations sequence in the School of Journalism, but students can prepare themselves for work in that area by selecting appropriate courses to supplement their major requirements. They should arrange for advisement by the teacher of the public relations courses.

SOCIOLGY-JOURNALISM

This program permits journalism undergraduates to enter the Graduate School for work in sociology, and 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 hours of sociology courses under the direction of an adviser in sociology; sociology undergraduates may take up to 16 hours 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 credit hours. Journalism students may take sociology courses without being part of a formal program.

PUBLIC AFFAIRS JOURNALISM

The basic aim of this program is similar to that of the sociology-journalism program: to prepare students for graduate work. Political science students with a minimum of 60 credit hours may take up to 12 hours of journalism in the public affairs option of a BS in Public Administration. Journalism courses recommended include History and Principles, News Editing, Advertising Principles, and Mass Media and Society. While it is hoped the students will go on to Graduate School in journalism, the values of journalism courses are obvious for city officials who may never go beyond the bachelor's degree.

ACADEMIC POLICIES

SEMESTER CREDIT HOURS

(Maximums and Minimums)

The hour, which is the unit of credit given at the University, is the equivalent of a subject pursued one period a week for one semester of 16 weeks.

A student in the School of Journalism may take no more than 16 hours a semester, except that an undergraduate student who has established a B average the year before may carry 17 or 18 hours, and one who has established an A average may carry 19 hours. In both instances, special permission of the dean is required.

A student may take no more than 10 hours of journalism courses per semester.

No student may take less than 12 hours of work in one semester, except that the dean may reduce the minimum in necessary cases. The maximum for students employed as graduate teaching assistants is 12 hours a semester; the minimum is 8 hours.

ADDITIONAL HOURS

The hours required for the BJ degree shall be increased when a student’s unexcused absences from faculty-designated events exceed the allowable maximum announced by the faculty prior to the event.

PROBATION, SUSPENSION AND DISMISSAL

Journalism students are placed on probation when, either their journalism or their overall, (term or cumulative) GPA falls below 2.0. Students may remain on probation no more than one term. They regain good standing when both their term and cumulative GPAs, for journalism and overall, climb to 2.0 or higher.
Students may be placed on academic probation and may be declared ineligible to enroll if they neglect their academic duties.

Students become ineligible to enroll for a period of one regular semester [suspended] when their term GPA (journalism or overall) is below 1.5; when they pass less than one-half of their work in any term; or when they are on probation and their term GPA is 2.0 or lower.

Students become ineligible to enroll for a period of one calendar year [dismissed] when their term GPA (journalism or overall) is below 1.0; when they pass less than one-fourth of their work in any term; or when they fail to perform their academic duties.

A student who has been declared ineligible to enroll may be readmitted only upon the approval of the dean of the school or college 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 which must be maintained by the student. If the student, after readmission, again becomes ineligible to enroll, his ineligibility normally is considered permanent.

PASS/FAIL' GRADING

A student may take a maximum of one Satisfactory/Unsatisfactory course each academic term and may present a maximum of 12 hours of S/U credit for admission to the School of Journalism. After admission to journalism, a student may take, on an S/U basis, up to 12 of the 60 hours required for the BJ degree.

A student receives a grade of Satisfactory for C or higher, and Unsatisfactory for D or lower. S/U courses are not available to students on scholastic probation.

Courses taken on an S/U basis are not used in calculating a student's grade point average.

No student may take a course specified as a requirement in his major on an S/U basis.

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 students be guilty of plagiarism, falsification, misrepresentation or other forms of dishonesty in assigned work, they may be subject to a failing grade from the course teacher and such disciplinary action as may be recommended pursuant to University regulations.

ADDING AND DROPPING CLASSES

Students may change their original enrollment only with the approval of their adviser and the dean. No student may register in the School or in any course, other than Problems, Special Readings, or Research, after the expiration of two weeks following the first day of classes in regular session or the equivalent thereof in a shorter session.

Students may withdraw from a course without penalty until six weeks after the semester begins, so long as their total enrollment does not fall below the 12-hour minimum requirement.

Students who withdraw from a course after the six-week period are eligible to receive a grade of W if they are making a grade of D or better in the course.

Students who wish to withdraw from a course must process the appropriate form no later than two weeks before the last scheduled day of classes.

The petitioning procedure may begin on the third classwork day of each term and can be initiated only by the student.

Cessation of attendance in a given class does not constitute a formal withdrawal, and attending a course without officially petitioning does not entitle a student to receive credit for the course. Petitions are not approved retroactively; therefore, changes in class schedules should be effected immediately. Add-drop forms are available in Office of the Dean, 122 Neff Hall.

SUMMER SESSIONS

The School of Journalism offers two summer sessions in which most of its media laboratory courses are offered. The first session begins in mid-May; the second in early July. Students may combine one or both of the sessions with the regular University summer session if their enrollment does not exceed nine hours 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, KBLA and KOMU-TV.

Classes are smaller in the summer sessions, and students have a maximum opportunity to consult on a one-to-one basis with faculty members. Because labs are smaller, students' opportunities are much greater for publishing and broadcasting experience on the media.

INTERSESSION

An intersession is offered during the Christmas holidays. Enrollment is limited, and work is in laboratory courses only.

In a term preceding a student's enrollment in intersession, the student must enroll for the lecture portion of the intersession course, in 102, Intersession Colloquium (0).

Students who wish to do some of their work in intersession should make arrangements for enrollment with the instructor of the intersession courses as soon as possible after they are admitted to the School.

INDEPENDENT STUDY

History and Principles of Journalism and High School Journalism are offered by correspondence for students who have completed at least 60 hours of college work. Students taking the BJ degree are required to take History and Principles of Journalism on the campus. Students who are interested in High School Journalism but unable to attend summer school are urged to take this course through the Center for Independent Study.

A maximum of six hours credit, 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.

GRADUATE-LEVEL COURSES

Undergraduate students should not be enrolled in 400-numbered courses which are intended for graduate students only. The exception is undergraduates who have dually enrolled in journalism and the Graduate School.

Students may dually enroll if they are in the top half of their class, are within 15 hours of graduation and have the approval of both deans.

STUDENT SERVICES

ADVISING AND COUNSELING

The University provides many services for students in the areas of academic, career, and personal advising and counseling.

The faculty of the School of Journalism serve as academic advisors to prejournalism and journalism students. Students are expected regularly to seek the advice of the faculty in the selection of appropriate courses and the development of the student's career interests.

The School provides advisement forms on which the student is expected to maintain the record of his academic course work. The forms will be used by student and adviser to plan the student’s program.

The responsibility for meeting the admissions and graduation requirements rests with the student.

PLACEMENT SERVICES

The School of Journalism maintains a Placement Office to help its graduates find positions for which they are qualified. During the 1980-81 school year, the office processed 1,591 job openings. The office referred 1,019 students and alumni to these jobs; arranged 37 groups of interviews for graduating seniors with newspapers, magazines, advertising agencies, industry, and press associations; placed students for 65 summer jobs; and placed 290 graduates in journalism-related jobs. The School of Journalism does not guarantee placement, but does assist in every way possible those graduates seeking employment.

STUDENT ORGANIZATIONS

The University of Missouri Journalism Students Association Inc., was granted a state charter May 13, 1922. All regular students in the School of Journalism automatically become members of the Association, with administrative officers elected annually.

Kappa Tau Alpha is an honorary national society for journalism students. Membership is based on scholastic standing, with the top 10 percent of students eligible. The object of the society is the promotion of scholarship and high ideals among students preparing for journalism. Kappa Tau Alpha was founded March 31, 1910, at the University of Missouri-Columbia. This chapter is now named the Frank Luther Mott Chapter. Each year the national fraternity presents the Frank Luther Mott Kappa Tau Alpha Award for Printed Research in Journalism. The monetary value is $250.

National headquarters of Kappa Tau Alpha is located at the School of Journalism.

Alpha Delta Sigma is a national honorary society that recognizes outstanding scholarship and achievement among students of advertising. Founded on this campus in 1913, the society now is sponsored by the American Advertising Federation and honors those students who have demonstrated distinctive talent and ability in their academic endeavors.

University of Missouri A&F College Chapter Advertising Club is an organization of students whose primary interest is in advertising. The club is affiliated with the American Advertising Federation, the only national association that brings together all segments of advertising.

Choi Omicron Mu is a quantitative research fraternity established by graduate students in journalism in 1965. Its purpose is to stimulate interest in communications research and to provide a forum for the discussion of topics in this field. Membership is open to graduate students in various communications disciplines and is by invitation only. The principal qualifications are activity in communications re-
search and demonstration of a relatively high aptitude for creative work in communications.

Kappa Alpha Mu, a national professional photojournalism fraternity, was founded April 20, 1945, at the University of Missouri, to promote and to better photographic journalism. A grade of C or better in all other subjects, a probationary period of pledgehip and a grade of B in photographic work are required.

The Society of Professional Journalists, Sigma Delta Chi, was founded at DePauw University April 7, 1909. The Missouri chapter was installed Feb. 22, 1913. Sigma Delta Chi defined the term "journalism" to include: the direction of the news, the writing of it, and the opinion of newspapers, magazines, press or syndicate services, professional or business publications, and radio or television stations.

World Communications is a national professional journalism fraternity for women, founded as Theta Sigma Phi at the University of Washington, April 9, 1909. It aims to bring college-trained women together in the profession of journalism and to improve the working conditions for women in this profession and to inspire its members to great efforts in this field. A grade average of C or higher, and grades of B in six hours of professional work in journalism are required for initiation.

### FINANCIAL AID TO STUDENTS

Financial aid to students enrolled in residence at UMC is offered in the form of fellowships, scholarships, assistantships, student loans, and student grants and employment. Students in need of financial aid should apply directly to Student Financial Aids, 11 Jesse Hall, UMC, Columbia, Mo. 65211.

In addition to financial aid given through the campus financial aid officer, the School of Journalism has an excellent scholarship foundation program. About $100,000 is awarded annually. Most of the awards require recipients to be enrolled full-time in the School of Journalism to be eligible.

The school also employs many of its students as assistants in the School's media or to assist the faculty in conducting the non-media laboratory courses.

Applications for Journalism Scholarships should be sent to the chairman of the scholarship committee at the School of Journalism. The deadline for application is Feb. 1. Applications for the assistantships should be made to the faculty members who supervise the work.

### SCHOLARSHIPS

In addition to grants open to all students, the scholarships, fellowships, prizes and loan funds listed on the following pages are offered each year for students in journalism. Applications should be directed to the chairman of the scholarship committee, School of Journalism, before Feb. 1.

Verification of financial aid is made through the Office of Student Financial Aids, 11 Jesse Hall, UMC. The forms must be on file to conform with the School of Journalism deadline of Feb. 1.

**Beatrice Adams Scholarship in Journalism:** An annual award of $1,000. A gift to the School from Beas Adams, one of the outstanding advertising women in the world, to the woman student who shows highest creative promise in advertising.

**Philip L. Blazer Memorial Scholarship:** Income from a fund of $1,500 awarded annually to a Missouri resident.

**Oliver K. Bovard Memorial Journalism Scholarship:** A stipend of $300, plus summer employment on the St. Louis Post-Dispatch, awarded annually to a student who has completed his first year in journalism.

**Hal Boyle Scholarship:** An annual award, consisting of the interest on a fund created by the friends of Hal Boyle, BJ '32, to a student or students demonstrating excellence in journalism.

**Olive Coates Memorial Scholarship:** Awards paid annually on a grade of $500 to undergraduate or graduate students.

**Tilghman R. Cloud Memorial Scholarship:** An annual award of $200 made possible by the family and friends of the late Missouri publisher and UMC alumnus Tilghman R. Cloud of Pleasant Hill.

**David E. Dexter Scholarship:** Income from a $6,000 gift from Richard Dexter awarded annually to a student in the School of Journalism who also is a varsity athlete in football or wrestling, with a C or better average in all subjects except for major in journalism.

**Fairchild Publications Scholarship:** A stipend of $2,000 to a student who demonstrates serious intent to pursue a career in business journalism. The scholarship may be renewed for an additional year.

**Eugene Field Scholarship:** Open to all students in journalism, and awarded annually to one who is well equipped in professional ideas and in general newspaper-making ability. The scholarship consists of the income from $1,500.

**Ann M. Franklin Scholarship:** A $1,000 stipend offered annually to a student in the Washington reporting program of the School of Journalism, the gift of Mr. and Mrs. Maurice Frank.

**Benjamin Franklin Scholarship:** A $1,000 stipend offered annually to a student in journalism. The scholarship is endowed by the late John P. Herrick in memory of Benjamin Franklin.

**Margaret Ann Wheeler Gilbert Memorial Scholarship:** Awarded to a student in the School of Journalism who has maintained a 3.5 GPA.

**Bob Goddard Memorial Scholarship:** Income from a fund of $10,000 in support of the late Louis Globe-Democrat columnist and an alumnus of the School of Journalism, provides the stipend for an award to an undergraduate majoring in print journalism.

**Robert H. Herrick Scholarships:** Two $1,000 stipends offered annually to students entering the School of Journalism. Residents of New York state are given preference.

**Robert M. Ibrahim Scholarship:** Income from a grant of $10,000 awarded annually to a student who demonstrates interest in work in Asia or the Middle East.

**INGAA Scholarships in Business Communications:** Two $300 scholarships awarded to graduate or undergraduate students in journalism who demonstrates a need, interest and talent in business news writing. Funds are provided by the Interstate Natural Gas Association of America. Deadline for applications is Oct. 1.

**Robert M. Jackson Scholarship:** A $250 scholarship awarded annually to a graduate student in journalism.

**H.S. Jewell Scholarship:** Awarded annually to a student in journalism, the scholarship represents the annual income on a $5,000 gift.

**John W. Jordan Scholarship:** Paid from the income on a $5,000 gift, this scholarship is awarded annually to a student in journalism.

**Mary S. Pryor Scholarship:** Open to all students in the School of Journalism and awarded annually to one chosen on a basis of merit and achievement. Application forms are available from Mrs. Mary S. Pryor, 1513 Henry St., St. Louis, Mo.

**Ralph R. Rinehart Scholarship:** Offered annually to a student in the School of Journalism who also is a varsity athlete in football and majoring in journalism.

**Lafayette Young Scholarships:** Two $300 scholarships awarded to graduate or undergraduate students in journalism who demonstrates interest in work in Asia or the Middle East.

**Herman B. Stadelman Scholarship:** A $5,000 gift. This scholarship is awarded annually to a student in journalism representing the annual income from a fund established by friends of the late Missouri publisher and UMC alumnus Tilghman R. Cloud of Pleasant Hill.

**Walter Williams Scholarship:** A $1,500 stipend granted by the St. Louis Globe-Democrat in honor of the late correspondent and columnist. Income from a fund of $2,000 to a student in the Missouri class. Income from a fund of $2,000 to a student in the Missouri class. Income from a $2,000 gift awarded to students enrolled in the School of Journalism.

**Theodore Roosevelt Scholarships:** Two $1,000 stipends are offered annually to students in journalism. The scholarships are endowed by John P. Herrick in memory of Theodore Roosevelt.

**J. Richard Sage Scholarship:** Annual scholarship to student enrolled in the School of Journalism with preference to seniors.

**St. Louis Post-Dispatch Unit Advertising Scholarship:** Half of a $300 stipend awarded at the beginning of each semester to a journalism student majoring in advertising.

**St. Louis Post-Dispatch Scholarships:** (up to four each year for minority students). The St. Louis Post-Dispatch selects a senior resident in an accredited high school or junior college in Missouri, St. Charles, or St. Louis counties or the city of St. Louis, Mo., or Madison or St. Clair, Ill., counties. Renewable, based on satisfactory scholastic record; apply by April 1 to Mr. William E. Millstone, assistant managing editor, St. Louis Post-Dispatch.

**Virginia McElroy Schwartz Scholarships:** Awards made annually from the income of a gift of $66,000 from the estate of Mrs. Robert P. Schwartz.

**Science Writing Scholarship:** An annual award of $500 given by a friend of the University to recognize outstanding achievement in science writing.

**Scirpps-Howard Scholarship:** A $1,000 stipend granted by the Scripps-Howard Foundation to a student who plans a career in journalism. Application forms are available from the Scripps-Howard Foundation, 1100 North Fourth Street, Columbus, Ohio 43212.

**Eugene W. Sharp Scholarship:** Income from a fund established by journalism alumni in honor of Professor Sharp, who was a member of the faculty for 45 years. The stipend approximately $450 annually.

**Bessie Marks Memorial Journalism Scholarship:** A $1,000 annual award granted by the Scripps-Howard Foundation to a student who plans a career in journalism. Application forms are available from the Foundation.

**Kappa Delta Pi Journalism Scholarship:** Annual awards of $600 each to the two highest ranking journalism students. One of them is awarded to the highest ranking member of Delta Sigma Chi. Established by the Missouri chapter of the Professional Journalism Society.

**Jay L. Torrey Scholarship:** Awarded annually to a woman student in journalism considered well prepared to do the work of a journalist. The scholarship consists of the income from $2,000.

**Norman Hurst Trenholme Journalism Scholarship:** The income from a gift of $5,000 awarded annually to a junior, senior or graduate student in journalism.

**Sara Louise Woodward Williams Scholarship:** An annual stipend of $500 paid from interest on a bequest by the late Mrs. Walter Williams, a member of the faculty. In consideration of her keen interest in women in journalism, the scholarship committee gives preference to women students.

**Walter Williams Scholarships:** Two $1,000 stipends offered annually to students upon entering the School of Journalism.

**Lyle Wilson Scholarship:** An award of $1,000 presented annually by the Scripps-Howard Foundation, in honor of the late correspondent and columnist.

**Lafayette Young Scholarships:** Two $1,000 stipends offered annually to students upon entering the School of Journalism.

### FELLOWSHIPS

**Morris E. Jacobs Fellowship:** A grant of $1,000 awarded each year to a student in journalism or a candidate for the master's degree in journalism.

**Walter Williams Memorial Fellowship in International Press Problems:** Interest on funds of the Walter Williams... provided by Edward Asner, awarded to a broadcast journalist.

**Mary S. Pryor Scholarship:** A $500 stipend offered annually for one academic year to a woman student in journalism.

**Donald W. Reynolds Foundation Scholarship:** $4,000 to a junior student in upper 10 percent of class, renewed for senior year. Awarded by judges selected by the Reynolds Foundation.

**Bruce Rice Scholarship:** A $1,500 stipend granted by the St. Louis Globe-Democrat to a junior who plans a career in broadcast journalism or music at UMC. Scholarship may be renewed for senior year. Preference is given to applicants from Kansas City area. Apply to Bruce Rice Scholarship Fund, Harry S. Truman Sports Complex, P.O. Box 7957, Kansas City, Mo. 64129.

**Bruce Rice Scholarship:** A $1,500 stipend granted by the St. Louis Globe-Democrat to a junior who plans a career in broadcast journalism or music at UMC. Scholarship may be renewed for senior year. Preference is given to applicants from Kansas City area. Apply to Bruce Rice Scholarship Fund, Harry S. Truman Sports Complex, P.O. Box 7957, Kansas City, Mo. 64129.
Memorial Foundation available every third year for a fellowship to be awarded to a candidate with a master of arts degree in journalism who has passed the language examinations and is proceeding for the PhD degree. The candidate should have spent two preceding graduate years specializing in the field of study roughly defined as the international press.

PRIZES AND AWARDS

Sara Allen Award: A $50 prize honoring retired Professor Allen presented to a woman student who writes an outstanding feature story for the Missouri Alumni Review.

W. Bickley Award in Newspaper Editing and Design: Income from a fund established by alumni and friends honoring Professor Bickley, a member of the journalism faculty from 1941 until his death in 1973, in recognition of excellence in newspaper editing.

Cowgill Blair Annual Incentive Award: Award for a senior journalism student in editorial writing or newspaper management who demonstrates the greatest potential in broadcast management.

Stipend in recognition of excellence in television news work awarded annually in cash for the best essay on Chinese-American Essay Prize: A $50 prize honoring retired Professor Allen presented to a woman student who writes an outstanding article on freedom of expression.


Reader’s Digest Travel Fund: A gift of $1,000 from the Reader’s Digest Foundation pays expenses of students in journalism for necessary travel to gather material for feature stories, magazine articles, and research in connection with their class work.

Donald W. Reynolds Foundation Loan Fund: A $5,000 annual loan fund for the study of journalism and allied fields.

Stern Placement Loan Fund for Magazine Majors: A $3,000 fund established by the Philip M. Stern Family Fund to make interest-free loans to magazine majors who are about to graduate and who need financial assistance to find employment in the field of journalism.

SPECIAL FUNDS

Mary Jo Rigler Clendenon Loan Fund: A $500 fund established by Mrs. Helen G. Rigler.

Dorothy Flynn Loan Fund: A gift of $1,500 from the family and friends of Mrs. L. Doral Flynn.

Cowgill Dodds Lockwood Memorial Student Loan Fund: A $500 bequest of Early Arline A. Lockwood.

Missouri Press Women Loan Fund: A gift of $1,500 from the Missouri Press Women for loans to women students in the School of Journalism.

Stokes Memorial Foundation available every third year for a $50 prize honoring retired Professor Allen presented to a woman student who writes an outstanding feature story for the Missouri Alumni Review.

J. Robert Humphreys, associate professor, PhD, University of Missouri-Columbia

Robert L. Terrell, associate professor, PhD, University of Missouri-Columbia

John Angelides, instructor, MA, University of Missouri-Columbia

Steve Weinberg, assistant professor, PhD, University of Missouri-Columbia

John Whale, assistant professor, AM, Corpus Christi College, Oxford (England)

E. Edward Heins, associate professor, BJ, University of Wisconsin

David Hendin, adjunct professor, MA, University of Missouri-Columbia

George Kennedy, associate professor, PhD, University of Missouri-Columbia

Robert F. Knight, professor, PhD, University of Missouri-Columbia

Ken Kobre, associate professor, MA, Brown University

Karen K. List, assistant professor, PhD, University of Wisconsin

Harold Lister, associate professor, MA, University of Missouri-Columbia

Barbara F. Luebbe, assistant professor, PhD, University of Missouri-Columbia

Angus McDougall, professor, MA, Northwestern University

Daryl R. Moen, professor, MA, University of Minnesota

Thomas C. Morelock, professor emeritus, MA, University of Missouri-Columbia

Ernest M. Morgan, professor, PhD, University of Texas-Austin

John Angelides, associate professor, MA, University of Missouri-Columbia

Joyce Patterson, associate professor, PhD, University of Missouri-Columbia

George Ples, instructor, MA, Sangamon State University

Daniel Steven Potter, instructor, BJ, University of Missouri-Columbia

Donald P. Ranly, professor, PhD, University of Missouri-Columbia

Donald G. Romero, associate professor emeritus, PhD, Brown University

Keith P. Sanders, professor, PhD, University of Iowa

Regina Sherard, instructor, MA, Michigan State University

Bennie W. Sharp, professor emeritus, MA, University of Missouri-Columbia

Pat Smith, instructor, MA, University of Missouri-Columbia

Jane A. Turner, instructor, MA, University of Missouri-Columbia

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Steve Weinberg, assistant professor, PhD, University of Missouri-Columbia

John Whale, assistant professor, AM, Corpus Christi College, Oxford (England)

W. Richard Nelson, Jr., professor, MA, University of Missouri-Columbia

Harvey D. Spaulding, instructor, MA, University of Michigan

Patricia Gorman Spaulding, instructor, BA, Western Illinois University

NEWS-EDITORIAL

Daryl R. Moen, chairman, professor, MA, University of Minnesota

Stanley E. Abbott, instructor, BA, California State University at Los Angeles

John Angelides, adjunct professor, BJ, University of Missouri-Columbia

Brian S. Brooks, associate professor, MA, University of Missouri-Columbia

Jay Buskinisky, assistant professor, MS, Columbia University

Jane E. Clark, associate professor, MA, University of Missouri-Columbia

Ruth C. D’Arcy, professor, BA, Wayne State University

G. Thomas Duffy, professor emeritus, High School, East St. Louis, Ill.

Clifton C. Edom, professor emeritus, BJ, University of Missouri-Columbia

Paul L. Fisher, professor, PhD, University of Missouri-Columbia

Roy M. Fisher, professor, BJ, Kansas State University

James K. Gentry, instructor, MA, University of Missouri-Columbia

Mark Godich, instructor, BJ, University of Missouri-Columbia

A. Edward Heins, associate professor, BJ, University of Wisconsin

David Hendin, adjunct professor, MA, University of Missouri-Columbia

George Kennedy, associate professor, PhD, University of Missouri-Columbia

Robert F. Knight, professor, PhD, University of Missouri-Columbia

Ken Kobre, associate professor, MA, Brown University

Karen K. List, assistant professor, PhD, University of Wisconsin

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Steve Weinberg, assistant professor, PhD, University of Missouri-Columbia

John Whale, assistant professor, AM, Corpus Christi College, Oxford (England)
Nursing education at the University of Missouri-Columbia began in 1901 with the establishment of Parker Memorial Hospital Training School of Nurses. In 1920, the University assumed responsibility for the School, changing the curriculum to a five-year program of nursing and arts and science courses. The Board of Curators established the Department of Nursing Education within the School of Medicine in 1949. The name was changed to School of Nursing in 1954, and in 1973 the School became autonomous. The University of Missouri-Columbia has offered a program leading to a Bachelor of Science in Nursing since 1939. A graduate program leading to the master of science degree has been offered since 1968.

The Nursing School Building is the latest addition to the health sciences complex, which also includes the Medical Sciences Building; a library; the 500-bed teaching hospital (including 44 bassinets in both well-baby and neonatal intensive care units) with its corresponding outpatient department, and emergency service. The 52-bed Howard A. Rusk Rehabilitation Center and its outpatient clinics; the 87-bed Mid-Missouri Mental Health Center; and the 460-bed Harry S. Truman Memorial Veterans Administration Hospital.

PHILOSOPHY

The School of Nursing, an autonomous educational division within the University of Missouri-Columbia, derives the broad outline of the philosophy and purposes from those of the University. The faculty has the responsibility for implementing the three major functions of the University—teaching, research, and service. The faculty of the School believes that nursing is a practice discipline which is developing a structured body of knowledge. As a practice discipline, the education of professional nurses focuses both on the theoretical base and on the applied base. The faculty accepts Orem’s self-care-deficit theory of nursing as a valid and reliable general concept of nursing upon which to structure nursing knowledge and develop nursing curriculum and nursing practice.

Man, used in the sense of human beings collectively, is a social organism with rational powers and as such symbolizes and formulates purposes about, and acts on, self, others and the environment. The person, or individual human being, is an existent entity, a dynamic being in a continuing process of development. Unity is integral to a person as a human being. Each adult person has the right and responsibility to care for self, to maintain rational life and health, and also may have such responsibility for others.

Health is a term which describes the state of wholeness or integrity of the individual human being. The essence of health is the capacity to live as a human being within one’s physical, biological, and social environment, achieving some measure of the life potential unique to man. It further implies the ability of the individual to function in a manner acceptable to self, social and cultural reference groups. The responsibility for one’s own health implies that the individual is the central figure in the health care team.

Nursing, as a human service, has as its special concern the individual’s need for self-care action and the provision and management of it on a continuous basis in order to sustain life and health, recover from disease or injury, and cope with their effects. Individuals who have needs for self-care of a positive, therapeutic quality and who have limitations for its management and maintenance seek or receive assistance from individuals with specialized nursing knowledge, skills and attitudes. The creative end product of nursing is a nursing system, that is, a system of concrete actions produced from deliberate, discrete actions of nurses and clients/patients.

Nursing is a helping profession which has caring and assisting as two of its major characteristics. It is a form of action which assists persons with actual or potential self-care limitations to achieve health results. Nursing provides service to individuals and groups of persons in a variety of settings. Nursing is viewed as a system and which, though frequently interactive, has the capacity of functioning autonomously.

Nursing uses a professional process to assess and meet the self-care needs of clients/patients. This nursing process is unique because of the particular philosophy, goals, knowledges, skills, and client relationships which are maintained. When this process is applied within a general concept of nursing, there exists a cognitive framework within which to develop deliberative and creative nursing action. Such a framework makes it possible to relate relevant content from the natural, social, behavioral, and medical sciences, the humanities and education. Furthermore, it promotes the development of prescriptive nursing theory.

Nursing education within this University focuses on professional nursing education and practice. Through nursing education with a broad liberal base, the practitioner is able to design systems of nursing care for individuals and groups and to perform in any setting where the need for nursing manifests itself. Professional nursing requires a value system within which to make practice decisions. This value system, though individually derived or held, is based on belief in the inherent uniqueness and dignity of man and is derived from deliberative thought.

Because of individual learning styles and personality, alternative methods of teaching the same outcome criteria are provided. The faculty believes that responsibility for learning rests primarily on the learner and that learning takes place through the active behavior of the student. This responsibility for learning continues throughout the professional career. The faculty’s role is to specify what should be learned, state the expected performance objectives, suggest ways of learning, facilitate achievement by preparing or making available necessary materials, make an evaluation of the level of accomplishment and provide corrective feedback. Education for a practice discipline requires genuine collaboration between educational and service institutions to provide real life experiences for learning.

PURPOSE

The purposes of the School of Nursing reflect the commitment to the teaching, research and service missions of the University. The education programs within the School—baccalaureate, graduate and continuing education—are designed to:

1) prepare a professional nurse whose practice reflects:
   a) the ever-changing needs of society for health care in general and assistance with self-care in particular;
   b) the use of a dynamic concept of nursing which provides the focus for practice;
   c) the ability to use or contribute to the continuing development of nursing as a practice discipline with a theoretical base;
   d) creativity, self-direction and critical thinking;
   e) application of knowledge from the natural, social behavioral and medical sciences; the humanities; and education;

2) prepare a person who can perform as a self-directing citizen in a democratic society;

3) provide opportunities for continuing development of professional nursing practice and individual professional growth; and

4) contribute to the development and improvement of nursing through evaluation and research.

ACCREDITATION

The UMC School of Nursing is fully accredited by the Missouri State Board of Nursing and by the National League for Nursing. The baccalaureate graduate, if not previously licensed, is eligible to apply to write the state licensing examinations to become a registered professional nurse.
ADMISSION
The undergraduate nursing program is planned approved
for a five-semester sequence, with the student completing three semesters (second semester
(sophomore level) before admission to the School of Nursing. Preference is given to Missouri
residents for admission to the undergraduate program.
Applications are evaluated by the School of Nursing Undergraduate Admissions and Prog-
ession Committee each March and October. Applicants are responsible for ensuring the
materials are received in the UMC Admissions Office, 130 Jesse Hall, by March 1 for ad-
mission in the summer or fall semester and by Oct. 1 for admission in the winter semester. An
application is considered complete when the following materials are in the applicant’s file in
130 Jesse Hall:
1. UMC application for admission or, for current UMC students, the application for
transfer of divisions.
2. Official transcripts of all college course work.
3. A record of current course enrollment.
4. Standardized test results.
Applicants, whose files are still incomplete after March 1 or Oct. 1, must reapply the
following year. Admission is provisional and dependent upon completion of the remaining
specified prenursing courses and maintenance of the minimum grade point average.
ADMISSION REQUIREMENTS
Pre-Nursing Curriculum (Freshman Year) Required Courses
English Composition (3)
(If exempted, a literature course)
Introductory Chemistry (5)
Laboratory
Introductory Zoology or General Biology (5)
(Including laboratory)
American History or Government (3-5)
(Missouri State Law Requirement)
General Sociology or General Anthropology (3)
(Cultural Anthropology)
General Psychology (3)
Logic (3)
Literature (2-3)
College Algebra or Statistics (3)
Zoology is preferred.
Recommended schedules for the 1st semester Sophomore year are:
Anatomy 202 5
Physiology 201 5
Microbiology 205 4
Prin. of Hum. Devel. 3
Adv. Behavioral/ English/Lit. 3
OR
Adv./General
Social Science 3
Philosophy 3
English/Literature 3
Adm. Behav/Soc. Science 3
15 17
ADMISSION CRITERIA
A formula that gives equal weight to each of
the criteria is used to rank School of Nursing
applicants. Applicants (both new and readmit-
ted) are considered on a competitive basis
within the current pool of applications for each
admission period. Admission criteria are:
1. Completion of 30-33 graded semester hours in prescribed prenursing courses listed
above, with a minimum cumulative grade point average of 2.50 (A = 4.0); and verification of
current enrollment in the recommended first-semester sophomore schedule.
2. High school rank (as recorded on high
school transcript).
3. School and College Ability Test Score (SCAT) Form 1C.
At least five graded hours of both biological
science and chemistry must be completed
before an applicant is considered for admission.
REGISTERED NURSE STUDENTS
Registered nurse applicants must meet the same admission standards except that RNs are
excluded from the zoology requirement. They must be currently licensed to practice nursing
or be eligible to take the state board of nursing examination before the end of the first semester
of enrollment (the latter are admitted provision-
ally).
TRANSFER STUDENTS
Students wishing to transfer to UMC from
another accredited college or university are
subject to the academic regulations established
by the UMC Faculty Council concerning trans-
fer of credit. Transfer of credit is described in
the Academic Regulation section of this cata-
alog.
To be admitted to the School of Nursing
transfer students must have completed the
required courses and met the admission criteria
described above.
A maximum of 64 semester hours of credit
may be transferred from a community/junior
college. The last 24 hours must be taken in
residence.
Missouri residents are given preference for admission. No non-resident has been admitted for
the past two years because of the increase in
the number of qualified Missouri residents
applying.
STUDENT SERVICES
ADVISING
Each student in the School of Nursing is
assigned a faculty adviser who helps plan
schedules, gives information concerning UMC
and the School of Nursing policies, and is
available for consultation about academic or
professional matters.
HEALTH
Information about the Student Health Ser-
vice is located in the General Information
section of this catalog. Nursing students partici-
ate in a variety of educational experiences
both on-campus and off-campus. 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.
PLACEMENT
The large number of employment opportuni-
ties available to nursing graduates has pre-
cluded the need for a placement office within
the School.
STUDENT ORGANIZATIONS
Undergraduate Nursing Association. All undergraduate
nursing students are members of the UNA. Executive power
is vested in the Nursing Student Council, which is composed of
elected executive officers, class officers and student
representatives to the student faculty committees. Council
meetings are open to all students, and all UNA members have
voting privileges. The UNA gives nursing students a voice in
affairs affecting their academic and social lives; serves to
enhance students’ educational and social environment; im-
proves communications among students, faculty and admin-
istrators; assists in the development and improvement of
nursing school policies; and coordinates the various student
organizations in the School. A copy of the charter is given to
each student upon request.
Student Nurses’ Association. Students belong to the
Sixth District, Missouri Student Nurses’ Association. District,
state and national membership as well as the National
Student Nurses’ Association magazine Imprint, are provided
through a membership fee. Participation in the organization
gives students a voice to have their issues heard in state
legislatures, Congress, nursing organizations and com-
munities. Officers are elected each spring; class representa-
tives are selected each fall. Activities on the district (local)
level include monthly newsletters, a picnic and
activities in the hospital. Delegates are sent to two state
conventions each year and to the annual national convention.
All students are encouraged to become involved.
Student Organization of Registered Nurses. The orga-
nization helps registered nurse students enrolled in the baccalaureate program adjust to college life, prepare for
advanced standing credit examinations, and identify com-
munity resources for action. Students participating in the
University Educational Assistance Program and other part-
time RN students are encouraged to attend the meetings.
Sigma Theta Tau. The Alpha Iota Chapter of Sigma Theta Tau,
named for its Founders, is chartered by the International
organization at the University of Missouri-Columbia Dec. 12, 1964. The
purposes of the society are to (1) foster high professional
standards; (2) encourage creative work; (3) promote maxi-
mum development of the individual and thus increase one’s
capacity to serve the profession, and through it, society; (4) promote the spirit of fellowship among members of
the nursing profession; (5) develop an abiding interest in the
advancement of nursing; and (6) promote continuous partici-
pation as responsible members of the profession.
Candidates for membership must demonstrate both leader-
ship qualities and a capacity for professional growth and
possess desirable personal qualifications. Candidates
must rank in the upper one-third of their class and must have a
grade point average of 3.0 (A = 4.0). Upon initiation, the
member receives a key, the emblem of the society. The
chapter has four regular meetings each year, two of which are of
an educational or scientific nature.
AWARDS
Women’s Auxiliary to Boone County Medical Society. Awarded to a student who has completed one calendar year in the
nursing program, based on academic achievement and
financial need.
Alumni Association of the School of Nursing Awards. A
monetary award is given to a member of the graduating class
in nursing who has demonstrated academic excellence and
shows outstanding ability in the nursing field. Established in
1931. An award also is given to an outstanding member of the
junior class in nursing. Awards are given each fall and winter
semester, and recipients’ names are engraved on a plaque
displayed at the School of Nursing.
Janet Joy Thompson Fund. Endowed by Thomas Thomp-
son in memory of his wife, Janet Joy Thompson. Recipient is
chosen from the May graduating senior class. Award is
presented to the student who is an outstanding student and
has demonstrated the natural ability to bring solace to those in
his or her care.
SCHOLARSHIPS
Hertha Eltzen Scholarship. Fund incomes are used for schol-
ships for nursing students who need financial assis-
tance and meet the scholastic qualifications of the School.
Myrtle Longenbach. Fund incomes are used for schol-
ships for nursing students who need financial assistance and
meet the scholastic qualifications of the School.
Richard Boyd Endowment Fund. A gift of stock given by
Mr. and Mrs. Richard G. Boyd for the purpose of
establishing an endowed scholarship. The recipient must
demonstrate financial need, meet School of Nursing admis-
sion criteria and obtain a cumulative grade point average of
2.75 or better.
Missouri Federation of Women’s Clubs-Alice Holliday
Scholarship in Mental Health. Established by Missouri
Federation of Women’s Clubs. A $500 stipend is awarded to
a student interested in working in the mental health field.
Recipient is selected on the basis of scholastic attainment and
financial need. Give to Dr. Ernest M. Fink in honor
of his wife, Flo Fick. Fink. Donor by Dr. Ernest M. Fink in honor
of his wife, Flo Fick. Fink. Recipient of this scholarship must
be enrolled in the clinical nursing sequence, demonstrate
financial need and obtain a cumulative GPA average of
2.75 or better.
Dorothy Gillette Meyer Memorial Scholarship Fund. Money
given by Dr. B. Frank Gillette in memory of his sister,
Dorothy Gillette Meyer. A $150 High School graduate
is preferred. Minimum qualifications for recipient include
sophomore standing (or higher) and a minimum GPA of 2.0.
Veterans Administration Hospital, Fulton State Hospital and various county health departments. Students provide their own transportation for those experiences which may occur in each of the five semesters.

**REQUIRED COURSES AND HOURS**

**English Composition and Literature (7-9)**
- English I Composition (3) and English 60 Exposition (3) or exempted from English I, English 60 (3) and a literature course (2-3) or English 65GH (3) and a literature course (2-3).

**Behavioral Sciences (12 hrs.)**
- Psychology 1 General Psychology (3)
- Sociology 1 General Sociology (3) or General Cultural Anthropology
- Advanced Psychology (6) or Advanced Sociology (6) or Advanced Anthropology (6)

**Biological and Physical Science (27)**
- Anatomy 202 Elementary Anatomy Human (5)
- Microbiology 205 Fundamentals of Medical and Public Health Microbiology (4)
- Pharmacology 204 Elements of Pharmacology (3)
- Physiology 201 Elements of Physiology (5)

**Humanities (9)**
- Philosophy 3 Introduction to Ethics (3)
- Philosophy 11 Introduction to Logic (3)
- Philosophy 130 Philosophy and Human Nature (3)

**Other Required Courses (12-14)**
- Child and Family Development 66 Principles of Human Development (3)
- Human Nutrition, Foods and Food Systems Mgmt. 234 Human Nutrition (3)
- Mathematics 10 College Algebra or Statistics 31 Elementary Statistics (3)
- Missouri State Law Requirement - one of the following: Political Science 1 American Government (5) or 11 Introduction to Political Science (3) or History 3 Survey of American History to 1865 (3) or History 11 Themes in American History (3) or History 20 American History (5)

**Nursing (54)**
- Nursing 71 - Concepts of Nursing (2)
- Nursing 72 - Concepts of Health and Health Care (3)
- Nursing 73 - Nursing and the Healthy Individual (4)
- Nursing 102 - Nursing in Multiparous Units (2)
- Nursing 103 - Nursing in the Expanding Family: Childbearing (4)
- Nursing 141 - Pathology and Therapeutics I (3)
- Nursing 142 - Methods of Assisting I (3)
- Nursing 143 - Pathology and Therapeutics II (2)
- Nursing 144 - Methods of Assisting II (2)
- Nursing 150 - Nursing in Child Health Deviations (5)
- Nursing 151 - Nursing in Adult Physiologic Health Deviations (5)
- Nursing 152 - Restorative Dimensions of Psychosocial Nursing Care (4)
- Nursing 153 - Gerontologic Nursing (2)
- Nursing 170 - Community Nursing (5)
- Nursing 180 - Leadership and Management in Nursing (2)
- Nursing 181 - Professional Practicum (4)
- Nursing 182 - Professional Perspectives (2)

**Nursing Electives**
- 120 Basic Cardiac Dysrhythmias (1)
- 121 Critical Care (2)
- 190 Individual Study (cr.arr.)

**RN OPTION**

The length of the program for the registered nurse student depends upon the amount of transfer credit obtained and the successful completion of advanced standing credit examinations. A minimum of 66 non-nursing semester hours, as outlined in the undergraduate curriculum, is required and must follow the program planning sequence of prerequisites. Upon fulfillment of all science requirements, the RN enters the following sequence of nursing courses.

**Enrollment:** N90 (6 hrs.). Offered only during the summer session. N91 (3 hrs.). Offered only during the fall session. Advanced Standing Credit Examinations. Upon successful completion of N90, the Registered Nurse student is eligible to take Advanced Standing Credit Examination for the following courses: Nursing 102 (2), Nursing 103 (4), Nursing 141 (3), Nursing 142 (3), Nursing 143 (2), Nursing 144 (2), Nursing 150 (5), Nursing 151 (5), Nursing 152 (4), Nursing 153 (2). If unsuccessful, the RN must enroll in the course.

**Enrollment:** Nursing 170 (5), Nursing 180 (2), Nursing 181 (4), Nursing 2 (2)

**Summary:**

**Enrollment:** 22 hours

Advanced Standing by Exam: 32 hours

A faculty adviser will assist the RN student in planning a study program. Information on planning aids and scheduling for advanced standing credit examinations may be obtained from the School of Nursing.

**BACHELOR OF SCIENCE IN NURSING**

**GENERAL REQUIREMENTS**

The Bachelor of Science in Nursing is granted to candidates who have successfully fulfilled all prescribed requirements, including the following: a minimum of 120 credit hours is required with a cumulative GPA of at least 2.0; the last 24 semester hours completed for the degree must have been taken in residency at the University of Missouri-Columbia; no more than 30 credit hours applied toward graduation may be earned through a combination of credit by Independent Study or extension courses.

**UNDERGRADUATE CURRICULUM**

Individual student programs are planned on the basis of prerequisite or concurrent courses. Nursing courses with combined theory and practice are sequential. Samples of program plans are available from the assistant dean for the undergraduate program or an academic adviser, S235 Nursing School Building.

A minimum of 120 credit hours, 66 credit hours of non-nursing courses and 54 credit hours in nursing is requisite to the degree. The nursing program currently is designed to be completed in five semesters after admission to the School.

Instructional facilities for students are abundant and varied. Opportunities for observation and patient care are available for students in a variety of health, social and educational agencies, including the Harry S. Truman Memorial
The College of Public and Community Services was established in 1965. The College is organized into the School of Social Work and the Departments of Recreation and Park Administration and of Community Development. The major purpose of the College is to prepare students for productive professional careers in the several social, human-serving professions. The College offers two baccalaureate degrees, the Bachelor of Science degree in recreation and the Bachelor of Social Work degree.

The major educational objective of the School of Social Work undergraduate program is to provide base content which will enable students to function competently at a beginning level of social work practice. Social work is a dynamic and growing human service profession which plays an increasingly important and visible role in our everyday lives. Contemporary society is beset by many social problems, rapid social change, the breakdown of community life and individual maladjustment. Social work addresses these conditions by assisting in the prevention of community breakdown, by facilitating the restoration of individuals to more fulfilling lives and by developing new resources to meet human needs.

The purpose of the Department of Recreation and Park Administration undergraduate curriculum is to provide the student with substantial liberal education knowledge in conjunction with preparing the students with appropriate professional skills to perform in entry level positions within the leisure service profession. Recreation is a common household word. However, the components of quality leisure services and experiences are as complex as mankind. People, resources, activities and leadership unite to form one of the fastest growing professions in America today — recreation and park administration.

The Department of Community Development offers some undergraduate courses for upper-division students and a diploma program. The diploma program is a non-degree program designed for community leaders and professionals who are unable to spend the required time to complete a master’s degree or who have life and work experience but no formal college preparation. The Institute of Law Enforcement and Missouri Fire and Rescue Training, extension teaching programs administered by the College of Public and Community Services. All departments of the College cooperate with the University Extension Division to make available services to communities, citizens and organizations throughout Missouri.

UMC’s recreation and park administration department was one of the first accredited by the National Recreation and Park Administration Accreditation Council. Because of the recommended order of studies, it generally is possible for students who have a broad liberal education foundation to transfer into the Department of Recreation and Park Administration as late as the first semester of their junior year and still graduate within the usual academic period. In some cases, additional academic work is required.

The School of Social Work is accredited by the Council on Social Work Education, of which the School is a charter member. Students receiving a BSW are eligible for regular or full membership in the National Association of Social Workers. The undergraduate curriculum are built upon a base of studies which prepares students for general practice in social work. Within this framework, the student is prepared to apply a configuration of knowledge, methods, skills and values to a broad range of individual, institutional and community problems.

**ADMISSION**

The undergraduate admission requirements differ for the School of Social Work and the Department of Recreation and Park Administration. Admission to the professional program of the School of Social Work is in the junior year. Students are, however, accepted by the School for advisement as freshmen or sophomores. Students who are interested in majoring in recreation and park administration may enter the program as early as their freshman year.

**SCHOOL OF SOCIAL WORK**

For admission to the professional program of the School in the junior year of study, a student must have completed 60 hours of college credit, maintaining a cumulative grade point average of 2.0 (A = 4.0) for all work attempted. Entry is in the fall semester. As freshmen and sophomores, advisees are required to take a wide range of courses in the liberal arts and a few in social work to help them prepare for the professional major.

Criteria for admission, other than GPA, include the following: student’s responses to application questions; student’s community activities; and social service experience. Freshmen and sophomore students who declare an interest in social work when admitted to the University, are assigned to the School for preprofessional advisement.

Individual consideration can be given, provided criteria other than GPA have been adequately met. To assure consideration for the fall semester, applications should be submitted by Feb. 15. Application forms are available through the School’s admission office, 701 Clark Hall, or from the Admissions Office in Jesse Hall.

**DEPARTMENT OF RECREATION AND PARK ADMINISTRATION**

Students must be accepted for advisement by the department. All students enrolling in the Department of Recreation and Park Administration with fewer than 30 hours of college credit are required to complete a Freshman Placement Test administered by UMC prior to registration. These tests are administered during orientation and during the spring. The results of these tests are useful in planning the student’s program.

GPA requirements are required to have a 2.0 GPA (C average) for acceptance into the Department of Recreation and Park Administration.
TRANSFER STUDENTS
The College of Public and Community Services follows the transfer of credit policy established by the UMC Faculty Council. UMC regulations concerning the transfer of credit are in the Academic Regulations section of this catalog.

STUDENT SERVICES

ADVISEMENT
Students are assigned to an academic adviser soon after registering in the College of Public and Community Services. The adviser assists students in planning their schedule of classes and will consult about any academic problems. Students are advised to consult their adviser at least once each semester, and more frequently if the need arises.

PLACEMENT
Students of the College of Public and Community Services are assisted in placement by UMC's Career Planning and Placement Center.

STUDENT ORGANIZATIONS
College of Public and Community Services
Divisional Student Council
Recreation and Park Association
Sigma Lambda Sigma (recreation honorary)

SPECIAL SERVICES
Media Center for Recreation, Parks and Leisure
The University, in cooperation with the National Recreation and Park Association, operates the Media Center for Recreation, Parks and Leisure. The center contains media related to commercial, outdoor, municipal and therapeutic recreation. Scheduling and rental of films, slides and videotapes are arranged through the Academic Support Center, Materials Scheduling, 505 E. Stewart Road, Columbia, Mo. 65211 or call (314) 882-3601.

PROFESSIONAL OPPORTUNITIES

SCHOOL OF SOCIAL WORK
The career prospects for BSW graduates are quite good. Employment data from the Bureau of Labor Statistics indicates that there will be a continuing demand for social workers through the 80's. Job opportunities exist in the fields of child welfare, corrections, juvenile justice, family services, community development and counseling programs.

DEPARTMENT OF RECREATION AND PARK ADMINISTRATION

Public Recreation and Park Departments: Superintendents, directors, center supervisors, program leaders, and park operations and maintenance personnel.

Governmental Agencies: Federal and state governmental agencies such as the National Park Service, Corps of Engineers, state park systems, departments of natural resources.

Therapeutic Recreation: Directors, supervisors, and leaders in hospitals, nursing homes, penal institutions, school or residential centers, extended care centers, and specialized programs in parks and recreation departments.

Youth Serving Agencies: Executives, assistants and specialists in such organizations as the

Boy Scouts, Girl Scouts, Camp Fire Girls, YMCA, YWCA, Boys Clubs of America, 4-H Clubs and others.

Resource Planners: Land use and resource planners, park and program planners, designers and architects with federal, state and local units of government, and private consulting agencies.

Commercial Recreation: Recreation and social directors in resorts, shipboard lines or commercial enterprises.

Employment Recreation: Many large business or industrial firms have positions for directors or employee recreation opportunities.

Recreation in Religious Institutions: Directors, supervisors, or coordinators with religious education workers and others.

Education: Directors in secondary and higher education, and instructional personnel in departments of recreation and park administration curricula.

DEGREE REQUIREMENTS
The degree of Bachelor of Social Work is conferred upon those students who have completed the requirements of the curriculum in the School of Social Work. The degree of Bachelor of Science in recreation is conferred upon those who have completed the requirements of the recreation and park administration curriculum.

GRADUATION REQUIREMENTS

REQUIREMENTS FOR BACHELOR OF SOCIAL WORK
A minimum of 120 semester hours credit are required for graduation. Students are accepted into the professional program at the junior level (approximately 60 semester hours). Professional courses should be taken in proper sequence (see curriculum), and two academic years are required to complete the professional program. During one semester of their senior year, students spend three days a week in a social agency for field instruction.

Credit hours are indicated in parentheses. See Description of Courses section at the end of this catalog for more complete course listings.

Required Courses in Social Work (36 hours)
JUNIOR YEAR
Fall Semester
125 Social Welfare and Social Work (3)
306 Introduction to SW Practice (3)
312 Research Methods for Social Work (3)
Winter Semester
303 Social Justice and Social Policy (3)
304 Introduction to Community and Organizational Processes (3)
320 Social Psychological Perspectives in Human Development for Social Work (3)
330 Interaction Skills Workshop (3)

SENIOR YEAR
Fall Semester
360 Strategies of Direct Practice (3)
390 Intervenive Processes I (6).
Winter Semester
321 Social Deviance (3)
394 Pro Senior Seminar
Courses in Communication Skills (11-12 hours)
English 60 Exposition and Speech 75 are required and remaining hours are taken from English, humanities, public speaking and journalism. English 1 cannot be used to satisfy requirements in this area.
Courses in Scientific Orientation (14 hours)
Students must take Mathematics 10 or 12, Biology 1 or 21, Philosophy 1, 5 or 10 and a course in statistics.
Courses in Social Science (14-18 hours)
Students must take Anthropology 1, Economics 1 or 5,

History 3, 4, 11, or 20. Political Science 1 or 11.

Courses in Behavioral Science (18 hours)
Theories of Personality, Child/Family Development, Social Psychology 260 and Sociology 1 are required. The remaining 6 hours must be selected in psychology and/or sociology.
Cultural, Ethnic and Racial Diversity (6 hours)
Students must complete 6 credits (two courses) in this area from courses selected in consultation with the student's adviser.
Elective Courses (19-24 hours)

REQUIREMENTS FOR BACHELOR OF SCIENCE IN RECREATION

LIBERAL EDUCATION
The purpose of liberal education is to provide the undergraduate student with opportunities to broaden individual perspectives, values and viewpoints; and to foster the spirit of inquiry and independent thinking to allow the existing knowledge in liberal education to be a whetstone for personal development, all of which serve the individual in the art of living within society.

Communicative Skills. (15 credit hours) Students may test out of English 1 Composition through the UMC Placement Tests and may be allowed to take English 60 Exposition as early as the sophomore year. If they score high enough on the placement tests, they may take English 65GH Honors English which is open only to freshmen only. Students receiving a passing grade in English 65GH Honors English will receive an additional 3 credits toward graduation. Students who use out of English 1 Composition into English 60 Exposition will take 12 credits rather than 15 credits in communicative skills.

Science and Mathematics. (13 credit hours) A minimum of 13 credit hours is required within this category of which 5 credit hours must be a biological or physical science (to include laboratory experience), and 3 credit hours of an approved course in mathematics.

Social and Behavioral Science. (24 credit hours) A minimum of 24 credit hours is required with a requirement of 3 credit hours of approved course selections in each of the following: economics, history-political science (must satisfy the state history requirement); social science, behavioral science and human growth and development.

Professional Education
Undergraduate professional preparation in the Department of Recreation and Park Administration consists of four basic categories: a professional core (22 credit hours), applied knowledge and skills (22 credit hours), an area of concentration (15 credit hours), and field internship (12 credit hours). Each student completes at least one area of concentration. A minimum of 18 credit hours of professional recreation courses must be completed in residence at UMC. Upperclass professional courses completed with grades of D are not counted toward the degree without specific waiver by the dean. Each student must achieve a cumulative grade point average of 2.0 for graduation (C average).

Professional Core. Each student must complete the professional core courses which provide a fundamental base of general understanding of the park, recreation and leisure service profession.

10 Introduction to Leisure Studies (3)
11 Career Orientation in Recreation, Parks and Leisure Services (1)
111 Introduction to Planning and Evaluating Leisure Envi-

151 Introduction to Leisure Service Management (3)
FACULTY

ADMINISTRATION
George F. Nickolau, dean, associate professor, JD, University of Missouri-Columbia
Glenn A. Gillespie, associate dean, professor, PhD, University of Missouri-Columbia

COMMUNITY DEVELOPMENT
Alvin S. Lackey, professor, chairman, PhD, Cornell University
Lee J. Cary, professor, PhD, Syracuse University
James B. Cook, assistant professor, PhD, Walden University
John A. Croll, associate professor, MS, University of Missouri-Columbia
Hugh Denasey, professor emeritus, MA, University of Missouri-Columbia
Boyd Faulkner, associate professor emeritus, MS, University of Nebraska
Lucille S. Gill, instructor, MA, City University of New York
John A. Koehn, associate professor, PhD, University of Missouri-Columbia
E. Frederick List, associate professor, MA Ed, Washington University
Donald W. Littrell, associate professor, MS, University of Missouri-Columbia
George F. Nickolau, associate professor, JD, University of Missouri-Columbia
Bryan Philp, professor, PhD, University of Chicago
William E. Robertson, professor, PhD, University of Wisconsin
John D. Timmons, associate professor, PhD, University of Nebraska
John M. Woodard, assistant professor, MS, University of Missouri-Columbia

RECREATION AND PARK ADMINISTRATION
David M. Compton, professor, chairman, EdD, University of Utah
Hardeep S. Bhullar, associate professor, PhD, University of Georgia
Jacyln A. Card, assistant professor, PhD, University of Georgia
Alan R. Everson, associate professor, PhD, Texas A&M University
Glenn A. Gillespie, professor, PhD, University of Missouri-Columbia
Gerald L. Hitzhusen, assistant professor, MS, University of Missouri-Columbia
Steven C. Lamphear, associate professor, PhD, University of Arizona
Marshall L. R. Manek, assistant professor, MS, University of Missouri-Columbia
David W. Ostlund, lecturer, MS, Central Missouri State University
Keith B. Roys, professor, PhD, University of Illinois
C. Randall Vessell, associate professor, PhD, University of Iowa
David J. Syzmanski, assistant professor, MA, College of Saint Rose
Glenn D. Weaver, associate professor, MS, University of Missouri-Columbia

TRAINING INSTITUTE
Judith Burke, associate professor, PhD, Bryn Mawr College
John Collins, assistant professor, MSW, University of Minnesota
Betty Ann Dubansky, associate professor, MSW, Washington University
Vincent Feherty, associate professor, DSW, University of Utah
Thompson Fulton, professor emeritus, MS, University of Chicago

SCHOOL OF SOCIAL WORK
Michael Kelly, assistant professor, MSW, University of Texas-Austin
O. Duane Kroeker, associate professor, MSW, University of Pennsylvania
Barry L. Levin, professor emeritus, PhD, Columbia University
Harley E. Maddux, associate professor, MSW, Washington University
Erma A. McMurty, assistant professor, MSW, University of Nebraska
Roland G. Meinerz, professor, PhD, St. Louis University
Paul M. Mengel, assistant professor emeritus, MSW, University of Kansas
Joanne Merrimcel, associate professor, MSW, University of Missouri-Columbia
Clotilde Molter, assistant professor emeritus, AM in SSA, University of Chicago

John Moore, professor emeritus, EdD, Columbia University
Claire Louise Myers, professor emeritus, DSW, Washington University
Arthur W. Nebel, professor emeritus, MA, University of Wisconsin-Madison
Dwight W. Riehman, associate professor, MS, in SA, Case Western Reserve University
Araminta Smith, associate professor, MSW, Washington University
Paul A. Sundet, associate professor, MSW, University of Missouri-Columbia
Virginia Southwood, associate professor emeritus, MSW, University of Missouri-Columbia
Gerald Westwood, instructor, MSW, University of Missouri-Columbia
Devere Whitesell, assistant professor emeritus, MSW, Washington University

LAW ENFORCEMENT INSTITUTE
Larry L. Brocklesby, instructor, director, M Ed, University of Missouri-Columbia
Richard B. Gregory, assistant professor, MS, Central Missouri State University
William M. Stephens, assistant professor, MA, Northeast Missouri State University

MISSOURI FIRE AND RESCUE TRAINING INSTITUTE
William Westhoff Jr., assistant professor, director, MS, Oklahoma State University
Paul Adams, instructor, BS, University of Missouri-Columbia
HOW TO USE THIS SECTION

The Description of Courses lists and describes all courses approved by the academic departments at UMC. The Schedule of Courses, available during registration each semester, lists the specific courses offered that semester, the time of meeting, and building and room number where the course meets.

UMC reserves the right to cancel, without notice, any course listed in the Description of Courses and/or the Schedule of Courses for any semester, or withdraw any course which does not have an adequate enrollment at the close of the registration period.

COURSE LISTINGS

Courses offered at UMC are listed in the Description of Courses by department or field of learning in alphabetical order.

COURSE NUMBERS

Each course bears a distinguishing number which identifies it within the department and indicates its academic level, according to the following table.

Course Number / Type of Course
1 to 99 primarily for freshmen and sophomores.
100 to 199 primarily for undergraduates (no graduate credit).
200 to 299 for undergraduates, appropriate professional students and graduate students (except those whose graduate major is in the department in which the course is offered).
300 to 399 for undergraduates, appropriate professional students and graduate students.
400 to 499 primarily for graduate students and appropriate professional students; undergraduate students are admitted to 400 level courses only with the approval of the dean of the division in which the course is offered.

The letter L, M or V following a course number indicates that it is a professional course for undergraduates, appropriate professional students and graduate students.

PREREQUISITES

Often, prior to enrolling in a certain course, other courses must be completed or other requirements fulfilled. These prerequisites are listed after the course description. If the prerequisite course is in the department being described its number will be given. The prerequisite of Accounting 37 is Accounting 36 and is shown "Pre requisite: 36." Prerequisite courses from other UMC departments are listed by the name of the department and course number. One of the prerequisites for Accounting 457 is Mathematics 60. It is shown "Prerequisites: Mathematics 60."

General prerequisites are listed "Pre requisite: 10 hours organic chemistry," meaning the student must have earned at least 10 semester credit hours in organic chemistry classes.

An academic standing prerequisite is stated by class. Freshmen have accumulated between 1 and 29 semester hours; sophomores between 30 and 59 hours; junior between 60 and 89 hours; seniors more than 90 hours; and graduate students must have been admitted to the Graduate School. "Prerequisite: junior standing" means the student must have at least 60 semester hours.

A minimum grade requirement in a prerequisite course is specified by a capital letter and the course description. "Prerequisite C in Agronomy 201" means a grade of C or better must have been earned in Agronomy 201. GPA refers to grade point average.

Courses listed as "Corequisite" or "Concurrent with" are to be taken in the same semester as the course desired. Nursing 159 lists "Corequisites: 140, 158, 160" so a student enrolling in 159 must also enroll in 140, 158 and 160.

SEMESTER OFFERED

The lower case letters following the credit hours or at the end of a course description indicate which semester the course is generally offered. When no letter follows the course description, the course may be offered during any session. The letter "F" indicates the course is offered during the fall semester; "S" indicates the second or winter semester; "Ss" indicates the summer session; and "oo" indicates an intersession, a period between regular sessions.

The abbreviations alt. f. or alt. w. indicate the course will be offered during alternate fall or alternate winter semesters. The year is indicated by odd years or even years. "alt. w., odd yrs." means the course is offered during the winter semesters of odd-numbered years.

COURSES BY CORRESPONDENCE

The abbreviation cor. following a course listing indicates it is also available through the Center for Independent Study Through Correspondence.

ACCOUNTANCY


136GH Honors Accounting I (3), Accounting theory and techniques used in the measurement and disclosure of accounting data to meet needs of investors and business managers. Prerequisite: sophomore standing, grade point average of 3.3 or higher, or Honors College.

137GH Honors Accounting II (3), Continuation of 136GH. Prerequisite: C or better in 136GH. cor.

200 Independent Readings (1-3), Independent readings and examination under the supervision of an accounting professor. Prerequisite: supervising professor's consent. cor.
M.S. candidate or director's consent

311 Accounting Principles II (3). Continuation of 316, with emphasis on managerial accounting principles and techniques. Prerequisite: 310.

312 Governmental Accounting and Budgeting (3). Principles of governmental accounting, financial reporting, and budgeting control. Prerequisite: M.B.A. or M.P.A. candidate, or director's consent.

316 Accounting Principles I (3). Fundamental accounting principles and techniques; emphasizes financial accounting. Prerequisite: M.S. candidate or director's consent.

347 Quantitative Analysis and Accounting (3). Applies mathematics and statistics to managerial and financial accounting problems. Prerequisite: 337; Mathematics 60 and Mathematics 61, and Statistics 234 or Statistics 240.

460 Research Methods in Accounting (3). Principles for planning, conducting, and reporting research projects in accounting. Each student prepares a research project for a year-long study. Prerequisite: 350.

461 Financial Accounting Theory II (3). Theories and concepts underlying alternative accounting approaches to income measurement and accounting valuation. Prerequisite: 450.

467 Advanced Managerial Accounting (3). Conceptual framework and methods; which characterize the managerial accounting field. Problems and cases. Prerequisite: 337.

458 Research Project in Accounting (er., arr.). Undergraduate and advanced projects in accounting. Prerequisite: consent of director.

491 Research in Accounting (cr. arr.). Each student is under direction and guidance of a staff member in writing a dissertation. Monthly seminar to discuss research projects.

AEROSPACE STUDIES


12 The Air Force Today II (3). Emphasizes the development and use of missiles and manned and unmanned aircraft. Leadership lab.

21 The Development of Air Power I (1). Deals with development of air power from balloons through World War II. Early flying operations and use of aircraft for reconnaissance and combat are covered. Early technological aircraft developments are studied. Leadership lab.

22 The Development of Air Power II (1). Includes development of air power after World War II, the peaceful employment of air power in the development of new missions, and the development of programs, and use of air power in Vietnam. Leadership lab.

131 Air Force Management and Leadership I (3). An integrated management course emphasizing the individual as a manager in an Air Force environment. Individual motivational and behavioral processes, leadership, and group dynamics are covered. Emphasis on communicating skills as junior officer attributes. Lab.

132 Air Force Management and Leadership II (1). Basic managerial processes involving decision making, organizing, and controlling are covered. Military justice and administrative law are discussed within the context of the Air Force organization. Student participation in a seminar and a workshop is required. Lab.

141 National Security Forces in Contemporary American Society (3). Emphasizes the role of government in the maintenance of national security. Prerequisite: 401 or instructor's consent.

142 National Security Forces in Contemporary American Society II (3). Focuses on the Armed Forces as an integral part of society. Emphasizes the role of the professional officer, and the interaction of U.S. defense policy with the military. Stresses the development of individual and group competencies. Lab.

220 Research in Accounting (cr. arr.). Supervised study, research in specialized areas of accounting. Each student prepares a research paper. Each student prepares a research paper.

AGRICULTURAL ECONOMICS

50 Agricultural Economics (5). Introduces certain fundamental principles of economics; emphasis on application to agriculture. Emphasizes difference between farmers' and businessmen in planning, producing and marketing products. Prerequisite: 16 hours completed. F,w.

200 Problems (cr. arr.). Supervised study in specialized phase of agricultural economics. Prerequisite: introductory course in agricultural economics. F,w.

220 General Agricultural Marketing (3). Analysis of farm products marketing systems from industry and farm viewpoint. Prerequisite: 50. F,w.

225 Statistical Analysis (3). Elementary statistical inference. Prerequisite: Mathematics 10 or equivalent. F,w.

230 Farm Programs (3). Study and analysis of past and present government farm programs affecting the agricultural economy. Prerequisite: 50. F.

241 Cooperative Business Organizations (3). Cooperative business organizations; importance; principles; economic problems. Organization of cooperative business organizations. Operational practices. Prerequisite: 220. w.
AGRICULTURAL ENGINEERING-AGRICULTURE

1 Farm Power (3). Engines and tractors. Mechanisms, cycles, fuels, and lubrication, injection systems, electrical systems, systems, annual costs.

2 Welding (2). Principles and practices in electric and oxyacetylene welding.

3 Soil and Water Tools and Processes (2). Basic processes and tools used in repair, maintenance, and construction of farm equipment. Emphasis on power tools and machines. Prerequisite: 20 and Mathematics 10, or equivalent.

4 Planning Farm Buildings (3). Functional requirements of farm buildings. Farmstead and building planning. Material, sanitation, ventilation, convenience. Prerequisite: Mathematics 10 or equivalent.

460 Resource Economics and Development (3). Methods and criteria of choice in public investment decisions. Emphasizes natural resources economics and policy implications of resource allocation in relation to economic development. Prerequisite: 12 hours economics and introductory calculus. Coreq. Wu. even yrs.

472 International Agriculture Policy (3). An analytical review of economic policies directed toward stimulating agricultural development in the world's low income countries. Prerequisites: Economics 225, 261, and instructor's consent.

475 Econometrics I (3). As Economics 475B. Emphasis is given special estimation problems which occur in integrating the theory with various types of economic data.

476 Econometrics II (3). As Economics 476E.

480 Research Methodology (3). Research methods; sources of information; manner of collecting, analyzing, expressing results. Research project outline required. Prerequisites: 460.


490 Research (cr. arr.) Independent investigation of advanced nature, leading to dissertation.

AGRICULTURAL ENGINEERING-ENGINEERING

17 Experimental Course (cr. arr.). Designed for freshman-level students. Content and number of credit hours listed in Schedule of Courses.

117 Experimental Course (cr. arr.). Designed for sophomore-level students. Content and number of credit hours listed in Schedule of Courses.

118 Professional Practice in Agricultural Engineering (1). Professional opportunities and responsibilities in agricultural engineering. Prerequisite: junior standing.

196 Economic Control of Agricultural Engineering (1). Study of effects of agricultural engineering decisions on the environment and how resource constraints may change agricultural engineering practices. Prerequisite: Chemistry 3.


221 Soil Conservation (3). Factors affecting runoff and erosion from agricultural lands. Design and layout of soil conservation practices. Prerequisite: Civil Engineering 113 and Civil Engineering 251 or Mechanical Engineering 251 or Mechanical Engineering 252.

241 Analysis of Farm Machines (3). Tillage, planting, harvesting and crop handling machinery. Construction, selection and economic requirements of farm machines. Prerequisite: Physics 123 and computer programming.

247 Agricultural Hydrologic System Design (1). Review of hydraulic theory. Use of Joint Industry Conference (JIC) symbols to design hydraulic systems for agricultural machines. Offered the last 6 weeks of the fall semester. Prerequisites: Engineering 85 and Engineering 99.

290 Research (cr. arr.). Designed for graduate students. Content and number of credit hours listed in Schedule of Courses.

301 Topics in Agricultural Engineering (3). Current and new developments in agricultural engineering. Prerequisite: junior standing.

302 Design of Agricultural Waste Management Systems (3). Development and application of design criteria to the design of agricultural waste management facilities. Prerequisite: Chemistry 5 and Civil Engineering 251 or instructor's consent.

303 Farm Buildings Design (3). Analysis, design, and synthesis of buildings for agriculture and light industry, including functional requirements, energy and cost implications. Prerequisite: junior standing.

305 Agricultural Engineering Measurements (3). Use of instruments and techniques for agricultural engineering measurements. Prerequisite: junior standing in engineering or instructor's consent.

315 Fluid and Electric Power Distribution (3). Electric power distribution on the farm. Wiring and lighting of farm buildings; motors and controls; farm electrical equipment. Prerequisite: Engineering 12, Electronics 180A, or instructor's consent.

316 Principles and Drainage Engineering (3). Soil, water, plant relationships. Surface and sprinkler irrigation. Open ditch and tile drainage. Prerequisite: 221.

318 Advanced Farm Power and Machinery (3). Analytical study of construction and operating characteristics of engines, tractors, and farm equipment. Use of instruments, experimental apparatus. Prerequisite: Mathematics 304 and computer programming.

320 Agricultural Engineering Design (3). Design of agricultural devices or systems. Prerequisites: Engineering 195, Civil Engineering 251 or Mechanical & Aerospace Engineering 251, & 9 hours coursework in agricultural engineering.

400 Problems (cr. arr.) Supervised individual study.

401 Advanced Topics in Agricultural Engineering (1-3). Study of advanced developments in agricultural engineering.

410 Advanced Farm Building Design (3). Advanced study of farm buildings and design building. Prerequisite: 303 and graduate standing.

411 Seminar (1). Recent investigations in agricultural engineering and in the preparation of a research paper. Prerequisite: instructor's consent.

412 Research Methods (1). Detailed analysis and development of research methods. Application of computer techniques to problems in agricultural engineering. Prerequisite: 312 or 314.

413 Advanced Topics in Agriculture (1). Principles and applications of counting in agricultural research. Prerequisite: 312 or 314.

414 Advanced Topics in Agriculture (1). Special estimation problems which occur in integrating the theory with various types of agricultural data.


416 Measuring Farm Land Use (3). Detailed analysis and development of methods of farm land use. Prerequisite: 312 or 314.

417 Soil Conservation (3). Factors affecting runoff and erosion from agricultural lands. Design and layout of soil conservation practices. Prerequisite: Civil Engineering 113 and Civil Engineering 251 or Mechanical Engineering 251 or Mechanical Engineering 252.

418 Analysis of Farm Machines (3). Tillage, planting, harvesting and crop handling machinery. Construction, selection and economic requirements of farm machines. Prerequisite: Physics 123 and computer programming.

419 Environmental Control of Farm Buildings (3). Building design for environmental control. Heat and moisture relationships. Ventilation, conditioning, and insulation. Prerequisite: Engineering 99.

420 Theory of Markets (3). Development of theories of monopolistic, oligopolistic, and perfect competition; application to agricultural markets. Market structure influence on price, nonprice competition in buying, selling of farm products and inputs. Prerequisite: 16 hours economics.

421 Agricultural Decision Making (3). (Same as Marketing 421). Emphasis on food firms. Analysis and design of integrated logistics systems with in-depth study of components—demand forecasting; production planning; inventory control and transport; warehousing; materials handling and management information systems; their trade-off alternatives.

424 Advanced Production Economics (3). Production function analysis. Linear programming; advanced theory of the firm. Applications to analysis of agricultural production problems. Prerequisites: 225 & 250 & Mathematics 205 or instructor's consent.

425 Advanced Price Analysis (3). Analytical methods for agricultural and related industries. Prerequisites: 16 hours economics, 225 & 250.

427 Agricultural Marketing (3). Recent changes in agriculture and their impacts on farm management. Techniques in farm management research, teaching and extension; new theories; selected current literature. Prerequisite: instructor's consent.

430 Water Resources Engineering (3). Course is given only to honors students in agricultural engineering. Independent investigation in agricultural engineering to be presented as a thesis.

431 Agricultural Engineering Design (3). Design of agricultural devices or systems. Prerequisites: Engineering 195, Civil Engineering 251 or Mechanical & Aerospace Engineering 251, & 9 hours coursework in agricultural engineering.

440 Introduction to Agricultural Engineering (3-5). Study of advanced developments in agricultural engineering.

441 Field Crop Production (3). Designed for farming students. Advanced study of farm buildings and design building. Prerequisite: 303 and graduate standing.

446 Resource Economics and Development (3). Methods and criteria of choice in public investment decisions. Emphasizes natural resources economics and policy implications of resource allocation in relation to economic development. Prerequisite: 12 hours economics and introductory calculus. Coreq. Wu. even yrs.

460 Research Methodology (3). Research methods; sources of information; manner of collecting, analyzing, expressing results. Research project outline required. Prerequisites: 460.


490 Research (cr. arr.) Independent investigation of advanced nature, leading to dissertation.

AGRICULTURAL ENGINEERING-ENGINEERING

1 Farm Power (3). Engines and tractors. Mechanisms, cycles, fuels, and lubrication, injection systems, electrical systems, systems, annual costs.

2 Welding (2). Principles and practices in electric and oxyacetylene welding.

3 Soil and Water Tools and Processes (2). Basic processes and tools used in repair, maintenance, and construction of farm equipment. Emphasis on power tools and machines. Prerequisite: 20 and Mathematics 10, or equivalent.

4 Planning Farm Buildings (3). Functional requirements of farm buildings. Farmstead and building planning. Material, sanitation, ventilation, convenience. Prerequisite: Mathematics 10 or equivalent.

460 Resource Economics and Development (3). Methods and criteria of choice in public investment decisions. Emphasizes natural resources economics and policy implications of resource allocation in relation to economic development. Prerequisite: 12 hours economics and introductory calculus. Coreq. Wu. even yrs.

472 International Agriculture Policy (3). An analytical review of economic policies directed toward stimulating agricultural development in the world's low income countries. Prerequisites: Economics 225, 261, and instructor's consent.

475 Econometrics I (3). As Economics 475B. Emphasis is given special estimation problems which occur in integrating the theory with various types of economic data.

476 Econometrics II (3). As Economics 476E.

480 Research Methodology (3). Research methods; sources of information; manner of collecting, analyzing, expressing results. Research project outline required. Prerequisites: 460.


490 Research (cr. arr.) Independent investigation of advanced nature, leading to dissertation.
varieties of poultry, production judging, Stock selection and testing, and grading of eggs and live and dressed poultry. Prerequisites: 155, F.W. 154 Physiology of Domestic Animals (4). Basic concepts of physiology and anatomy as related to domestic animals. Prerequisites: 11 or Biological Science I and 54 or 111. F.W. 199 Horse Science (3). Nutrition, feeding, management, reproduction, breeds and their uses, physiology and methods of training horses. Prerequisites: 11, A.S. 200 Problems (1-2). Library and laboratory study of assigned problems in animal breeding, nutrition, physiology, or production and management. Planning, conduct, and reporting to be in consultation with the instructor. Prerequisite: 111. F.W. 202 Principles of Animal Nutrition (3). Fundamentals of animal nutrition; application to livestock production. Prerequisite: Biochemistry 111 or 112. F.W. 204 Advanced Meats (3). (same as Food Science and 204). F.W. 212 Applied Nutrition (3). Feed composition and utilization, ration formulation, and basic principles of evaluation and identification, practical problems. Prerequisite: 202.  
213 Genetics of Livestock Improvement (3). Applies genetic principles to improvement of domestic animals. Considers methods available to breeders, and methods to control the genetic aspects associated with disease and defect. 214 Meat Classification, Grading, Judging (2). (same as Food Science and Nutrition 214).  
235 Poultry Production (3). Poultry farm methods, practices; factors affecting costs and returns with poultry. Prerequisites: 55, A.G. 50, or instructor's consent. W. 275 High Level Study and Evaluation (2). Evaluation and selection of breeding and market animals of four farm species (swine, beef cattle, sheep, horses), emphasis on production records and carcass evaluation. Prerequisites: 391 and 111. W. 285 Advanced Dairy Cattle Judging (2). Continuation of 215. Includes field trips. Prerequisite: 115. W.  
300 Problems (cr. arr.) Current problems in animal breeding, nutrition, physiology, production and management. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written form. Prerequisite: 111. W. 302 Monogastric Nutrition (3). Principles of nutrition, feed formulation and recent research in poultry feeding. Prerequisites: 202, biochemistry 193 or equivalent. W. 304 Physiology of Reproduction (3). Principles of animal reproduction with emphasis on endocrine control of reproductive processes. Prerequisites: 11 and Biological Sciences I and 2. F.W. 383 Applied Dairy Management System Development (4). Breeding, feeding, management of commercial and purebred beef cattle. Prerequisites: 202, 212, F.W. 385 Dairy Science 325 (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: 25 and 212 or equivalent. F. 323 Applied Animal Genetics (3). Applies genetic principles to the improvement of farm animals. Laboratory periods designed to provide experience in the development and use of statistics important in breeding program planning. Prerequisite: 313. W. 335 Advanced Poultry Production (3). Principles and practices in poultry production. Prerequisite: 55. W. 345 Dairy Science 335 (3). Systems of sheep and wool production: breeding, feeding, management of commercial and purebred sheep. Prerequisites: 202, 212, W. 350 Special Projects (cr. arr.) Scientific publications in chosen field studied, coupled with acquisition of library and literature, research methods. Prerequisite: instructor's consent. F.W. 355 Swine Production (3). Systems of pork production: breeding, feeding, production of commercial and purebred swine. Prerequisites: 202, 212, W. 356 Bovine Breeding (3). Genetic principles, breeding systems, practices for improving bovine species. Prerequisites: 213, or equivalent. W. 384 Artificial Breeding (3). Reproductive processes; selection, evaluation and use of semen; insemination techniques; artificial breeding organisms. Prerequisite: Dairy Science 304. W. 390 Internship in Animal Science & Technology (1-12). Off-campus training to develop technical skills and understanding of an area of expertise. Work experience required. Prerequisites: junior standing, two 300-level Animal Science courses and instructor's consent.  
391 Field Training (3). (same as Dairy Science 391, Poultry Science 391). On-site instruction in technical or scientific aspects of animal production for selected, qualified advanced student. Prerequisites: junior standing, at least two advanced courses in animal sciences or equivalent, and instructor's consent. W. 394 Sensen Ova Processing (3). Research techniques involved in spermatozoa, ova, and embryo collection, processing and storage. Prerequisite: Dairy Science 304. W. 400 Problems (1-2). Advanced independent studies in fields not directly related to thesis or non-thesis degree research program. Prerequisites: junior standing, at least two advanced courses in animal sciences or equivalent, and instructor's consent. W. 401 Livestock Production and Management Research Methods (3). Techniques of experimentation, with application to livestock production and management. Planning, conducting, analyzing, evaluating and reporting research. Prerequisite: junior standing. Statistics 207 or equivalent instructor's consent. F.W. 402 Animal Nutrition (3). (same as Nutrition 402). More important work contributing to knowledge of animal nutrition.  
202 and one course in biochemistry. F. 410 Seminar (1). Critical consideration of research and other selected subjects in animal breeding, animal nutrition, and livestock production and management. Students indicate at enrollment the area of study. F.W. 423 Nutrition and Feeding of Domestic Animals (3). Reading, interpretation of significant papers. Special reports. Prerequisite: 402. alt. e. yrs. only. 413 Reproductive Biology Seminar (1). (same as Biochemistry 413). 425 Genetics of Livestock (4). (same as Poultry Science 423, Biological Sciences 423). 430 The Development, Growth and Organization of Colleges of Agriculture (1). Additional guest speakers/material, assigned readings, research, project. Prerequisite: junior. W. 432 Rumination Nutrition (3). (same as 432 Physiology). Physiology, chemistry, microbiology, pathology of ruminants. Emphasizes digestion, absorption, and metabolism. Lecture, laboratory, assigned readings. Prerequisite: 402 or equivalent. alt. w. yrs. odd. 440 Topics in Animal Science (cr. arr.) Prerequisites: graduate standing and instructor's consent. F. 450 Research (cr. arr.) Investigations in animal breeding, animal nutrition, livestock production and management. Written report required. F. 490 Research (cr. arr.) Investigations in animal breeding, animal nutrition, livestock production and management. Thesis required.
Field Research in Historical American Archaeology (3). Stress specialized field techniques in location, identification and excavation of features common to historical sites; correlates historical data with approach to and products of excavation. Prerequisite: 338 or instructor's consent.

North American Archaeology (3). Ancient man and development of American Indian culture. Prerequisite: 152 or 240.

Archaeology of South America (3). Development of culture in South America from thePaleoindian to European contact. Prerequisite: 152 or junior/senior standing.

Field Techniques in Prehistory (1-8). Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials. Prerequisites: 142 or equivalent, & instructor's consent.

Field Research in Historical Archaeology (3). Survey of the development of culture in Mexico prior to European contact. Prerequisite: 152 or junior/senior standing.

History of Anthropology (3). Growth of anthropological theories methods and sub-disciplines: major figures and contributions in each sub-discipline. Prerequisite: junior standing. alt. w.

Language and Culture (3). (same as Linguistics 346). Interrelations between language, thought, culture, and society; role of language in cognition: methods and concepts of linguistic cultural analysis. Prerequisite: 154 or equivalent.

Iron Age Prehistory (3). Intensive analysis of prehistoric subsistence, socioeconomic development and ethnic migrations. Prerequisite: junior standing. alt. w.

Pre-Pleistocene Primate Evolution (3). Techniques to the personal identification of human remains. Prerequisite: 150 or Biology I.

American Archaeology (3). Field survey of the prehistoric and early cultures of Asia excluding the Near East. Emphasis on Northern Asia, China, Japan, South and Southeast Asia and Oceania. Prerequisite: junior standing or instructor's consent.

Topics in Anthropology (3). Problems, topics, issues, or review of research; experimental development of new contact areas. Specific content varies depending on the faculty and student interest. Prerequisites: two courses in anthropology and instructor's consent.

Prehistory of the Maya (3). Survey of the pre-Hispanic development of Maya culture. Prerequisite: 150 or instructor's consent.

Cultures of South Asia (3). Examination of traditional and contemporary cultures of India Pakistan, Sri Lanka (Ceylon), and Bangladesh. Prerequisite: 153 or instructor's consent.

Cultures of Europe (3). Examines ethnic, linguistic, and folk cultural background of contemporary Europe, the articulation of local units with national society and culture. Prerequisite: 1 or instructor's consent.

Cultural Change (3). The processes of culture: innovation, diffusion, regionalism, acculturation and other processes. Prerequisite: 150 in literature and non-literature contexts. Prerequisite: 115, or instructor's consent.

Theories in Social Anthropology (3). Critical examination of the selected theories of human society. Prerequisite: 153 or instructor's consent.

Human Origins (3). History and theory in the study of human evolution. Prerequisite: 150 or instructor's consent.

Economic Anthropology (3). Social and economic organization of a variety of non-western cultures; economic theory in anthropology; megalithic, economic, and social factors in cultural change. Prerequisite: 155 or instructor's consent.

Human Biological Variation (3). Human biological variation; local and within population. Evolutionary, genetic, ecological, social and environmental factors; and especially cultural factors which contribute to biological variation. Prerequisite: 150 or Biology I.

Ethnographic Methods (3). Relation of problems to techniques; surveys, techniques of gathering data, discusses their limitations and materials. Prerequisite: 9 hours anthropology or instructor's consent.

Old World Prehistory (3). Beginnings of culture in the old world through the early Iron Age. Prerequisite: 152 or instructor's consent.

Primate Social Behavior (3). Communicative behavior and group social dynamics of non-human primates. Prerequisite: 150 or instructor's consent.

Primate Growth (3). Normal biological changes during the postnatal growth period of man and non-human primates. Prerequisite: 150 or instructor's consent.

Introduction to General Linguistics (3). (same as Linguistics 371) Roman Languages 371.

Techniques in Linguistic Analysis (3). (same as Linguistics 372, Romance Languages 373).

Linguistic Phonetics (3). (same as Linguistics 373, Romance Languages 373).

Linguistics in Linguistic Analysis (3). (same as Linguistics 374, Romance Languages 374).

Field Methods in Linguistics (4). (same as Linguistics 393). Involves consultation and analysis of data taken from a native or non-Indo-European language. Prerequisite: 6 hours linguistics and instructor's consent.

Problems (cr. arr.). Directed research not leading to thesis or dissertation. Prerequisite: departmental approval.

Independent Reading in Preparatory Comprehensive Exam for Ph.D. (1-4). Independent readings for Ph.D. comprehensive. Open only to Ph.D. students who have completed all but final semester of course work. Prerequisite: consent of major advisor.

Seminar in Anthropological Methods (3). Prerequisites: 9 hours anthropology or instructor's consent. May repeat to 9 hours maximum.

Seminar in Ethnobiology (3). Prerequisite: instructor's consent.

Field Problems in Archaeology (2-8). Prerequisite: 342.

Prehistory of Archaeology (3). Application of theory and conceptual frameworks to archaeological studies drawn from both Old and New Worlds. Prerequisite: 152 or 153. May repeat to 6 hours maximum.

Seminar in Sociocultural Research (3). Readings and critical evaluation of selected problems in archaeological research. Prerequisite: 12 hours anthropology. May repeat to 9 hours maximum.

Seminar in Anthrological Linguistics (3). Ethnolinguistics, linguistic prehistory, Pidgin and Creole languages, linguistics and cultural analysis. French structural anthropology. May repeat for 9 hours maximum when content varies. Prerequisite: 346 or instructor's consent.

Topics in Anthropology (3). Problems, topics, issues, or review of research; experimental development of new contact areas. Specific content varies depending on the faculty and student interest. Prerequisite: two courses in anthropology and instructor's consent.

Prehistory of the Maya (3). Survey of the pre-Hispanic development of Maya culture. Prerequisite: 150 or instructor's consent.

Cultures of South Asia (3). Examination of traditional and contemporary cultures of India Pakistan, Sri Lanka (Ceylon), and Bangladesh. Prerequisite: 153 or instructor's consent.

Cultures of Europe (3). Examines ethnic, linguistic, and folk cultural background of contemporary Europe, the articulation of local units with national society and culture. Prerequisite: 1 or instructor's consent.

Cultural Change (3). The processes of culture: innovation, diffusion, regionalism, acculturation and other processes. Prerequisite: 150 in literature and non-literature contexts. Prerequisite: 115, or instructor's consent.

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Economic Anthropology (3). Social and economic organization of a variety of non-western cultures; economic theory in anthropology; megalithic, economic, and social factors in cultural change. Prerequisite: 155 or instructor's consent.

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Introduction to General Linguistics (3). (same as Linguistics 371) Roman Languages 371.

Techniques in Linguistic Analysis (3). (same as Linguistics 372, Romance Languages 373).

Linguistic Phonetics (3). (same as Linguistics 373, Romance Languages 373).

Linguistics in Linguistic Analysis (3). (same as Linguistics 374, Romance Languages 374).
four-harness loom, off-loom weaving. Expendable materials fee required. Prerequisite: 140. f.w.
340 Advanced Fibers (3). Projects in off-loom, four-harness/ or multishare weaving. Prerequisite: 240. May repeat to 15 hours maximum. f.w.
340 Graduate Fibers (3). Individually assigned projects in off-loom, four-harness/ or multishare weaving. Prerequisites: 340 and graduate standing. May repeat to 15 hours maximum. Expendable materials fee required. f.w.

GRAPHIC DESIGN
222 Graphic Design I (3). Investigation of letterforms, their historical development and visual properties. Studio problems incorporating graphic techniques of lettering and italic calligraphy applied to contemporary usage. Emphasis on professional design methods and techniques. Payment of expendable materials expense is required. Prerequisite: 21 & 60 f.w.
223 Graphic Design II (3). Study of design process applied to specific graphic design from such as logo and poster design using typographic and graphic techniques. Emphasizes development of personal visual concept. Payment of expendable materials expense is required. Prerequisite: 222. f.w.
322 Graphic Design III (3). Application of Contemporary Design concepts and techniques to a variety of problems resulting in compre­hensive and camera-ready designs incorporating word and image components. Diffusion transfer and photo transfer techniques. Payment of expendable materials expense is required. Prerequisite: 233. f.w.
324 Graphic Design IV (3). Completion of Graphic Design III with emphasis on integration of verbal and visual ideas. Design problems suited to individual capabilities. Payment of expendable materials expense is required. Prerequisite: 323. f.w.
422 Graphic Design V (3). Completion of Graphic Design IV, with emphasis on creative process and techniques. Payment of expendable materials expense is required. Prerequisite: 324 and graduate standing. f.w.

METALS
250 Beginning Metals (3). Comprehensive introduction to basic techniques in jewelry and silversmithing with emphasis on design. Techniques include hammering, sawing, filing, bezel setting, forging, reticulation and etching. Payment of expendable materials expense is required. Prerequisite: 20. 220. f.w.
380 Intermediate Metals (3). Advanced method of centrifugal casting, including vacuum, steam and cuttlefish casting. Payment of expendable materials expense is required. Prerequisite: 250 and instructor's consent. f.w.
351 Enameling (3). Techniques of applying enamels to nonferrous metals. Payment of expendable materials expense is required. Prerequisite: 250, 350 and instructor's consent. f.w.
352 Advanced Metals (3). Study of techniques of welding, use of hollow and flow-forms. Techniques include forming by planishing, sinking, upsetping and raising, and methods of finishing and ornamentation. Payment of expendable materials expense is required. Prerequisite: 350: 350 and instructor's consent. w.
353 Advanced Techniques in Metals (3). Emphasis on complex design problems in jewelry and silversmithing, including chasing and repoussé, carving techniques. Emphasis required. Payment of expendable materials expense is required. Prerequisite: 350, 351, 352, and instructor's consent. May repeat to 15 hours maximum. f.w.
450 Advanced Metals (3). Supervised research in individually directed projects in advanced jewelry design and construction: includes lapidary work. Payment of expendable materials expense is required. Prerequisite: 350, graduate art major and instructor's consent. May repeat to 15 hours maximum. f.w.

PAINTING
177 Beginning Painting (3). Basic exploration of oil and acrylic painting techniques and methods. Still life, landscape and figure. Prerequisites: 2, 20 and one semester of drawing. f.w.s.
177 Intermediate Painting (3). Continuation of 177 with the addition of oil or acrylic painting. Prerequisite: 177. f.w.
177 Advanced Painting (3). Advanced problems in oil and acrylic painting. Prerequisite: 277. May be repeated 15 hours maximum. f.w.
177 Graduate Painting (3). Advanced study continued. Emphasis on individual creative expression. Prerequisite: 377 and advanced major. May repeat to 15 hours maximum. f.w.

PHOTOGRAPHY
225 Beginning Photography (3). Basic photography as an art form: camera and darkroom techniques: surveys photography history and esthetics. Camera with adjustable aperture and shutter required. Payment of expendable materials expense is required. Prerequisite: 8 hours. f.w.
325 Intermediate Photography (3). Continuation of 225 with emphasis on advanced photo techniques and photographic image making. Payment of expendable materials expense is required. Prerequisite: 225. May repeat to 15 hours maximum. f.w.
425 Graduate Photography (3). Advanced technical study with emphasis on development of the individual student's creative ideas. Payment of expendable materials expense is required. Prerequisite: 325 and graduate standing. May repeat to 15 hours maximum. f.w.

PRINTMAKING
290 Relief Printing (3). Relief printing techniques in color and black and white; includes woodcut, mixed media. Prerequisite: 2 and 1 semester of drawing. May be repeated to 6 hours maximum.
291 Intaglio Printmaking (3). Techniques of intaglio printing, including etching, engraving and aquatint. Prerequisites: 2, 21 and two semesters of drawing. May repeat to six hours maximum. Expendable materials fee required. f.w.
292 Lithography (3). Lithographic printing techniques from stone and metal plates. Prerequisites: 2, 21 and two semesters of drawing. Expendable materials fee required. f.w.
390 Advancement in Printmaking (3). Advanced projects studied in relief, intaglio or lithographic printmaking with emphasis on individual creative expression. Prerequisite: 290 or 291 or 292. May repeat to 15 hours maximum. Expendable materials fee required. f.w.
490 Graduate Printmaking (3). Graduate level study in relief, intaglio or lithographic printmaking techniques. Emphasis on professional design methods and techniques. Payment of expendable materials expense is required. Prerequisite: 290. f.w.

PROBLEMS
300 Problems in Art (1-3). Directed advanced study and practice of art in a combination of areas related to, but not included in, scheduled courses. Prerequisites: senior standing or adequate preparation in art choosing and instructor's consent. f.w.
301 Topics (4). Special studies in studio art; covers subjects not included in regularly offered courses. Prerequisites: junior standing and instructor's consent. f.w.
420 Graduate Colaborations I-I4. Collaborative projects involving two or more students in Department of Art. f.w.
430 Historic Research in Drawing, Painting and Design (1-4). Exploration of historic precedent in drawing, painting, design, and instructor's consent. f.w.
410 Graduate Studio Seminar (3). Special readings and research including written and/or oral presentations. Prerequisite: graduate standing and instructor's consent. f.w.
424 Problems in Design (1-12). Graduate level work in graphic design. Prerequisite: 422, and consent of department. f.w.
429 Problems in Photography (1-12). Supervised research in creative photographic expression. Prerequisite: 425. f.w.
434 Problems in Ceramics (1-12). Graduate level work in ceramics. Prerequisite: 430 or 431, and consent of department. f.w.
440 Problems in Metals (1-12). Graduate level work in fibers. Prerequisite: 440 and consent of department. f.w.
454 Problems in Metals (1-12). Prerequisites: 450 of 450 and instructor's consent. May be repeated to 12 hours maximum. f.w.
456 Historic Research in Artcrafts (1-4). Prerequisite: Consent of department required. f.w.
464 Problems in Drawing (1-12). Prerequisite: 460 and consent of department required. f.w.
474 Problems in Experimental Media (1-12). Independent study at the graduate level. May be repeated to a maximum of 12 hours. Prerequisites: 470 and instructor's consent. f.w.
478 Problems in Painting (1-12). Prerequisite: consent of department required. f.w.
485 Problems in Sculpture (1-12). Prerequisite: 485 and consent of department required. f.w.
490 Problems in Printmaking (1-12). Prerequisite: 490 and consent of department required. f.w.
490 Problems in Serigraphy (1-12). Prerequisite: 490 and instructor's consent. f.w.

SCULPTURE
285 Beginning Sculpture (3). Principles of sculptural organization, figure studies, modeling techniques, simple plaster casting. Payment of expendable materials expense is required. Prerequisite: 5, 20, 165, or 360. f.w.
385 Intermediate Sculpture (3). Continuation of 285. Introduction to carving techniques. Payment of expendable materials expense is required. Prerequisite: 285. f.w.
360 Wood and Stone Carving (3). Advanced carving technique. Payment of expendable materials expense is required. Prerequisite: 385. May repeat to 12 hours maximum. f.w.
387 Sculpture in Plastics (3). Explores polymer, epoxy and acrylic plastics as sculptural media. Payment of expendable materials expense is required. Prerequisite: 385. May repeat to 6 hours maximum. f.w.
388 Advanced Carving (1-4). Emphasis on creative expression through a combination of methods. Payment of expendable materials expense is required. Prerequisite: 386 or 387 and graduate major. May repeat to 15 hours maximum. f.w.

SERIGRAPHY
290 Serigraphy I (3). Introduces methods, materials, and techniques of printmaking with the silk screen. Payment of expendable materials expense is required. Prerequisite: 285. f.w.
390 Serigraphy II (3). Advanced study of serigraphy: pictorial composition through stencil arrangements emphasized. Payment of expendable materials expense is required. Prerequisite: 290. May repeat to 15 hours maximum. f.w.
490 Graduate Serigraphy (3). Advanced problems in serigraphy with emphasis on creative expression through a combination of methods. Payment of expendable materials expense is required. Prerequisite: 390 and graduate major. May repeat to 15 hours maximum. f.w.

WATERCOLOR
175 Beginning Water Color (3). Theory, practice of painting in water color from still life, landscape, figure. Prerequisites: 2 and one semester of drawing. f.w.
251 Renaissance and Baroque Architecture (3). Problems in European
architectural history from 14th through 17th century. Prerequisite: 250. 260 or equivalent.
252 Renaissance Figural Arts II: Northern Europe (3). Discussion of
selected works of Italian, Dutch, and Flemish art while considering the
time period from c. 1500 to 1600. Prerequisite: 251 or equivalent.
253 Renaissance Figural Arts II: Southern Europe (3). Social and
temporal context of the work of Rembrandt in the context of his times. Prerequisite: 250 or equivalent.
263 Rococo to Romanticism (3). Rococo through romantic styles and
issues in eighteenth-century art. Prerequisite: 261 or equivalent.
267 Realism-Through-Post-Impressionism (3). Styles and issues in
nineteenth-century art. Prerequisite: 270 or equivalent.
268 Barry’s U.S. Capitol Project (3). Study of the development of the
U.S. Capitol building and the relationship between the art of the
American Renaissance and that of the period of the Industrial
Revolution. Prerequisite: 261 or equivalent.
351 American Architecture (3). Architecture from colonial period to
present in relation to European architecture. Prerequisite: 141 or equivalent.
357 Contemporary Art (3). Painting and sculpture since World War II.
Prerequisite: 141 or 271 or General Honors 104.
359 Modernism (3). Problems in history of modern art from late
18th century to present. Prerequisite: 141, 270, 271 or equivalent.
372 History of Preservation (3). (same as History 375). 376 Topics in
Museum Studies (3). Lectures and reports on selected topics including
conservation of architectural and art objects, the history of art museums,
and Australian topics. Prerequisite: graduate standing or instructor’s consent.
401 Introduction to Graduate Study (3). Methods of research,
bibliography, use and criticism of source material. Required of
graduate students in art history and archaeology who have not had 190.
Prerequisite: graduate standing.
402 Historiography of Art and Archaeology (3). Literature of art
and archaeology and the development of scholarly works of teaching European
art historians, archaeologists. Required of graduate students in art history and
archaeology. Prerequisite: graduate standing.
404 Art and Industry (3). History and development of art in relation to industries.
Prerequisite: 141 or equivalent.
406 Art and Industry (3). History of ancient and modern industries in
relation to the history of art and architecture. Prerequisite: 141 or equivalent.
412 Seminar in Greek Art and Archaeology (cr. arr.) Special subjects
assigned for individual research; discussion of reports by seminar members.
May be repeated. Prerequisite: 317 or equivalent and instructor’s consent.
410 Seminar in Greek Art and Archaeology (cr. arr.) Special subjects
assigned for individual research; discussion of reports by seminar members.
Prerequisite: 290 or equivalent.
411 Seminar in Art History and Archaeology (cr. arr.) Special subjects
assigned for individual research; discussion of reports by seminar members.
Prerequisite: 308, 310, 312 or equivalent.
412 Seminar in Early Christian Art and Archaeology (cr. arr.) Special
subjects assigned for individual research; discussion of reports by seminar members.
Prerequisite: 309, 311, 313 or equivalent.
413 Seminar in Ancient Near Eastern Art and Archaeology (cr. arr.) Special
subjects assigned for individual research; discussion of reports by seminar members.
Prerequisite: 290 or equivalent.
414 Seminar in Roman Numismatics I (3). (same as Classical Studies
312) Coinage of Greek city-states and/or Roman Republic and
Empire. Prerequisite: Greek 103 or Latin 103.
415 Seminar in Roman Numismatics II (3). (same as Classical Studies
314) Coinage of Greek city-states and/or Roman Republic and
Empire. Prerequisite: Greek 103 or Latin 103.
425 Greek and Roman Epigraphy (3). Inscriptions of ancient Greece and/or
Roman Republic and Empire. Prerequisite: Greek 103 or Latin 103.
426 Latin Epigraphy (3). Inscriptions of ancient Greek and/or
Roman Republic and Empire. Prerequisite: Greek 103 or Latin 103.
429 Greek and Roman Art (3). Analyzes development of art and architecture of provinces of the Roman
Empire in Early Christian period of Europe and Near East. Prerequisite: 221, 240, Greek 102, or instructor’s consent.
430 Art of the Dark Ages (3). Analyzes barbaric, Merovingian, Caesarii
and Viking art and archaeology. Prerequisite: 240 or equivalent.
431 Byzantine Art and Archaeology (3). Byzantine, Slavic and
Russian art and architecture. Prerequisite: 240 or equivalent.
432 Romanesque Art and Architecture (3). Discussion of selected
works of Early Christian, Romanesque, and Gothic art and their
cultural and social relationship from ca 1000 to ca 1150. Prerequisite: 240, 260, or equivalent.
433 French Gothic Architecture (3). Discussion of selected topics in
architecture, sculpture and painting and their artistic and cultural
relationship from ca 1150 to ca 1400. Prerequisite: 241 or equivalent.
434 Michelangelo and the High Renaissance (3). Sculpture, architecture,
paintings, drawings of Michelangelo in the context of his times.
Prerequisite: 250 or equivalent.
410 Seminar (cr. arr). Prerequisite: graduate standing. f.w.
412 Advanced Dynamic Meteorology (3). Study of global climate, application of large scale atmospheric dynamics to study of atmospheric circulations. Prerequisite: 393 alt. f. odd yrs.
416 Atmospheric General Circulation (3). Comprehensive review of dynamics of air masses. Prerequisite: 350 or 362 or 393 alt. f. odd yrs.
446 Advanced Dynamic Climatology (3). Study of global climate, application of large scale atmospheric dynamics to study of various forms of energy, climate evaluation, large scale climatic modification. Prerequisite: 393 or 416, or 366, or instructor's consent.
467 Seminar (cr. arr). Research for thesis preparation. f.w.

BIOCHEMISTRY
10 Biochemistry, the Field and the Profession (1). Introductory seminar for students interested in brief exposure to field of biochemistry. Topics: nature of projects in department. literature sources, professional code of conduct, educational preparation, chemical community, biographies of famous biochemists. Graded S/U.
99 Biochemical Information Retrieval (1). Consists of lectures, library field trips, demonstrations of data base searching, and student on-line data base searching. Solution of information retrieval problems required. Offered for sophomore biochemistry majors. Prerequisite: Biochemistry 10, Corequisite: Chemistry 210. f.
110 Introductory General Botany (5). Introduction to the study of plants. Prerequisites: 5 hours general chemistry, 5 hours general physics. f.
195 General Biochemistry Laboratory (2). Prerequisites: GeneralBiochemistry 1 and 2, or permission. Offered workshop/lab experiential learning. connection with chemistry/physical properties of biomolecules, enzyme assays and application of instrumentation applicable to biochemical studies. Prerequisite: General Biochemistry 1.
206 Medical Biochemistry (8). Lectures cover the broad field of biochemistry of man. Clinical aroatirexund elations. Research project laboratories. Prerequisites: 8 hours general chemistry, 5 hours general physiology. Prerequisites: 8 hours general chemistry, 5 hours general physiology. Prerequisites: 8 hours general chemistry, 5 hours general physiology. f.
240M Neurosciences I (5). (same as School of Medicine--Interci. 240M, Anatomy 240M, Physiology 240M).
271 Biochemistry II (3). Second semester of comprehensive biochemistry course: introduction to major areas and newer aspects of biochemistry; radioactive tracer techniques in metabolism; lipid metabolism, protein metabolism, radiation in chemistry. Prerequisites: 270 and 272, or concurrent. f.
279 Seminar (1). Discuss journal papers dealing with current topics of research, techniques, status of field, importance of results. Students report on completed undergraduate research projects. Prerequisites: senior standing, a minimum of 10 hours chemistry including a biochemistry course with laboratory. f.
300 Problems (1-3).
301 Topics in Biochemistry (cr. arr). Experimental courses; highly specialized topics taught in 4- or 8-hour laboratory course. Prerequisites: in each semester course offered. f.
304 General Biochemistry Lectures (5). Principles of biochemistry; study of nucleic acids, enzymes, coenzymes, metabolism, proteins, nucleic acids, amino acids, intermediates of metabolism; radioisotope tracers in metabolism; identification and purification of enzymes. Prerequisites: 270 and 272, or 279 concurrently. f.
312 Techniques in Biochemistry (3). (same as Chemistry 310). Method of trace element analysis with emphasis on analysis of biological materials. Prerequisite: quantitative analysis. w.
312 Instrumental Methods of Analysis (4). (same as Chemistry 312).
370 Biochemical Genetics (3). General concepts and experimental approaches in molecular biology relevant to modern chemical problems. Prerequisites: 270 and 272, or Biological Sciences 202, or equivalents.
371 Enzymology and Metabolic Regulation (3). General concepts and experimental methods for study of the mechanism of enzyme action. Prerequisite: biochemistry I
372 Physical Biochemistry (3). Physical concepts underlying a variety of physical chemical methods as they apply to biochemical research. Prerequisites: 270 and 272, or Chemistry 230 or equivalent.
400 Problems (1-6). General Biochemistry (3). Emphasizes biochemistry unique to plant biology: biological events plants share with other organisms discussed, compared. Photosynthesis, metabolism, composition, compartmentation, regulation of biochemical events included. Prerequisite: 272 or 273. or 304, or 370, or equivalent. w.
403 Topics in Biochemistry (2-3). Experimental courses, highly specialized topics taught in 4- or 8-hour laboratory course. Prerequisite: instructor each semester course is offered.
410 Seminar (1). Review of current literature; individual presentation of research or classical science topics. f.
413 Reproductive Biology Seminar (1). (same as Animal Science 413). Prerequisite: graduate standing or instructor's consent.
422 Analytical Biochemistry--Chromatography (2). Principles, experimental design, capabilities, limitations, applications of the general field of chromatography of biologically important molecules. Eight (2-hour) lectures, eight (4-hour) labs. Prerequisite: instructor consent.
423 Analytical Biochemistry--Multiple Automatic Microanalysis (1). Basic principles of automation; laboratory experiments on ion-exchange, Glc, flame analysis, and spectrophotometry. Three (2-hour) lectures and five (4-hour) labs. Prerequisite: instructor consent.
424 Analytical Biochemistry--Mass Spectrometry (2). Instrumentation, fragmentation mechanisms, interpretation of spectra, combined gas chromatography-mass spectrometry. Three (2-hour) lectures, eight (4-hour) labs. Prerequisite: instructor consent.
461 Advanced Carbohydrate Metabolism and Biological Oddities (2). Review of current knowledge of intermediary metabolism of carbohydrates, and the respiratory chain. Prerequisite: 304 or equivalent. w.
462 Advanced Metabolism: Proteins and Nucleic Acids (2). Advanced course in fields of protein and nucleic acid metabolism. Prerequisite 304 or equivalent. f.
463 Advanced Lipid Metabolism (2). Advanced course in lipid metabolism, including selected topics in digestion, absorption, blood lipids, tissue lipids, lipid synthesis, metabolism. Prerequisite: 304 or equivalent. w.
464 Physical Biochemistry: Proteins, Enzymes, Nucleic Acids (2). Theoretical aspects of biokinetics, bioenergetics; principles of physical chemistry and cell biology. Prerequisite: General Biochemistry I and II or Chemistry 210-211 or Chemistry 220. f.
465 Advanced Organic Chemistry (2). (same as Nutrition 465). Advanced course in metabolism of amino acids, nitrogen and sulfur compounds with related control mechanisms and animal nutrition. Prerequisite: 304 or equivalent. w.
466 Regulation of Energy Metabolism (2). An integrated approach to the regulation of principal pathways involved in cellular fuel utilization. Prerequisite: 304 or 322 or equivalent. Prerequisite: instructor consent. f.

BIOLOGICAL SCIENCES (DIVISION OF)

BIological sciences
1 General Biology (5). General principles of biology. Designed for nonscience majors. Biology from the cell through organisms, ecosystems and man. Reduced credit (2 hrs.) for students who have completed Biology 7 or 203.
2 Basic Environmental Studies (3). (same as Agriculture 6). Considers the ecosystem, energy and biogeochemical cycles and population dynamics; relates to the environment of agriculture and technology, pollution, power and food production: politico-economic considerations. Prerequisite: grade of C or better in 21 and 22.
7 Biology: an Appreciation of Life (3). General survey of life sciences for nonscience majors. Emphasis on the unity and diversity of life. Prerequisite: grade of C or better in 21 and 22.
225 Sociobiology (3). The processes whereby new molecular complexes, organisms, cells, organs and organisms develop from heredity, inheritance, selection, competition. Prerequisite: grade of C or better in 21 and 22.
229 Basic Genetics (3). (same as Entomology 204).
230 Developmental Biology (2). The processes whereby new molecular complexes, organisms, cells, organs and organisms develop from heredity, inheritance, selection, competition. Prerequisite: grade of C or better in 21 and 22.
231 Invertebrate Zoology (5). The invertebrate phyla. Prerequisite: a grade of C or better in 21 and 22.
232 Basic Genetics I (3). Mendel's law, chromosome structure: molecular mechanisms of DNA replication, mutation, recombination and gene expression; gene fine structure; bacterial and viral genetics. Prerequisite: 21 and 22 or 11, 12 or equivalent. Chemistry 11 or Chemistry 12 or equivalent.
233 Comparative Anatomy of Vertebrates (5). Comparative study of organ-systems of a series of vertebrates. Prerequisite: 21 and 22, or 11, 12 or equivalent.
234 Plant Taxonomy (4). Principles of classification of plants; use of keys; identification of local flora. Prerequisite: 1 year biology. w.
236 Vertebrate Embryology (5). Compare basic patterns of development in life sciences. Prerequisite: 21 and 22.
237 Socioecology (3). Introduces general biological principles that govern social behavior and social organization in all animals, blending theoretical and empirical approaches. Prerequisite: 21 and 22.
238 Basic Genetics II (3). (same as Entomology 225). Introduction to medical genetics: population genetics. Prerequisite: grade of C or better in 21 and 22.
240 General Botany (5). Structure, ecology and phylogeny of angiosperms and gymnosperms. Prerequisite: 11 or 12, or equivalent. Chemistry 11 or Chemistry 12 or equivalent.
250 Community Biology (3). Introduces general ecology to nonmajor. Introduction to ecological concepts, systems, interactions, population dynamics/social systems, ecosystem structure/process, biomes in worldwide context, man in the environment. Prerequisite: 11 or 12 or equivalent.
CHEMICAL ENGINEERING

117 Experimental Course (cr. arr.). For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

119 Engineering Thermodynamics II (3). (Same as Mechanical and Aerospace Engineering 199). Gas and vapor mixture, cycles, availability, imperfect gases, thermodynamic relations, combustion, chemical equilibrium. Introduction to process engineering 99 and Mathematics 201. Prerequisites: Ph.D. status or instructor's consent.

225 Chemical Process Calculations (3). Industrial stoichiometry, material and energy balances, thermodynamics, chemistry; relations, topics: Physics 123 and Chemistry 12, or concurrently.

234 Chemical Process Analysis and Design (3). Topics include mass and energy balances, steady-state and dynamic process behavior, mass and energy balances, steady-state and dynamic process behavior. Prerequisite: Chemistry 125 or equivalent. Prerequisite: senior standing or instructor's consent.

235 Principles of Chemical Engineering II (3). Mass transfer.

323 Chemical Engineering Laboratory I (2). Laboratory study of some principal unit operations of chemical engineering. Prerequisite: 225 or 255.

326 Chemical Engineering Thermodynamics I (3). Study of thermodynamics, with particular reference to chemical engineering applications. Prerequisite: 225 or 255.

350 Mathematics of Chemical Engineering Operations (3). Analytical methods applied to solution of chemical engineering problems. Prerequisite: Mathematics 100, or equivalent.

371 Process Control and Instrumentation Engineering (3). Experimental course in chemical engineering design and manufacturing processes. Prerequisite: 361.


384 Physical Development of Chemical Engineering Operation (3). Analysis of methods applied to solution of chemical engineering problems. Prerequisite: Mathematics 300.

391 Process Control and Instrumentation Engineering (3). steadystate and unsteady-state optimization techniques applied to chemical processes. Prerequisite: 361.

490 Research (cr. arr.) Independent investigation in chemical engineering. To be presented as a thesis.

CHEMISTRY

Introductory Chemistry (3). Important basic concepts of chemistry for general education purposes. Preparation: 110. Prerequisite: 111. F, W, S.

5 Chemistry for Engineers (3). For students in College of Engineering in fields other than chemical engineering. Presents chemical principles in areas of greatest importance to engineers. Prior completion of college algebra or equivalent strongly recommended. F, W

10 Preparation for General Chemistry (2). For students lacking adequate preparation for general chemistry. Emphasizes basic chemical calculations. Not open to students with credit in any other college chemistry course. No credit toward requirements for this course. Chemistry 1 may be taken after Chemistry 10 only with reduced credit (3 hours). Does not fulfill general education requirements in the physical and mathematical sciences.

11 General Chemistry (5). Treatment of major principles of chemistry. First course of a sequence. Prior completion of college algebra required. F, W

12 General Chemistry (5). Continuation of 11. Prerequisite: grade of C or better in 11. F, W

15 Organic Chemistry (5). Surveys field of organic chemistry including natural products. For students needing only 5 hours of organic chemistry. Does not meet requirements for 212. Only 3 hours credit for students of special summer institutes. Prerequisite: 15 or equivalent. F, W

211 Organic Chemistry Laboratory (2). Must accompany, cannot precede 210. F, W

212 Organic Chemistry (2). Continuation of 210. Covers carbonyl-containing compounds, amines, heterocyclics, natural products (fats, carbohydrates, amino acids, proteins, nucleic acids) and others. Prerequisite: 210 or special permission. F, W

213 Organic Chemistry Laboratory (2). Must accompany, cannot precede 212. F, W

221 Quantitative Instrumental Analysis (4). Introductory course for non-majors. Surveys modern instrumental methods. Prerequisites: B.S. or A.B. degree. 2.75 GPA and/or instructor's consent. Only 3 hours credit for students of special summer institutes.

322 Research for Honor Students (3-6). Prerequisites: 3.33 average in chemistry courses & instructor's consent. F, W

218 Organic Chemistry (3). First course of a sequence. Concentrates on fundamentals and applies them to a few functional groups. Only 1 hour credit if student has completed 205 or equivalent. Prerequisite: 15 or equivalent. F, W

221 Quantitative Instrumental Analysis (4). Introductory course for non-majors. Surveys modern instrumental methods. Prerequisites: B.S. or A.B. degree. 2.75 GPA and/or instructor's consent. Only 3 hours credit for students of special summer institutes.

324 Research for Honor Students (3-6). Prerequisites: 3.33 average in chemistry courses & instructor's consent. F, W

350 Problems of fundamentals involving chemical engineering. Topics are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques. Topics treated are plume dispersion theories, control techniques.
442 Inorganic chemical methods of separation: gas, paper, thin film, and column techniques. Inorganic Structural Methods (3).

256 Adolescence and Young Adulthood (3). Physical, intellectual, and emotional development of adolescents and young adults within the context of lifelong developmental sequelae. Prerequisite: 3hr. behavior- 
al. science.

263 The Child From Six Through Adolescence (3). Physical and psychosocial development of the child from six through adolescence.

264 Child Development Laboratory (3). Experience in working with young children (3-5 years), adult-child relationships, general principles and applications of fostering curiosity and creativity. Prerequisite: 160 or equivalent; instructor’s consent.

265 Infant-Toddler Development and Programs (3). Applied research on growth and development during the first two years of life. Emphasis on supporting development in a child care setting and staff relations. Prerequisite: 160 or equivalent.

266 Problems of Child and Family Development (cr. adj.). Independent work on special problems in child and family development. Prerequisite: instructor's consent.

281 Topics (cr. adj.) Selected current topics in field of interest.

301 Multi-Cultural Study of Children and Families (3). Study of multi-cultural (e.g., Afro-American, Hispanic, native American) groups within context of their unique cultural heritage. Attention given to interaction with institutions of dominant society. Prerequisite: 225 or instructor’s consent.

350 Readings (cr. adj.) Readings in recent research; critical discussions. Prerequisite: 300 level behavioral sciences course or instructor’s consent.

355 Violence in the Family (1-3). An analysis of definitions and correlates of child abuse and neglect as well as violence between spouses, siblings and intergenerational family members. Prerequisites: 6 hours child and human development and course in social work.

354 Curriculum Development for Early Childhood Programs (3). Study of curriculum content and methods appropriate for children ages 3-5. Includes study of the physical, mental, emotional and economic needs of the child and seeking ways of substituting for the child’s physical, cognitive, language, the child’s physical, cognitive, language, creative and self-social development. Prerequisite: 160 or equivalent.

355 Recent Trends (1-2). Review of current research and/or practice in child and family development. Prerequisite: instructor's consent.

356 Child and Family Advocacy (3). Study of the processes of social policies that affect families and the work of the local, state and federal levels. The course emphasizes current issues and need for citizen involvement. Prerequisite: instructor’s consent.

358 Administration of Programs for Children & Families (3). Includes design, operation and evaluation of programs. Field experience included. Prerequisite: 264 or instructor’s consent.

361 Working With Parents (2-3). Understanding of parents and their perspectives, interpersonal communication and relationships, conference and group meeting techniques. Includes experience with parent group and large group settings. Prerequisite: instructor’s consent.

362 Fostering Intellectual Development in Early Childhood (3). Analysis of activities and programs which foster intellectual growth of the young child. Prerequisite: 160 or equivalent.

363 Family Development (3). Analysis of the developmental stages of the family life cycle from establishment through aging. Prerequisites: 264 or equivalent; instructor’s consent.

364 Advanced Child Development (3). Work with young children (2-5 years) developing early childhood program and manipulative, representational, language and discovery experiences for young children; study of program models. (Consult instructor to schedule lab hours.) prerequisites: 264 or equivalent; instructor’s consent.

366 Working With Parents Practicum (2-3). Practicum experience in working with parents/families of young children. Focuses on developing interpersonal skills in daily contacts with parents, group meetings, and participation in both home and school setting.

372 Child Health Seminar: Infants & Children in Health Care Settings (3). Will cover organization, operation, services of modern health care settings, the health problems, diseases of infants, children with complex and extended care needs. Prerequisite: instructor’s consent.

419 Field Training (cr. adj.) Internships and/or field experiences in the field of human development. Prerequisites: graduate standing and instructor’s consent.

424 Remarriage & Stepfamilies: Development, Dynamics and Intervention (3). The processes of remarriage and family development. Special developmental needs and intervention models will be studied. The impact on children will be considered. Prerequisites: 6 hours of 300-level courses and instructor’s consent.

443 Theories of Human Development (3). Major theories of human development. Prerequisite: concurrent with 341.

368 Family Theories & Measurement I: Inductive Approach (3). The study of the building of family theory. Emphasis on critical analysis of theoretical frameworks. Prerequisite: 368 or 468 or instructor’s consent.

370 Stress and Crises in Families (3). The study of the influence of stressful events on family functioning. Emphasis on those variables which tend to increase or decrease the probability of family crisis. Prerequisite: 368 or 468 or instructor’s consent.

490 Research (cr. adj.) Independent research leading to theses or dissertation.

CHILD HEALTH

A Pediatrics, Third Year (10). During the clinical years, a 8-week full-time clerkship is required. Students are assigned patients on the ward and in the nursery and in the diagnostic outpatient clinics. Independent history-taking, examination, and clinical and laboratory evaluation, followed by discussion with a member of the staff. In addition to general pediatric clinics, subspecialty clinics are held in the Child Health Clinic, Orthopaedic Clinic, Otorhinolaryngology Clinic, Hematology, allergy, cardiology, and neurology. Clinical experience is supplemented by participation in daily conferences, rounds, and conferences.

B Pediatrics, Elective (10). All fourth-year students are encouraged to spend elective time in pediatrics. During this period there will be extensive exposure to everyday pediatric problems in the outpatient clinics, and a shorter period of intensive inpatient training, with increasing responsibility in both areas. Preceptorship with a practicing pediatrician, laboratory and clinical research, or a combination of these experiences is recommended. These electives are available to qualified physicians by arrangement.

348 Human Genetics (3). (same as Biological Sciences 348) (er. arr.) Does not lead to dissertation. Prerequisites: 6 hours child and family development or instructor’s consent.

372 Child Health Seminar: Infants & Children in Health Care Settings (3). Will cover organization, operation, services of modern health care settings, the health problems, diseases of infants, children with complex and extended care needs. Prerequisite: instructor’s consent.

CIVIL ENGINEERING

111 Surveying (3). Primarily for forestry students. Uses surveying equipment and traceroute surveying techniques to map topographic features and create topographic surveys. Prerequisites: Mathematics 9 and Mathematics 10 or equivalent.


120 Introduction to Dynamics (3). (same as Mechanical and Aerospace Engineering 185).

212 Transportation Systems Engineering (3). Studies engineering challenges associated with various modes of transportation of passengers and goods. Prerequisite: 113.

221 Structural Analysis I (4). Analysis of statically determinate beams, frames and trusses; shear and moment diagrams; influence line determination; deflection of statically determinate structures; moment distribution; energy methods. Prerequisite: Engi- neering 195.

223 Reinforced Concrete Design (3). Basic principles of reinforced
CLOTHING AND TEXTILES

81 Clothing Construction (3), 81. Compares techniques and analyzes quality in garment construction.
83 Contemporary Fashion Fundamentals (3). Studies the use of the elements and principles of design in selecting clothing for individuals.
86 Introduction to the Fashion Industry (3). Surveys the fashion industry and introduces the creation and marketing of merchandise from concept to consumer.
82 Textiles (3). Textile fibers and their processing as it relates to selecting and providing for the end product. Prerequisite: second-semester freshman or above.
83 Fashion Illustration (2), 2. Development of techniques and media for portraying the fashion figure and dress. Prerequisites: 81, 186.
283 Study of Fabric Construction Components (2), 2. Experimental laboratory study of the components of custom crafted apparel and ready-to-wear. Prerequisites: 81 or equivalent, 83, 182, 282 or parallel.
285 The Clothing/Textiles Consumer (3). Consumer problems in buying textiles and clothing for home and family members. Legislation, quality standards, and construction of current textile and clothing items. Prerequisites: 81 and instructor's consent.
291 Applied Textiles (3). A comparative study of the properties of fibers and fabrics, and how these influence the performance of apparel and industrial textile laboratory experience. Prerequisite: 182.
290 Problems (cr. arr.). Required: instructor's consent.
293 Textiles and/or Clothing (3). Selection and tailoring of a wool suit or ready-to-wear. Prerequisites: 81 or equivalent. 83, 182. 282 or parallel.
286 Applied Textiles (3). 286. The Clothing Consumer (3). Origination of Western dress and fashion through significant historic periods from pre-historic to the present. Prerequisites: 81, 186, 282. 281.
281 Fashion and Costume Design (3). Evaluation of fundamentals of fashion and design. Experience problems which develop judgment and originality. Prerequisites: 81 or equivalent, 83, and 183.
282 Apparel Production Processes (3), 2. A study of apparel production processes used by designers and by the industry. Prerequisites: 83, 182 or instructor's consent.
283 Clothing and Textiles (3). 283. An introduction to the processes of making clothing and retailing principles. Specific applications through case studies, problems, and guest lectures. Prerequisite: clothing & textiles major only or instructor's consent.
287 History of Dress and Fashion (3). Origins and development of Western dress and fashion through significant historic periods from pre-historic to the present. Prerequisites: 81, 186, 282. 281.
288 Cultural Interpretations of Dress and Adornment (3). Diversity in functional patterns of dress and adornment. Prerequisite: 288 or instructor's consent.
480 Research (cr. arr.) Independent research leading to thesis or dissertation.

COMMUNITY DEVELOPMENT

190 Individual Participation in Our Changing American Community (3). Relates personal characteristics to citizenship development philosophy, practice, structures, and obstacles to the encouragement of effective citizen involvement in public decision making. Prerequisites: 480 or instructor's consent.
192 The Field of Community Development (3). General survey of community development (domestic and international): origins, current status, basic values, and practices associated with citizen participation in community development. Prerequisite: 190.
193 Community Development Approaches to Youth Work (3). Focuses on the implications and applications of community development concepts, principles, and practices for youth program development and maintenance.
414 Planning and the Community (3). Acquaints undergraduates with the basic philosophy of planning, roles of citizens, private interests and planners, and with basic principles and processes of planning in urban and rural communities, as well as at the regional level. Prerequisite: 190.
300 Community Development Perspectives (3), 300. Historical, philosophical, and theoretical perspectives of community development form the base for this course. Examines concepts, values, principles of community development as an introduction to community development practice. Prerequisite: 190.
301 Topics in Community Development (1-3). Organized study of selected topics in community development. Particular topic and term papers may vary from semester to semester. Prerequisite: instructor's consent.
310 Community Development Theory (3). Relevant social science theories and literature to assist in human, social, economic, political development. Relation of theory to action, specific methodologies, programming from professional social science, and organizational presentation as aspects of theory practice.
315 Strategies for International Community Development (3). Acquaints students with past and present development efforts and results throughout the world and the considers the possibilities for the future. Introduces strategies for approaches to community development in the countries throughout the world.
320 Group and Interpersonal Competence (3). Opportunity for students to use experiential learning to improve interpersonal competence.
355 Current Trends (1-2). For upper-class and graduate students who wish additional knowledge and understanding in specific subject matter areas.
355 Tailoring (3). Comparison of tailorings techniques used in industry and home production. Selection and tailoring of a wool suit or ready-to-wear. Prerequisites: 81 or equivalent.
361 Costume History (3-4). Interpretation of 19th and 20th century costumes and fashions as influential resources for contemporary dress. Prerequisite: 187.
367 Applied Clothing Design (3). 367. Draping and modeling costumes of original design. Prerequisite: 361.
363 Advanced Fashion Illustration (3), 363. Techniques of representing costumed figures in various illustrative media and development of original designs for contemporary dress. Prerequisite: 183 & 281.
368 Color Analysis and Design (3). 368. Analysis of color by flat pattern methods and construction of original designs. Prerequisites: 281, or instructor's consent.
370 Clothing Behavior and Society (3). Behavioral aspects of clothing related to the individual and society. Prerequisites: 83, 86, and two courses from sociology, psychology or economics.
370 Field Training (cr. arr.). Internship practical aspects of experience coordinated with the University curriculum. Available for various areas of emphasis. Prerequisites: 2.5 GPA, instructor's consent, and necessary prerequisites for area of emphasis. See department for intern placement.
177 Practical Training (1-3). Applied study in selected areas.
400 Problems (cr. arr.). Prerequisites: 300-level course in field of problem & instructor's consent.
410 Seminar (1-4). Reports and discussion of recent work in area of concentration.
412 Research Methods in Clothing and Textiles (3). Research planning, technique, sampling and measurement, data collection, analysis, and interpretation. Prerequisites: 3 hours statistics.
415 Readings (cr. arr.). Readings in recent research material in textiles and/or clothing. Prerequisites: graduate standing, 20 hours clothing and textiles. Prerequisite: instructor's consent.
418 Topics (cr. arr.). Selected current topics in field of interest.
450 Research (cr. arr.) Independent research not leading to a thesis.
480 Textile Fabrics (3). Advanced study of textile fabrics with emphasis on dyeing, finishing, and physical testing. Prerequisites: 182 & senior or graduate student.
481 Costume History (3). Study of American dress as a reflection of historical development. Influence of our European heritage and environmental resources and constraints upon American lifestyles from the 16th century to the present. Prerequisite: 481 or instructor's consent.
482 Principles & Practices of Fundraising/Evaluation-Human Serv Org (3). (Same as Recreation and Park Administration 342). A basic understanding of program evaluation and its relationship to the fund raising process, emphasizing youth-oriented programs, Focused on developing fund raising campaigns and grantmanship.
483 The Management of Volunteer Systems (3). Focuses on the role of the manager in the development and implementation of systems: programs, projects, and services. Prerequisite: 482 or instructor's consent.
100 Problems (cr. arr.). Organized study of selected topics. Subject and term papers may vary from semester to semester. Prerequisite: junior standing and instructor's consent.
364 Elderly Consumer-Participants in Human Service Delivery Systems (3). Examination of effectiveness of human service delivery systems: services offered, special participation problems, social dynamics of service delivery systems and intervention points, community strategies to effect and improve service delivery.
390 Program Development and Administration for Human Service Organizations (3). Essential features of program development and program administration in the public sector; what the administrative structure does and how it operates; major functions of the program and operation of the program.
412 The Theory of Planning (3). Engagement of basic philosophical and theoretical frameworks and constructs of planning, including the planning problem through both the planning and design process, the social and political impacts on planning theory. Prerequisite: upper division status.
417 Government Social Policy and Institutional Resources (3). Examines historical, contemporary, and international aspects of social policy and institutional arrangements implementing them.
420 Field Experience (3-12). Field practice in selected community development units, under faculty or other competent supervision.
424 Community Development Research Methods and Techniques (3). Introduction to social science research methods and techniques, with consideration given to a variety of research approaches and techniques. Particular application of these approaches to community development research and evaluation is stressed.
430 Community Development Seminar (3). Integration of frontiers, principles and techniques into practice. Prerequisites: 417, 420 and 424. Students and faculty in the seminar decide issues and topics to focus.
438 Community Development in Urban Areas (3). Concerns barriers to effective community development process in meeting needs in urban areas: critiques present structures and approaches, examine goals and organizational structures for applying process and mechanisms of change.
440 Specialized Topics in Community Development (1-3). Specialized topics of developments in related fields of special Petro development.
442 Community Development Practice in Urban Areas (3). Students learn the variables to be considered in creating the community development process in urban areas. Courses of action to take in response to the urban community development problems which arise around them. Prerequisite: instructor's consent.
450 Research (1-6). Students are expected to demonstrate graduate ability in the research and scholarly process of selecting a thesis topic.
459 Research (3). Students demonstrate theoretical knowledge and skills in research leading to thesis.

COMPUTER SCIENCE

75 Introduction to Computer Science (3). Survey of computer science. Algorithms, data structures, computer organizations, programming languages, software systems, social issues. Students write programs in several languages. Prerequisite: High school algebra.
104 Computers and Programming I (3). Introduces the student to keypunching, flowcharting and programming in FORTRAN. Emphasizes the use of the computer as a tool for solving problems in education and scientific problems. Prerequisite: Mathematics 10.
201 Programming as a Research Tool (3). Intensive study of the design of computer programming techniques and languages for graduate students and superior seniors with no previous programming experience. Prerequisite: Statistics 207 or Statistics 234 or equivalent. Credit not given for both 104 and 201.
202 Advanced Programming Languages and Programming II (3). Through treatment of computer programming language PL/I and its application to numerical and nonnumerical problems. Prerequisite: 104, or equivalent. 203. Advanced practical programming, with emphasis on use of job control language and other utilities, turntables, input/output, computer operating systems and operating systems. Prerequisite: 202.
207 Programming Languages (1). Organized study of programming languages. Languages offered will vary from semester to semester. Prerequisite: 206 or instructor's consent.
208 Job Control Language & System Utilities (3). Advanced practical programming, with emphasis on use of job control language. Prerequisites: 207 and system utilities. Prerequisite: 203.
210 Introduction to System Concepts (3). Introduces fundamental concepts found throughout computer science including machine, program and file organization; data structures; compilers and link editors. Required course for undergraduates in computer science. Prerequisites: 203 and instructor's consent.
301 Topics (cr. arr.) Organized study of selected topics. Subject and term papers may vary from semester to semester. Prerequisite: computer department. Prerequisites: junior standing and instructor's consent.
COUNSELING AND PERSONNEL SERVICES

G40 Advisory Seminar in Counseling and Personnel Services (1). Orientation to the departmental undergraduate programs, degree program planning and university policies. Required of all students majoring in counseling and personnel services. Overview and orientation, introduction to helping relationship theory, ethical and legal considerations, role of professional associations, and pertinent professional concerns. Prerequisites: G400 and G401.

G411 Problems in Counseling and Personnel Services (1-3). Independent problems. Prerequisites: departmental consent.

G413 Seminar in Counseling and Personnel Services (1-3). Special seminars in selected topics. Prerequisites: departmental consent.

G415 Supervised Practice in Counseling and Personnel Services I (3). Internship in counseling and personnel services. Required of all students majoring in counseling and personnel services. Prerequisite: G411 or consent of instructor.

G416 Supervised Practice in Counseling and Personnel Services II (3). Advanced supervised practice. Prerequisites: G415 and G417 (or concurrent registration in G417 acceptable).
T40 Advisory Seminar in Curriculum and Instruction (1). Orientation to the department and to the profession. Degree program planning in early childhood, elementary and secondary education. Required of all department entrants. Graded S/U.

T41 Communication (3). Basic communication theories, principles and practices in the teaching/learning process; encoder and decoder skills with emphasis on assertive message sending and receptive skills for different audiences and effective message designs for large group and individual settings.

T42 Learning Strategies for College Students (3). Students' learning strategies are assessed and their needs are given greatest emphasis. Learning strategies include; techniques developed by major educators and as the core skills of vocabulary expansion, studying and note taking.

T446 Instructional Backk in Counseling Psychology (3).

T160 Aiding: Nursery/Day Care Programs (2•4). Aiding of nursery/day care programs in schools.

T211 Teaching of Reading in the Elementary School (3). Techniques in teaching and evaluation of social studies in secondary schools.

T215 Elementary School Music (2). Pragmatic approaches in the development of an optimal and comprehensive elementary music program. Prerequisites: Music A205 and 100 hours of supervised experience under the direction of a qualified elementary music director.

T216 Teaching of Music in the Elementary School (3). Study of music literature and instructional teaching/learning materials for the comprehensive elementary school music program. Prerequisites: A205 and junior standing or instructor's consent.

T225 Teaching Secondary School Music (3). A study of the various components for the teaching of a comprehensive secondary school music program. Prerequisite: A205 or instructor's consent.

T259 Teaching of Physical Education (2), (G12). Practical strategies in the development of instrumental music programs for all instrumental music education majors. Prerequisites: junior standing and instructor's consent.

T262 Teaching of Instrumental Music (2). Designed by departmental staff.

T263 Teaching of Vocal Music (2). Designed by departmental staff.

T267 Teaching Mathematics in the Elementary School (3). Instructional strategies and contemporary resource materials for the successful development of selected concepts and skills in elementary school mathematics. Prerequisites: A205 and consent of instructor.


T280 Teaching of Romance Languages in the Secondary School (3). Techniques in teaching and evaluation of romance languages in secondary schools. Prerequisite: Educational Psychology A205.

T283 Teaching of Social Studies in the Elementary School (3). Offers future language teachers an opportunity to work with children in elementary school. Introduces students to curriculum planning, selection of instructional materials, and evaluation of learning in elementary school settings. Prerequisite: 2 semesters of German or equivalent.

T289 Student Teaching (cr. arr.). Hours of credit are based on the course of instruction. Includes planning and evaluation of student teaching. Prerequisites: T240 and special methods courses in area of specialization.

T301 Child Study (3). Presents physical, mental, social, emotional aspects of the child from birth through age eight with implications for program and curriculum planning.

T303 Emergent Language in Early Childhood (3). Study of language development, influence of language on learning, and the role of the child in the learning environment. Emphasis is gained through language; implications for teachers working with children from varying language-learning environments. Prerequisite: A205.

T304 Family and Community Resources for Early Childhood Education (3). Lectures, visits to schools, investigation into developments in methods, materials, programs, and resources used in working with young children and their parents. Prerequisite: A205.

T305 Early Childhood Curriculum and Methods (3). Development, theory and practice in early childhood education. Prerequisite: junior standing.

T306 Strategies of Diagnosis & Intervention in Early Childhood (3). Examines screening and diagnostic instruments and procedures, focusing on the process and development of diagnostic means and methods. Course provides a foundation for preventive academic work with "high risk" children. Open to upper-level undergraduates and graduates.

T309 Literature in the Elementary School (3). Surveys the field of children's literature, emphasizing selection and evaluation of mid-readings of various types of literature. Prerequisites: junior standing or instructor's consent.


T311 Seminar in Curriculum & Instruction (1-3). Focuses on contemporary secondary school mathematics and effective techniques for teaching this content.

T312 Reflection on Instructional Media Materials (3). For classroom teachers. Evaluation of visual education procedures and devices, such as filmstrips, programmed materials, etc.


T323 Teaching of Speech in the Secondary School (3). Techniques in teaching and evaluation of speech and drama in secondary school, selected procedures for the development of public speaking and group discussion. Prerequisites: T315 and consent of instructor.

T324 Teaching the Arts in the Secondary School (3). The role of the arts in the secondary school. Selected procedures for teaching the arts in the secondary school. Prerequisites: T315 and instructor's consent.

T325 Teaching of English Language Study in the Schools (3). A study of language development and the role of the child in learning language. Emphasis is gained through language; implications for teachers working with children from varying language-learning environments. Prerequisite: A205.

T341 Seminar in Curriculum & Instruction (1). Focuses on curriculum development criteria for selection and evaluation of educational and media materials. Includes familiarization with current instructional technologies.

T347 Photography for Teachers (3). Basic 35mm photography techniques and processes; darkroom; photo publication; slide/slidestrip production as they are applied to educational settings.

T377 Production of Educational Media (3). Familiarizes teachers in the elementary school with the principles of producing and evaluating educational media and materials for the elementary school. Prerequisites: 2 semester of German or equivalent.

T378 School Learning Resource Centers (3). (Same as Library Science 342).

T380 Studies in the Techniques of Teaching German (3). (Same as Germanic & Slavic Studies 380).

T400 Problems (cr. arr.)

T401 Perspectives in Parent Education/Parent Involvement (3). Emphasis on the role of the home, school, and community in the development of children. Prerequisites: Junior standing and instructor's consent.

T402 Early Childhood Research-Based Curriculum Models 3. Select research-based curriculum models in early childhood education, study of home-based, center-based models; experiments in early intervention. Theoretical and philosophical differences, Prerequisite: Learning or child development course or instructor's consent.

T405 Literature for Children and Youth (3). Systematic study and critical evaluation of popular literature for children and youth. Prerequisites: A205 or instructor's consent.

T411 Studies in English Education (3). (Same as English 411).

T412 Elementary Language Arts Curriculum (3). Advanced study of language arts curricula including curriculum models, curriculum development, program evaluation, and research in curriculum and instruction. Prerequisites: undergraduate language arts methods course or instructor's consent.

T414 Instructional Materials in Reading and Language Arts (3). Studies and investigations of types of instructional materials for
developmental, corrective and remedial reading.
T435 Practicum in Child Study I (3-5). Practicum experiences in
diagnosing educational problems of school children. Prerequisites: T315 or
together with faculty, A330.
T436 Practicum in Child Study II (3-5). Practicum experiences in
applied remedial procedures to children with educational problems.
T437 Practicum in Child Study Supervision (3-5). Practicum experience in
supervising and directing a clinic involved with educational
children.
T438 Reading Miscue Analysis (3). The process in which readers
construct meaning by relating their sociolinguistic backgrounds to
discourse. 15 studied miscues (text deviations) are analyzed at several
levels. A remediation software program is developed. Prerequisite: T315 or T366 or
T439 Seminar in Reading and Language Arts (1-2). Critical
consideration of the current status of designs in reading and
language arts. Prerequisites: T315 or T366.
T440 Issues and Trends in Reading Instruction (3). Provides
intensive study of recent research findings and developments in reading on all
instructional levels. Prerequisite: T315, T366 or equivalents or instructor's consent.
T441 Survey of Science Education (3). Survey of development of science
education and study of changes in methodology and philosophy.
Prerequisite: undergraduate course in science methods.
T442 Curricula in Science Education (3). Advanced study of science
curricula with option for elementary or secondary emphasis. Study of exemplary science programs, curriculum models, curriculum design and construction, conversational instruction methods and evaluation. Prerequisite: undergraduate course in science education.
T443 Review of Research in Science Education (3). Studies appropri­
ate research methodologies and reviews research and selected readings in a
science education curriculum. Prerequisite: elementary or secondary emphasis for specific areas: life, physical or earth sciences. Prerequisites: undergraduate course in science education.
T444 T422 Curricula in Science Education (3). Provides
intensive study of current trends and significant issues of science affecting
both the elementary and secondary levels of science education.
Prerequisite: undergraduate course in science education.
T445 Science 391. Poultry Science 391). Individual studies include a minor research
project. Prerequisites: T422, T423, T424, T425.
T446 T423 Review of Research in Science Education (3). Surveys
educational research, including programmed and computer­
mediated instruction, television and film, media utilization and
evaluation, and management of media resource centers. Prerequisites: T311 or T327 or instructor's consent.
T447 Internship in Curriculum and Instruction (3). Provides
supervised experience in the supervision of elementary and secondary
levels. Prerequisite: department chairman's consent.
T448 Research in Curriculum and Instruction (3). Provides
specialized study of selected areas of the elementary and secondary school curriculum with special
emphasis on research and promising innovative and experimental projects.
T449 Psychology of Affective Growth (3). Developmental analysis of research
on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
T450 Trends in Remedial Reading (3). Advanced study of an
elementary curriculum, with option for elementary or secondary emphasis.
Study of exemplary art programs, standards of quality, curriculum
materials, and testing. Prerequisite: instructor's consent.
T451 Curriculum and Instruction (3). Discussion of instructional
methods and evaluation. Prerequisite: graduate standing.
T452 Research in Research in Art Education (3). Studies appropriate
research methodologies and reviews research and selected readings in art
education. Prerequisite: graduate standing.
T453 Extracurricular Activities (3). (same as Education Adminis­
tration 438).
T454 The Elementary School Curriculum (3). Studies elementary
curriculum with regard to selection of objectives and content, and to
provisions for curricular change.
T455 Trends in Remedial Reading (3). Comparative study of selected areas of the elementary school curriculum with special
emphasis on research and promising innovative and experimental projects.
T456 Psychology of Affective Growth (3). Systematic review of research
on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
T457 Trends in Remedial Reading (3). Advanced study of an
elementary curriculum, with option for elementary or secondary emphasis.
T458 Extracurricular Activities (3). Comparative study of selected areas of the elementary school curriculum with special
emphasis on research and promising innovative and experimental projects.
T459 Psychology of Affective Growth (3). Systematic review of research
on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
T460 Advanced Topics (cr. arr.)
T461 Advanced Piano Pedagogy I (3). (same as Music 461).
T462 Advanced Piano Pedagogy II (3). (same as Music 462).
T463 Senior Project in Penology (3). (cr. arr.)
T464 Practicum in Child Study Supervision (3-5). Practicum experience in
supervising and directing a clinic involved with educational
children. Prerequisites: T315 or T366 or
T465 T435 Practicum in Child Study I (3-5). Practicum experiences in
diagnosing educational problems of school children. Prerequisites: T315 or
T366 or
T466 Practicum in Child Study II (3-5). Practicum experiences in
applied remedial procedures to children with educational problems.
Mathematics laboratory is developed and integrated with experi­
cence setting. Emphasis on materials for primary and intermediate grades.
T468 Secondary Mathematics Curriculum & Teaching (3). Discussion of secondary mathematics
instruction, curriculum development, evaluation techniques and re­
search to secondary mathematics programs. Prerequisite: mathematics
secondary school teaching experience or equivalent.
T469 Secondary School Curriculum Construction (cr. arr.)
Course work adapted to current vocational needs. Prerequisite: instructor's consent.
T470 Systems in Instruments Design and Mediation (3). Considers principles and components of a systems approach for integrating educational resources into an instruction situation. Emphasizes manage­
ment role of the specialist for organizing a program of instructional development.
T471 Review of Research and Theory in Media (3). Surveys educational media research, including programmed and computer­
mediated instruction, television and film, media utilization and
evaluation, and management of media resource centers. Prerequisites: T311 or T327 or instructor's consent.
T472 Internship in Curriculum and Instruction (cr. arr.)
T473 Research in Curriculum and Instruction (3). Provides
specialized study of selected areas of the elementary and secondary school curriculum with special
emphasis on research and promising innovative and experimental projects.
T474 Psychology of Affective Growth (3). Developmental analysis of research
on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
T475 Trends in Remedial Reading (3). Comparative study of selected areas of the elementary school curriculum with special
emphasis on research and promising innovative and experimental projects.
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on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
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elementary curriculum, with option for elementary or secondary emphasis.
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emphasis on research and promising innovative and experimental projects.
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on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
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emphasis on research and promising innovative and experimental projects.
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on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
T482 Trends in Remedial Reading (3). Advanced study of an
elementary curriculum, with option for elementary or secondary emphasis.
T483 Extracurricular Activities (3). Comparative study of selected areas of the elementary school curriculum with special
emphasis on research and promising innovative and experimental projects.
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on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
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elementary curriculum, with option for elementary or secondary emphasis.
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emphasis on research and promising innovative and experimental projects.
T487 Psychology of Affective Growth (3). Systematic review of research
on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
T488 Trends in Remedial Reading (3). Advanced study of an
elementary curriculum, with option for elementary or secondary emphasis.
T489 Extracurricular Activities (3). Comparative study of selected areas of the elementary school curriculum with special
emphasis on research and promising innovative and experimental projects.
T490 Psychology of Affective Growth (3). Developmental analysis of research
on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
T491 Trends in Remedial Reading (3). Advanced study of an
elementary curriculum, with option for elementary or secondary emphasis.
T492 Extracurricular Activities (3). Comparative study of selected areas of the elementary school curriculum with special
emphasis on research and promising innovative and experimental projects.
T493 Psychology of Affective Growth (3). Systematic review of research
on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
T494 Trends in Remedial Reading (3). Advanced study of an
elementary curriculum, with option for elementary or secondary emphasis.
T495 Extracurricular Activities (3). Comparative study of selected areas of the elementary school curriculum with special
emphasis on research and promising innovative and experimental projects.
T496 Psychology of Affective Growth (3). Developmental analysis of research
on selected affective (noncognitive) variables; emphasizes potential applicability of research findings to school settings.
300 Problems (cr. arr.)

301 Topics in Economics (1-5). Study in applied or theoretical economics. May be repeated for credit a maximum of 5 hours.

Prerequisites: 226 or 227.

302 Introduction to the Economics of Planning (3). Examines characteristics of planning problems. Identifies principal decision variables and emphasizes decision-making methods of U.S. and other nations. Emphasis on regional and international comparisons.

311 Labor Market, Employment and Wages (3). Surveys theoretical explanations of wage and employment determination in contemporary economic theory. Prerequisites: 226 or 227.

312 Introduction to the Economics of Human Resources (3). Labor force concepts and trends, underutilization of human resources in the United States and the nation's employment and training policies. Prerequisites: 226 or 227.

313 Labor Market Information (3). Information requirements and sources for planning and delivery of human resource services. Economic implications of alternative human resource services; their impact on employment, training, education, welfare institutions. Prerequisites: 311 & 312 or instructor's consent.

317 Advanced Topics in Economics of Urban Finance (3). Analysis of urban finance. Prerequisites: 265. 353.

331 Economics for Decision Making (3). A wide range of management problems at both private firm and public enterprise level examined. Concepts of labor market movement, including historical perspective. Views of the Webbs, and their impact on trade union activity considered. Prerequisite: 317 or 353.

388 Comparative Labor Movements (3). Introduces the study of unionism on a world basis; emphasizes similarities and differences between American and foreign labor movements; a major emphasis is placed upon labor unions in selected European, Asian and African nations. Prerequisite: 308 and 318.

389 Theory of Labor Movement (3). Concepts of labor movement theory, including historical perspective. Views of the Webbs, and their impact on trade union activity considered. Prerequisite: 317 or 353.

399 Independent Study (cr. arr.). Individual work, with conferences adjusted to needs of student. Prerequisite: instructor's consent.

420 History of Economic Thought (3). Surveys major issues and writings in economic thought. Prerequisites: 251 or 351 and 253 or 353 and Statistics 234 or equivalent.

430 Central Banking Policies (3). Examines central banking requirements of various health careers: assists student with college planning and selection of preparation program.

431 Advanced Price Theory (3). Theories of determination of price. Alternative techniques for regional economic analysis introduced and evaluated. Prerequisites: 251 or 351 and Statistics 234 or equivalent.

432 International Trade (3). Theories of trade and international policy. May be repeated for credit. Prerequisite: instructor's consent.

450 Advanved Microeconomics (3). Develops microeconomic analysis of range of problems. Concentration is on the application and usability of methods. Prerequisite: 226.

454 Seminar in Microeconomics (3). Analysis of topics in price theory. May be repeated for credit. Prerequisite: instructor's consent.

455 Monopoly and Competition (3). Antitrust policy and its impact on structure and performance of industrial enterprise. Prerequisite: 353.


460 Theory of Economic Development (3). Theories of economic development critically examined. Sources and consequences of growth analyzed in context of economic theory and historical occurrence.

468 Analysis of Economic Trends (3). Analysis of current business conditions through examination of financial indicators, government reports, and various types of data. Prerequisite: 226 or 227.

475 Econometrics (3). Study of statistical techniques for analysis of economic data. Estimating equations, tests of significance, testing forecasting reviewed with respect to problems presented by economic data and information demands of economic decision makers. Prerequisite: 353 and 234 or equivalent.

477 Mathematical Economics (3). Application of mathematical tools to advanced economic analysis. Prerequisite: 370.

478 Introduction to Econometrics (3). Examines foundational d econometric models and econometric techniques utilized in assessing an estimating associated behavioral relationship. Prerequisite: Statistics 385 or instructor's consent.


481 Econometrics I (3). (same as Agricultural Economics 481). Method for estimating parameters of economic models. Emphasis is given to subjective estimation which occur in integrating the theory with various types of economic data.

482 Econometrics II (3). (same as Agricultural Economics 482). Models for simultaneous relationships, problems of identification, methods of estimation, tests of significance, and prediction, cointegration, serial correlation and problems of aggregation. Prerequisite: 475.

487 Input-Output Analysis (3). Ratio of intersectoral input-to-output flow in economic model. May be repeated for credit. Prerequisite: instructor's consent.

488 Independent Readings for Ph.D. Comprehensive Examination (1-6). May be repeated for credit. Prerequisite: instructor's consent.

489 Research (cr. arr.) Thesis research for M.A. or Ph.D. degree.

EDUCATION HONORS

151EH Special Readings (1-4). Directed study of literature and research reports in education. Prerequisite: consent of instructor or Honor program director.

152EH Seminar (1-2). Prerequisites: consent of Hons Honor program director.

153EH Special Practical (1-4). Directed practical experience with students in educational settings. Prerequisites: consent of instructor or Honor program director.

154EH Honors Research (1-4). Joint research in education with a member of the education faculty. Prerequisites: consent of instructor and Honor program director.

EDUCATION ADMISSIONS SEMINAR

S35 Perspectives in Education (1). Required of freshmen at sophomore students in Education, optional for others. Orientation Program and College of Education, rules and regulations, academic process of career decision-making. S/U only.

S60 The Health Related Professions (1). Acquaints students with information about individual interests, abilities and aptitudes and professional preparation of various professions and careers. May be repeated for credit. Prerequisite: admission to college and student program.

EDUCATION STUDIES

B161 Observation of English Schools (3-5). Visits to English schools of many types: infant, junior, grammar, modern, technical, grammar, secondary, upper secondary, comprehensive. Assigned readings and preparation of papers on English schools at tutorial sessions.

B162 Observation of English Schools (2-4). Visits to French or Belgian) schools of many types. Visits planned with cooperation of the respective ministries of education and supplemented by lectures and written assignments.

B163 Semester Abroad Seminar (2-4). Lectures in an academic subject (usually a branch of English literature or a social science), supplemented by papers and discussions in tutorial groups. Prerequisite: junior standing, approval of a faculty committee, and B152.

B350 Historical Foundations of Modern Education (1-3). Educating
354 Microprogramming (3). Reviews classical computer ar­chitecture, compares different computer architectures, advantages/disadvantages, architectural implications of writable control stores. Microprogramming examples (IBM 360, Interdata 70 and 85, National IMP-16). Emulation, micro­diagnostics. Prerequisites: 331 or instructor's consent.

357 Experimental Electrical Engineering III (3). Realistic engineer­ ing task assignments of four-week or longer duration requiring experimental work, design, working drawings, and oral and written communication of plans, progress and results. Prerequisites: 256.

358 Automatic Control System Design (4). Techniques for feedback control system design with emphasis on stability and design examples, state variables methods, nonlinear systems and sampled­data control systems. Lecture and laboratory. Prerequisites: 206, 256.

359 Computer Process Control (3). Introduces process control; role of computers in control of high volume production systems; digital control systems analysis and design algorithms; process control applications. Prerequisites: 206 & Engineering 126. Emphasis on data acquisition, computer control, computer equipment, regulation, trade terms and engineering economics applications to power systems. Prerequisites: 256, 266 and Economics 41.

360 Theory and Design of Power Systems (4). Continuation of digital line equation including reactance, inductance, and capacitance. Introduces single phase systems and voltage regulation. Prerequisites: 266.


365 Introduction to Digital Signal Processing (3). Analytical methods for solving differential equations toward the goal of using these methods to carry out dynamical simulations of physical systems. Both analog and digital computers utilized. Prerequisites: 347.

366 Power System Relaying (3). Theory of relaying systems for power systems. Lecture and laboratory. Prerequisites: 286.

367 Transmission Line Equations (3). Transmission line impedances and currents for lines over wide range of frequencies. Transmission line equations includ­ing line losses. Prerequisites: 256.

368 Computer Relaying (3). Survey of modern computer relaying. Prerequisites: 286.

369 Introduction to Pattern Recognition (3). Basic concepts and applications of pattern recognition. Prerequisites: 330 or instructor's consent.

370 Microwave Principles (3). Microwave theory and applications. Introduction to microwave systems, fundamentals of wave propagation in dielectric media, reflection, transmission, and scattering. Prerequisites: 226 and 256.

372 Modulation and Transmission of Signals (3). Review of Fourier analysis and modulation theory. Analysis of the modulation and demodulation, use of nonlinear devices in modulation systems, sampling and pulse modulation. Prerequisites: 330 or instructor's consent.

375 Introduction to Plasmas (3). Principles of plasma physics and applications. Emphasis on atomic and molecular physics, plasma generation, and applications. Prerequisites: 376 or instructor's consent.

376 Distributed Transmission Systems (4). Theory and analysis of distributed parameter systems, with emphasis on transmission lines for low and high frequencies. Lecture and laboratory. Prerequisites: 225 and 256.

401 Advanced Topics in Electrical Engineering (3). A topical course in electrical engineering chosen to present recent trends in the field. Prerequisites: 226.

402 Thyristor Power Control and Conversion (3). Advanced study of thyristor phase controlled rectifiers, inverters, cycloconverters, and DC to DC converters. Prerequisites: 336.

405 Advanced Analog, Iterative and Hybrid Computer Techn­iques (3). Analog computer generation of odd periodic wave shapes, stability characteristics and computer architecture. Survey of computer techniques. Prerequisites: 305 or instructor's consent.

408 State Variable Methods in Automatic Control (3). (same as Chemical Engineering 382, Mechanical and Aerospace Engineering 382). Emphasis on digital simulation and analysis of feedback control systems. Prerequisites: 336 or 388.

409 Introduction to Power Electronics (3). Overview of power electronics as a technology, analysis and design of power converters, circuit simulation techniques, and examples. Prerequisites: 256.

410 Seminar (1). Recent developments in electrical engineering. Prerequisites: 256.

411 Advanced Topics in Electrical Machine Theory (3). Electrical machine­ fundamentals necessary for understanding advanced literature. Applications of symmetrical components to machine analysis. Prerequisites: 226 and 256.

414 Introduction to Fourier Optics (3). Diffraction, lenses, and coherence treated in terms of systems and transform concepts with emphasis on typical applications to Fourier and Hankel transforms, random signals, diffraction, and holography. Prerequisites: 372 or instructor's consent.

420 Analysis of Biological Control Systems (3). Analysis and formalization of control system theory for biological and industrial control systems. Models studied with emphasis on digital and analog computer simulation.

421 Digital Electronics (3). Electronic hardware aspects of digital systems. Includes state-of-the-art information on integrated-circuit logic devices and their applications. Prerequisites: 388 or instructor's consent.

427 Digital Software Systems Design (3). Characteristics and parame­ters of various software subsystems including assemblers, compilers, linkers, loaders, special packaging programs, interpreters, and operating systems; and principles of organization of interfacing systems. Prerequisites: 327.

428 Hardware Software Systems Design (3). Characteristics and parame­ters of various hardware subsystems including memory, auxiliary memory, arithmetic units, card equipment, etc., and prin­ciples of organization into efficient systems. Prerequisites: 328.

430 Electronic Devices and Solid State Circuitry (3). Analysis of transistors under transient conditions; power system stability; fault computation using symmetrical components. Prerequisites: 256 and 366. Prerequisite: 364. Transmission loss forms coefficients, incremental costs and losses, economic scheduling of generation, and applications. Prerequisites: 364.

433 Extra High Voltage Power Systems (3). Design and performance of subtransmission and transmission lines and related equipment. Prerequisites: 362 or equivalent.

434 Direct Current Power Systems (3). Characteristic and per­formance of direct current systems. Emphasis on design and operation of rectifiers and converters. Prerequisites: 362 or equivalent and graduate standing.

435 Power System Relaying (3). Theory of relaying systems for power systems. Lecture and laboratory. Prerequisites: 286.

446 Semiconductor Device Theory (3). Principles of quantum and semiconductors as applied to solid state; Boltzmann and Fermi statistics; theory of energy bands and carrier transport; use of microcomputers including digital logic and computer hardware and software. Prerequisite: 330 or equivalent.

447 Magnetostatodynamics (3). (same as Mechanical and Aerospace Engineering 447). Flow of electrically conducting fluids in the presence of applied electromagnetic field. Prerequisites: 379 or instructor's consent.

448 Quantum Electronics (3). Optical pumping of metastable gas lasers and quantum anti-Stokes Raman scattering. Prerequisites: 347, 372 or instructor's consent.

450 Statistical Thermodynamics (3). Kinetic theory; ensemble statistical treatments of gases and liquids. Prerequisites: 347 or equivalent.

456 Interactive Computer Graphics (3). Survey of interactive graphic techniques and methodologies. Emphasizes computer graph­ics software. Topics include instruction sets for current display processors and mathematical techniques (e.g., clipping, windowing, shading, perspective transformation). Prerequisites: 227, Mathematics 303 or equivalent.

457 Machine Intelligence (3). Formal languages in relation to natural language processing: formal languages, graphs, and image processing formal logic and automated theorem proving; natural language processing: problem solving and heuristic programming. Prerequisites: 341.

460 Advanced Electric Circuit Analysis (3). Special study of the application of linear network analysis techniques to the analysis of systems with fixed and variable parameters.

461 Network Synthesis (3). Survey of linear active and nonactive networks. Applications to network synthesis, feedback amplifiers, active networks, and practical applications. Prerequisites: 460.

462 Linear Graphs and Electrical Networks (3). Special study of the graph theory as applied to electrical networks. Prerequisites: 286 or equivalent.

467 N-port Networks Synthesis (3). Synthesis of N-port networks including realizability conditions and synthesis condition. Prerequisites: 460.

468 Liapunov and Related Nonlinear Methods in Automatic Control (3). Nonlinear methods in automatic control including phase plane analysis, describing function techniques, generation and applica­tion of Liapunov's method. Prerequisites: 408 and Mathematics 311 or equivalent.


50 Applications of Transformations (3). Application of the Laplace transform: other transform methods of solution of circuit and field problems. Prerequisite: 300.

51 Communication Theory I (3). Generalized communication systems, signal processing, signals as random processes, optimum receivers. Prerequisite: Statistics 325 or equivalent.

52 Communication Theory II (3). Further study of error-correcting codes: cyclic codes: convolutional codes: burst error correction: codes for arithmetic units, etc. Prerequisite: 477.

53 Digital Image Processing (3). Modern techniques in computer processing of images and visual information: image enhancement: contrast extraction: spatial filtering: evaluation of quality: feature extraction: image recognition, description and application. Prerequisite: 327 or instructor's consent.

54 High Frequency Transmission and Radiation (3). Skin effect: theory of transmission lines, wave guides, resonators.


56 Research (cr. arr.). Independent investigation in field of electrical engineering, to be presented as thesis or dissertation.

ENGINEERING

57 Digital Computer.Computation (2). Primarily for freshman engineering students. Analysis and synthesis of digital computer programs for solving problems. Experimental course (cr. arr.). For freshman-level students. Credit and number of hours to be listed in Schedule of Courses.


60 Dynamics (3). Motion of particles and rigid bodies. Application of Newton's second law to solid objects. Prerequisite: 59.

61 Engineering Thermodynamics I (3). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes. Prerequisites: Physics 123 and Mathematics 175.

62 Software Engineering (3). Examines techniques in software engineering, including top down design, levels of abstractions, control structures, data structures, speed and storage optimization. Prerequisite: 61.

63 Circuits, Devices and Systems (3). Electric circuit laws: power and energy relationships: analysis techniques based upon these laws and electrical behavior of resistive, reactive, and mixed R-L-C circuits in ac sinusoidal state plane. Study: Physics 124-con.


ENGLISH

1 Composition (3). Required. Theory and practice of composition.

1B Developmental Writing (1). (credit toward residency only). Five-week course designed to develop reading comprehension skills that will enhance student's ability to write in English. 1.5 S/U grading only.

1C8 Developmental Reading (1). (credit toward residency only). Five-week course designed to develop reading comprehension skills that will enhance student's ability to read, criticize, and write in English. 1.5 S/U grading only.

2 Introduction to Poetry (3). Open to undergraduates. Designed to acquaint students with characteristic elements of poetic language and analyzing poetry. This course and either 3 or 4 prerequisite for English majors. Prerequisite: 1 or placement test exemption.

3 Introduction to Prose Fiction (3). Designed to acquaint beginning students with necessary critical tools for understanding and analyzing fiction. This course or 4 and 2 prerequisite for English majors. Prerequisite: 1 or placement test exemption.

4 Introduction to Nonfiction (3). Open to undergraduates. Designed to acquaint beginning students with necessary critical tools for understanding and analyzing drama. This course or 4 and 2 prerequisite for English majors. Prerequisite: 1 or placement test exemption.

5 Masterpieces I (3). Open to undergraduates and intended primarily for students not intending to major in language or literature. Appreciation of major nonfiction works only. Prerequisite: 1 or placement test exemption.

6 Masterpieces II (3). Open to undergraduates and intended primarily for students not intending to major in language or literature. Appreciation of major nonfiction works only. Prerequisite: 1 or placement test exemption.

7 Science Fiction (3). Survey of the major works of science fiction through the 1930s. Prerequisite: 1 or equivalent.

8 Introduction to Women's Literature (3). A study of feminist themes, love, power, work, family and other relations, in traditional and feminist literary traditions written by women. Prerequisite: English 1 or equivalent.

10 Novels of the 19th Century (3). A survey of major works of the 19th century in Great Britain and France. Translations included. Prerequisite: 9 or 10.

11 Introduction to Women's Literature (3). Survey of the major works of women writers in the 19th and 20th centuries. Prerequisite: 9 or 10.

120 Advanced Rhetoric (3). Open to English majors in arts and science. Prerequisite: 1 or placement test exemption.

212 Theory of Natural Language (3). Introduces the major statements in literary criticism from its beginning to the present. Emphasis is on the nature, function and evaluation of literature. Prerequisite: 90 or 565H, and one literature course.

213 Comparative Literature: Beginnings Through the Renaiss­ance (3). Selected masterpieces of Continental literature. Prerequisite: 123.

214 Comparative Literature: Modern Continental Literature (3). Selected masterpieces of European literature studied for its critical and historical technique and its special emphasis on major literary movements—neoclassicism, romanticism, realism, modernism, and existentialism. Prerequisite: Sophomore standing.

223 Comparative Literature: Modern Continental Literature (3). Selected masterpieces of European literature studied for its critical and historical technique and its special emphasis on major literary movements—neoclassicism, romanticism, realism, modernism, and existentialism. Prerequisite: Sophomore standing.

230 Topical Readings (3). Organized study of selected topics. Prerequisites: French 219, German 219, or 220.

231 The Writing of Fiction (3). Advanced fiction writing with group discussion and individual conference.

232 The Writing of Poetry (3). Advanced poetry writing with group discussion and individual conference.

233 The Writing of Drama (3). Advanced drama writing with group discussion and individual conference.

234 The Writing of Prose (3). Advanced prose writing with group discussion and individual conference.

235 Comparative Literature: Modern Continental Literature (3). Survey of the major works of French and other European literature. Prerequisite: 90 or 565H, and one literature course.

236 Theory and Practice of College Composition (3). Current and historical theories of rhetoric and composition as applied to the teaching of college composition. Prerequisite: instructor's consent.

237 Major Women Writers (3). A study of from two to five significant women writers to be read intensively. Special emphasis on feminist critical theory. Prerequisite: two courses in English or American literature numbered below 300.

238 Modern Literature (3). Survey of Modern Literature as Literatures 390). Topics announced at time of registration. May repeat to 6 hours maximum.

239 The English Bible (3). Studies the Old and New Testaments in the King James version, from an historical and literary perspective, to help students understand the influence of biblical genres, history, and materials on English literature.

241 Beginning Playwriting (3). (same as Curriculum & Instruction 420). Introduces dramatic analysis and the theory and practice of writing for the stage. Prerequisites: English 219 or 220.


243 Historical Criticism (3). Examines representative theories of literary criticism by the major figures from classical antiquity through the Romantic period. Plato, Aristotle, Horace, Longinus, Sidney, Dryden, Johnson, Wordsworth, Coleridge, de Maupassant. Prerequisite: 242.

244 Theory of Modern English Literature (3). Surveys modern and contemporary literary theory; theories of literature; theories of composition, language, and literature at secondary school level.

245 The Writing of Poetry (3). Poetry regarded as a mode of understanding and expressing values and experiences of the writer. Prerequisite: 242.

246 The Writing of Prose (3). Poetry regarded as a mode of understanding and expressing values and experiences of the writer. Prerequisite: 242.

247 Beginning Playwriting (3). (same as Speech & Dramatic Art 315). Study and practice of playwriting fundamentals; emphasizes the one-act play. Prerequisite: 235.

248 The Practice of Criticism (3). Develops student's ability to use critical techniques through regular exercises in practical criticism and study of recent criticism of poetry and prose.


251 History of the English Language (3). (same as Literatures 320). Develops understanding of English: its beginnings to modern times.

252 Regional and Social Dialects of American English (3). (same as Literatures 322). Pronunciation, vocabulary and grammar of English as used by different social and age groups in the various regions of the United States. Prerequisite: 319 or equivalent.

253 Principles of Teaching English as a Second Language (3). (same as Literatures 323). Nature of the English language; teaching of pronunciation and grammar of English; constrictive linguistic analysis; review of textbooks; lesson plans. Prerequisite: 319.

254 Chaucer (3). Canterbury Tales and other works; social background of Chaucer's England; introduction to Middle English.

255 Medieval English Literature (3). Representative works largely in translation, from the Anglo-Saxon and Middle-English periods.
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311 Elizabethan Poetry and Prose (3) Surveys nondramatic literature of the times including Ascham, Elyot, Wyatt, Surrey, Sidney, Spenser, Davenant, Dryden.
313 Elizabethan Drama (3) Surveys English drama from 1500 to 1562, and includes such authors as Marlowe, Jonson, Shakespeare.
315 Shakespeare (3) A chronological study of the early works from the beginnings through Hamlet.
316 Shakespeare (3) A chronological study of the later works from Hamlet through The Tempest.
317 Milton (3) Milton's life and works.
318 Special Readings (cr. arr.) Individual work with conferences adjusted to the student's progress. 300 course hour in proposed work and written consent of instructor. Restricted to senior English majors in their final semester.
319 Medieval Drama and Prose (3) Survey of prose and poetry from 1600 to 1660.
325 The Metaphysical Poets (3) Intensive study of major 17th-century metaphysical poets: Donne, Herbert, Vaughan, Crashaw, Marvell, and others.
326 Literature of the Restoration and Early Eighteenth Century (3) English literature from 1660 to 1740; Rochester, Bunyan and Dryden; John Swift, and dramatists of the Restoration: Defoe, Swift, Pope, and Gay.
328 The Later Eighteenth Century (3) English literature from 1740 to 1790; major emphasis on works of Dr. Johnson and his circle.
329 The Eighteenth-Century English Novel (3) Representative novels and novelists to 1800.
330 The Romantic Poets (3) Representative authors and major literary tendencies.
331 Taggar's England: Poetry, Prose, and Drama (3) Survey of Victorian literature from 1830 to 1900, with representative readings in poetry, drama, nonfictional and fictional prose. Included are Tennyson, Browning, Dickens, and Melville.
332 The Nineteenth-Century English Novel (3) Representative novels and novelists, 1800 to 1900.
333 Victorian and Edwardian Literature (3) Representative authors and major literary trends from 1880 to 1914.
335 American Romanticism (3) American literature of early 19th century; emphasis on major figures: Emerson, Thoreau, Hawthorne, Melville and other important writers.
336 The Nineteenth-Century American Novel (3) Intensive study of six or seven major 19th-century American novelists. For majors in English literature, preference given to eligible graduate students.
337 The Rise of Realism (3) American literature from Civil War to 1900; emphasis on major figures: Mark Twain, Howells, James, Emily Dickinson, Stephens, Crane.
338 Topics in Folklore (3) Intensive study in a selected area of folklore: folk ballad, folk song, myth, and literature, etc. May be repeated for a maximum of 6 hours. Instructor's consent required for repetition.
339 Modern Literature (3) A study of selected twenty-century British and American authors within the intellectual and cultural contexts of the modern era.
341 Chief Modern Novelist Prior to 1940 (3) Study of nine to twelve representative American and British novelists.
342 Chief Modern Novelist Prior to 1940 (3) Study of representative 20th-century American and British novelists.
343 Modern Short Story 1900 to Present (3) Directions and tendencies in 20th-century short fiction.
345 Contemporary American Poetry (3) Study of contemporary American poets. For majors in English literature, preference given to eligible graduate students.
346 The Rise of Realism (3) American literature from Civil War to 1900; emphasis on major figures: Mark Twain, Howells, James, Emily Dickinson, Stephens, Crane.
348 Topics in Folklore (3) Intensive study in a selected area of folklore: folk ballad, folk song, myth, and literature, etc. May be repeated for a maximum of 6 hours. Instructor's consent required for repetition.
349 Modern Drama (3) Survey of European and American drama from Ibsen to present.
400 Problems (cr. arr.) Individual work not leading to preparation of dissertation. Prerequisite: departmental approval.
401 Bibliography and Methods of Research (3) Principles and aims of literary scholarship and criticism; systematic study of bibliographic resources for research. Normally restricted to doctoral candidates.
402 Advanced Writing of Fiction (3) Advanced fiction writing designed primarily for graduate students, with the intention of producing work of publishable quality. Prerequisites: instructor's consent and 302-303, except by special consent.
403 Advanced Writing of Fiction (3) Advanced fiction writing designed primarily for graduate students, with the intention of producing work of publishable quality. Prerequisites: instructor's consent and 302-303, except by special consent.
404 Advanced Writing of Fiction (3) Advanced fiction writing designed primarily for graduate students, with the intention of producing work of publishable quality. Prerequisites: instructor's consent and 313-314, except by special consent.
405 Advanced Writing of Poetry (3) Advanced poetry writing designed for graduate students, with the intention of producing work of professional quality. Prerequisites: instructor's consent and 313-314, except by special consent.
150 Problems (cr. arr.) For advanced undergraduates majoring in agricultural journalism.

160 Seminar (1-2). Designed for nontraditional students not on campus. Opportunity for faculty-student interaction; presents current information concerning production/marketing/marketing aspects of agriculture/business. May be repeated three times.

210 Fundamentals of Communications (3). Mass communications media and trends reading applicable to workers serving agriculture. Prerequisite: junior standing. f.w.

220 Extension Education As Applied in Cooperative Extension Service (2-3). Provides an overview of extension education and inservice education. Prerequisite: Rural Sociology 1 or equivalent. w.

300 Problems (1-4). Opportunity to apply journalism skills to agricultural topics so that program will be better prepared to get integrated picture of communications process within single medium or across media. Prerequisites: 150, junior standing, and/or instructor's consent. f.w.

306 Extension Communication Principles & Their Application (3). Extension communication principles underlying successful work with people in educational settings.

310 Agricultural Media (3). Provides background, knowledge of trends and experience with agricultural media. Prerequisites: 6 hours journalism, including News 105. 12 hours agriculture; junior standing; and/or consent of instructor.

400 Problems (cr. arr.) Independent investigations of extension problems, cor.

401 Program Development and Evaluation (3). Program development principles, teaching plans, evaluation principles applied to extension program development. Prerequisite: instructor's consent. w.

410 Extension Organization and Administration (3). Principles of organization and administration; their application to extension work. Prerequisite: instructor's consent. f.

418 Field Experiences in Teaching of Adults (3). Recommended for students who have work experience in extension or other informal adult education agency in the United States. Prerequisite: instructor's consent. f.

420 Preparing Manuscripts for Scientific Journals (1). Introduces students to methods of planning, selecting, preparing, presenting, and submitting articles for publication in scientific journals. Prerequisite: instructor's consent.

451 Seminar (cr. arr.) Presentation, discussion of extension studies, literature, f.w.

470 Test of Extension Education (cr. arr.) Current and new developments in extension education. Prerequisite: departmental consent.

480 Research (cr. arr.) Independent investigations not leading to thesis, but terminating in research report.

FAMILY AND COMMUNITY MEDICINE

A Community Health Preceptorship (5). Five-week assignment to a family physician in private practice.

F Pass Graduate Instruction (Residency programs in general practice and preventive medicine are offered to qualified physicians.

25 Community Health (2). Overview of current personal, school and community health problems and issues. Emphasizes concepts of health and informed decision making. f.w. cor.

30 Problems (1-3). Directed exploration of community health problems. Prerequisite: instructor's consent.

31 Introduction to Community Health Education (3). Principles, concepts, methods and community of community health education and educational strategies and applications in both public health and health care programs. Prerequisite: senior standing.

35 Group Process in Community Health (2). Concepts, principles, methods and applications of group processes to the health field. Prerequisite: instructor's consent.

37 Planning for Change in Community Health (3). Individual, small group, organization, and community systems and change strategies; resistances to change and evaluation of change activities in these systems. Prerequisites: senior standing and instructor's consent.

38 Social Security (1). An introduction to Public Health Law (2). Classification and summarization of data used in public health practice and research. Probability, sampling, hypothesis testing. Correct and incorrect use of statistics in the literature. Prerequisite: concurrent registration in 420 or permission of instructor.

39 Special Readings (1-3). Extensive reading and critical analysis of classical and current studies in selected areas of community health. Prerequisite: instructor's consent.

40 Problems (1-3). Intensive study of an area of community health. Prerequisites: graduate standing & instructor's consent.

401 Principles of Communication (3). An approach to various social, economic, psychological and cultural variables that motivate people toward health practices. Prerequisite: f. graduate standing; w. senior standing and instructor's consent.

FAMILY ECONOMICS AND MANAGEMENT

72 Management in Family Living (2). Principles of management of resources for effective personal and group living. Prerequisite: freshmen & sophomores only, or instructor's consent.

73 Introduction to Research, reading, discussion and field trips to provide an overview of the field of home economics rehabilitation. S/U grading system only.

79 Work Simplification in Home Processes (2). Limited to rehabilitation majors and handicapped students. Problems in simplifying work to conserve time and energy in home processes. Prerequisites: 72, 174, 370.

171 Working With the Visually Limited (1). Laboratory experiences designed to aid sighted students in techniques of teaching blind and visually limited adults in independent living activities. Limited to rehabilitation majors. Prerequisites: 72 and 174; Home Nutrition, Foods and Food Systems Management 121.

172 Home Management Laboratory (2). Laboratory experience with principles of rehabilitation of the home management process, use of time and energy. Prerequisites: 72, 174, & Home Nutrition, Foods and Food Systems Management 21 or 121.

173 Personal and Family Finance (3). Individual and family finance, with particular emphasis on financial planning, savings, personal insurance, investments, taxes and use of credit. Prerequisite: junior standing.

174 Selection of Home Equipment (2). Fundamental principles of selection and operation of home equipment.

175 The Consumer in Our Society (3). The economic system and the marketplace from the consumer point of view; consumer problems, protection and legislation. Prerequisites: sophomores or above and 3-5 hours economics.

176 Personal Applications for Microcomputers (1). (Same as Housing and Interior Design 146). Introduction to the potential and limitations of microcomputers in homes, homes, family systems and environments and communications. Household and graphic applications will be presented. Consideration will be given to family and societal implications. f.w.

177 Household Management and Economics (3). Study and evaluation of social, financial and consumer agencies that impact on the family and/or community.

300 Problems (cr. arr.) Supervised and independent work. Prerequisites: a 100-200 level course in field of problem & senior standing & instructor's consent.

310 Topics (cr. arr.) Selected current topics in field of interest.

359 Readings (cr. arr.) Independent reading.

370 Housing the Family (3). Planning housing for families with emphasis on family composition, interests, activities, socioeconomic status, and planning of economic structures which promote efficient utilization of family resources for attainment of maximum satisfactions. Prerequisite: junior standing.

372 Economics and Resource Management (2). Consideration of differing value systems of families, impact of value systems on resource allocation, and resulting life styles. Effects of mass media and current social movements on values. Prerequisites: junior standing & 72; recommended.

373 The Consumer and the Market (3). Economic systems and role of consumers; marketing practices; consumer behavior, problems, legislation. (No credit for students who have completed 175.) Prerequisites: graduate standing.

374 Use and Care of Home Equipment (3). Experience in use and care of furnishing, cleaning, laundering, cleaning. Prerequisites: 174 & a foods course. Recommended: a textiles course.

375 The Consumer and the Market (3). Economic systems and role of consumers; marketing practices; consumer behavior, problems, legislation. (No credit for students who have completed 175.) Prerequisites: graduate standing, introductory economics.

376 Management of Financial Resources (3). Analysis of elements and principles of family finance, with application to case problems, impact of general economic conditions on families; principles and practices of financial counseling. Prerequisites: 173 or 373 & an introductory economics course.

377 Economics and the Consumer (3). Consumption as an economic activity; theory of consumer choice; consumer implications of various market structures; economic policies affecting consumer interests. Prerequisite: 175 or 375.

378 Effective Consumer Decision-Making (3). Theory, concepts, principles underlying consumer decision-making, including rationality, uncertainty, social choice, decision rules, decision strategies for their application in the marketplace. Prerequisites: 175; Economics 51.

380 Field Training (cr. arr.) Prerequisites: junior standing & instructor's consent.

400 Problems (cr. arr.) Prerequisites: 300-level course in field of problem & instructor's consent.

401 Seminar (1-4). Reports and discussion of recent work in area of concentration.

412 Research Methods in Family Economics (3). Introduction to the scope, concept, and analysis of research in family economics, with emphasis on economic survey methods. Prerequisite: 172; or 375. Recommended: studying an introductory course in sociology (357 or Statistics 207).

415 Readings (cr. arr.) Readings in current.

419 Field Training (cr. arr.) Independent research and/or field experiences under supervision. Prerequisites: graduate standing & instructor's consent.

490 Research (cr. arr.) Independent research leading to a thesis, but not required.

3 Family in the Economy (3). Analyzes the family as an economic unit; levels of living; examines determinants of the significance of family income and wealth. Policies and programs affecting family income. Prerequisites: graduate standing; 376 & 377; introductory economics.

475 Human Resource Development and Allocation (3). Economic analysis of conditions, programs and policies related to development and use of human resources, with special reference to impact on families and households. Prerequisites: introductory economics, 473 or instructor's consent.

476 Social Policy and the Family Economy (3). Economic analysis of public programs that directly affect well-being of families: income maintenance, goods transfers, employment, housing, health, transportation, taxes, etc.; consideration of underlying philosophies, policy alternatives. Prerequisites: 377 or instructor's consent.

490 Research (cr. arr.) Independent research leading to dissertation or dissertation.

FINANCE

123 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 alternatives and appreciation. Students already admitted to B & P A cannot enroll. cor.

203 Corporation Finance (3). Methods, policy, institutions involved in financing business enterprises. Special analysis of corporations. Prerequisites: junior standing & Economics 40 or Economics 51 & 6 hours accounting Statistics 150.

218 Risk and Insurance (3). Understanding nature of risk and its impact on personal and institutional institutions. Prerequisites: sophomore standing.

305 Topics in Finance (3). Selected topics in finance, insurance or real estate. Offered on an experimental basis.

313 Personal Insurance (3). Principles of handling risk of income loss or extra expense from death, disability, or retirement with analysis of private individual arrangements available with commercial insurance or social security organizations. Prerequisite: 218.
461 Financial Markets and Investment Policy and Portfolio Management (3). Study of investment policies and procedures with emphasis on the management of financial assets: techniques determining merits of specific companies and their securities for long-term investment decisions. Prerequisite: Management 254 or senior standing.

463 Commercial Bank Administration (3). Study and analysis of policies, goals, practices, and techniques of commercial bank administration with emphasis on operations, controls, and capital structure decisions. Prerequisite: 461.

464 Fundamentals of the Food Service and Lodging Industry (3). A basic course in food service and lodging operations. Development of the industry, current trends, and an analysis of the various types of operations that make up the industry.

465 Attributes of Food Quality (3). Current and controversial issues relevant to food quality. Experiences in evaluation of quality of a variety of prepared foods. Principles and characteristics of food quality as applied in production, processing, distribution and selection for consumption.

467 Principles of Food Preparation (5). (same as Animal Nutrition 352). Principles of preparation of foods for human consumption. Focus on setting, controlling and costing the operation. f.w. cor.

468 Food and Beverage Management (3). Practices used by food service and lodging industry pertaining to purchasing, receiving and issuing of food and beverage. Principles of food and beverage cost control, management of inventories in goal setting, forecasting and controlling the operation. f.w. cor.

469 Food Service and Lodging Industry Operational Maintenance (3). (Basic course in food service and lodging maintenance and operations) Principles and characteristics of food quality as applied in production, processing, distribution and selection for consumption.

470 Problems (3-5). (same as Human Nutrition, Food Science and Microbiology 204 Advanced Meats (3). (same as Animal Science 204). Careers in meat science, production, processing, distribution and selection for consumption. Prerequisite: instructor's consent.

471 Meat Classification, Grading, Judging (2). (same as Animal Science 214). Classification, grading, judging of beef, pork, lamb. Field trip. Prerequisite: 20. f.w.

472 Meat Selection and Identification (3). (same as Human Nutrition, Food Science and Microbiology 221). Methods of selection and identification, utilization, wholesale retail buying. Includes field trip. Prerequisite: 20. f.w.

473 Food and Beverage Marketing (3). Principles of marketing in food service and lodging industry. Sales promotion, marketing of hospitality services: human factors, consumer demand, planning, professional considerations. Promotional methods: advertising, direct mail, outside sales, personal selling, and/or sales promotion. Prerequisite: Marketing 204, Agricultural Economics 150 or equivalent.

474 Principles of Food Processing (3). (same as Agricultural Engineering 250). Food Service and Lodging Industry Operational Maintenance (3). (Basic course in food service and lodging maintenance and operations) Principles and characteristics of food quality as applied in production, processing, distribution and selection for consumption.

475 Management of Food Service and Lodging Industry. Principles of food service and lodging industry. Sales promotion, marketing of hospitality services: human factors, consumer demand, planning, professional considerations. Promotional methods: advertising, direct mail, outside sales, personal selling, and/or sales promotion. Prerequisite: Marketing 204, Agricultural Economics 220, or equivalent.

476 Problems (5). (same as Agricultural Engineering 250). Food Service and Lodging Industry Operational Maintenance (3). (Basic course in food service and lodging maintenance and operations) Principles and characteristics of food quality as applied in production, processing, distribution and selection for consumption.

477 Food and Beverage Marketing (3). Principles of marketing in food service and lodging industry. Sales promotion, marketing of hospitality services: human factors, consumer demand, planning, professional considerations. Promotional methods: advertising, direct mail, outside sales, personal selling, and/or sales promotion. Prerequisite: Marketing 204, Agricultural Economics 220, or equivalent.

478 Problems (5). (same as Agricultural Engineering 250). Food Service and Lodging Industry Operational Maintenance (3). (Basic course in food service and lodging maintenance and operations) Principles and characteristics of food quality as applied in production, processing, distribution and selection for consumption.

479 Food Chemistry I (3). Chemical, physical and biological properties of food; nutritive value of constituents; cooking, grading, testing, pricing and assembling food; unit operations common to food processing. f.w. cor.

480 Food Chemistry II (3). Chemical, physical, and biological aspects of the utilization of microbial cultures in controlled fermentations of foods and food constituents. Prerequisites: 6 hours microbiology & 5 hours organic chemistry or biological chemistry.

489 Research (cr. arr.). Original investigations, usually in concert with one of the research projects of Agricultural Experiment Station. Written report required.

497 Food Studies in the Science & Technology of Food Preservation (4). Thermal processing of canned foods, freezing, radiation and freeze-dehydration, food additives. Current literature, technology, and basic science of food preservation. Prerequisite: 309, 330, 372 or instructor's consent. alt. w. even yrs.

498 Research (cr. arr.). Original investigations of advanced nature, leading to dissertation.

FORESTRY, FISHERIES, AND WILDLIFE

1 Forestry Orientation (1). Orientation to the professional opportunities and issues in forestry and to the School of Forestry, Fisheries & Wildlife at UMC. No credit for majors with more than 30 hours in
juniors or seniors from any field. Graded S/U.

60 Ecology of Wildlife and Man (3). Ecology and management of wild animal populations as related to current environmental issues. No credit for majors and nonmajors. Gross 1, 2, or 1, Agronomy 100, or instructor's consent. f.

62 Environmental Management of Forested Watersheds (3). Principles of water resources management as related to current environmental issues. No credit for majors and nonmajors. Gross 1, or instructor's consent.

64 Environmental Law and Policy (3, 4). Economic, social, and legal factors affecting land use. Role of zoning, deed covenants, laws, and environmental impact requirements. Prerequisite: senior standing or instructor's consent.

67 Logging Systems: Operations and Analyses (3). A systems approach to timber harvesting from acquisition through engineering to logging to marketing and related aspects and influences will be considered. Prerequisites: 143, 144.

391 Land Use Planning (2). Land use planning as applied to forest and rural land areas. Development of techniques for evaluating the effects of land use. Prerequisite: senior standing or instructor's consent.

402 Forest Silviculture (3). Ecological and economic factors affecting application of silviculture in each of eight forest regions in the United States. Prerequisite: 303, w.

394 Hydrology (3). Hydrology of forests and other wildlands. Effect of forest and range cover on the quantity, quality and timing of water yields. Hydrologic instrumentation, analysis and simulation in watershed management. Prerequisite: 309 or instructor's consent.

409 Remote Sensing (3). Study of photographic and nonphotographic systems to evaluate earth resources. Includes infrared photography, radar, and satellite image systems. Prerequisite: 309 or instructor's consent.

410 Seminar (1). Discussions of current developments in forestry, fisheries and wildlife, and critical study of research papers. f, w, s.

411 Focus (3). Historical, social, economic and legal factors affecting forest lands. Prerequisite: senior standing or instructor's consent.

425 Tree Growth-Quality Relationships (3). Methods of appraising timber growth. Emphasis on basic principles of forest growth and development. Prerequisite: 303 or instructor's consent.

426 Quantitative Fishery Science (3). Statistical methods in fisheries management. Integrates ecological principles, behavioral ecology, exploitation, production, sampling, method and theory relative to management. Prerequisites: mathematics requirement completed; Agricultural Economics 50 or Economics 51.

430 Decision Making and Analysis in Natural Resources Management (3). Alternative decision-making processes, goals, values and choices. Economic analysis, systems analysis and decision models for allocating resources in management and planning. Quantitative methods and applications. Prerequisites: senior standing or instructor's consent.

450 Forest Soils (3). Physical, chemical and biological properties of forest soils in relation to tree growth. Prerequisite: 303 or instructor's consent.

462 Forest Silviculture (3). Ecological and economic factors affecting application of silviculture in each of eight forest regions in the United States. Prerequisite: 303, w.

464 Hydrology (3). Hydrology of forests and other wildlands. Effect of forest and range cover on the quantity, quality and timing of water yields. Hydrologic instrumentation, analysis and simulation in watershed management. Prerequisite: 309 or instructor's consent.

488 Environmental Law and Policy (3, 4). Economic, social, and legal factors affecting land use. Role of zoning, deed covenants, laws, and environmental impact requirements. Prerequisite: senior standing or instructor's consent.

492 Aquatic Ecology (3). Ecological and economic factors affecting application of silviculture in each of eight forest regions in the United States. Prerequisite: 303, w.

494 Hydrology (3). Hydrology of forests and other wildlands. Effect of forest and range cover on the quantity, quality and timing of water yields. Hydrologic instrumentation, analysis and simulation in watershed management. Prerequisite: 309 or instructor's consent.

496 Remote Sensing (3). Study of photographic and nonphotographic systems to evaluate earth resources. Includes infrared photography, radar, and satellite image systems. Prerequisite: 309 or instructor's consent.

497 Wildlife Ecology (3). Backgrounds of land use, ecological forces basic to wildlife management, and an examination of literature. Prerequisites: 143, 144, or equivalent; Agronomy 312 and 319 desirable, and instructor's consent.

501 Decision Making (3). Decision-making processes, goals, values and choices. Economic analysis, systems analysis and decision models for allocating resources in management and planning. Quantitative methods and applications. Prerequisite: senior standing or instructor's consent.


518 Advanced Fishery Management (3). Theory and practice in present-day fishery management. Prerequisites: 311 & 324 alt. w. or even yrs.

519 Wildlife Ecology (3). Backgrounds of land use, ecological forces basic to wildlife management, and an examination of literature. Prerequisites: 143, 144, or equivalent; Agronomy 312 and 319 desirable, and instructor's consent.

520 Advanced Forest Soils (3). Physical, chemical and biological properties of forest soils in relation to tree growth. Prerequisite: 303 or instructor's consent.

522 Advanced Forest Soils (3). Physical, chemical and biological properties of forest soils in relation to tree growth. Prerequisite: 303 or instructor's consent.

523 Wildlife Management Techniques (3). Methods of appraising and manipulating wildlife populations and their habitats. Prerequisites: 303 or equivalent or instructor's consent.


528 Fisheries Management (3). Introduction to the principles and techniques of the management of fish populations based on ecological principles with social, economic and legal considerations. Prerequisites: 311, 333, Bio Sci. 362 or equivalent.

540 Urban Forest Management (3). (same as Recreation & Park Administration 340). Advanced study of problems facing forest recreation managers. Topics include rivers recreation, wilderness management and citizen participation in decision making. Prerequisites: 320 or equivalent and instructor's consent.

530 Special Readings (cr. arr.). Critical review of current literature and research in forestry, fisheries, and wildlife, and methods of presentation required. Prerequisite: instructor's consent. f, w.


560 Management-Utilization Trip (1). One-week field trip to study utilization and management practices of large operations. Prerequisite: senior standing or instructor's consent. Undergraduates graded S/U. A 220 transportation fee required.

571 Recreational Forestry Trip (1). One-week field trip to study recreational and land management. Prerequisite: senior standing or instructor's consent.

600 Crop Science (3). Principles of nutrient cycling in forested ecosystems and relation to water quality. Principles of nutrient cycling and assessment of the impact of harvesting. Prerequisites: 302, Biological Sciences 362 or equivalent; Agronomy 312 and 319 desirable, and instructor's consent.

610 Topics in Forestry, Fisheries and Wildlife (cr. arr.). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisite: instructor's consent.
emphasizing on nutrient dynamics, habitat structure, management, legislation and regulations, and man's impacts. Prerequisites: 324A, Biological Sciences 362 and instructor's consent. f.even year.

430 Mammalian Ecology (2). Study of the interrelationships between wild mammals and their environments. Readings and discussion of current scientific literature. Prerequisites: 307 or equivalent and Biological Sciences 362. w.

431 Freshwater Invertebrate Ecology (3). Examines the function of invertebrates in aquatic ecosystems. Sampling, life history, distribution and abundance, bioenergetics, secondary production, role as environmental monitors, relationships with fish and waterfowl. Prerequisite: 323. f.even year.

432 Stream Ecology (3). Ecological principles applied to flowing waters. Emphasis on ecological processes within algal, invertebrate and fish communities. Prerequisite: 323. f.even year.

433 Animal Population Dynamics (3). A quantitative modeling approach to examining the principles and analysis techniques of fish and wildlife population dynamics. Emphasis on exploited species and integration of biological knowledge with quantitative principles. Prerequisite: 323. f.odd year.

450 Research (cr. arr.). Original investigation not leading to preparation of a dissertation. f.w.s.

490 Research (cr. arr.). Original investigation for presentation in a dissertation. f.w.s.

FRENCH

1 Elementary French I (5). cor.

2 Elementary French II (5). Continuation of 1. Prerequisite: grade of C or better in 1 or its equivalent. cor.

3 Elementary French III (3). A multi-skill course following 2, centering on cultural/ literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression. Prerequisite: 2 or equivalent. cor.

4 French Reading (3). Prerequisite: 2 or equivalent. cor.

106 French Composition (3). Prerequisite: 3 or equivalent. cor.

109 French Conversation (3). Prerequisite: 3 or equivalent. cor.

110 French Civilization (3). Open to any student interested. No knowledge of French required. Prerequisite: Sophomore standing.

111 French Literature in Translation (3). May not be included in area of literature. Subject matter varies with instructor. Prerequisite: Sophomore standing.

116 Honors Reading in French (1). Directed readings in area of honors thesis. Prerequisite: admission to departmental Honors program. cor.

197 Honors French Course (1-3). Prerequisite: Honors of required. Honors required.

201 Topics (cr. arr.) Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent. Prerequisite: Sophomore standing.

203 Masterpieces of French Literature (3). Study of selected masterpieces of French literature from the Middle Ages to the present day. Prerequisite: 3 or equivalent. cor.

206 Advanced French Composition (3). Prerequisite: 200 or equivalent. cor.

207 Intensive Beginning French (3). Rapid acquisition of a reading knowledge of French. Cannot be taken to fulfill undergraduate language requirement. Prerequisite: Graduate standing or consent of instructor.

208 Commercial French (3), Business terminology and forms. Translates documents for advertising, sales promotion, trade and commerce, imports and exports, money and banking. Prerequisite: 106 or equivalent.

209 Advanced French Conversation (3). Prerequisite: 109 or equivalent.

211 Intensive Beginning French (1). Intense approach designed for rapid advancement in acquisition of multiskills of the language. Prerequisite: Sophomore standing or instructor consent.

212 Intensive Beginning French II (5). Intensive approach designed for rapid advancement in acquisition of multiskills of the language. Prerequisite: 211 or equivalent.

256 Stylistics (3). Technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, intention and effects on society. Prerequisite: 200 or equivalent. cor.

301 Topics (cr. arr.). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent. Prerequisite: Junior standing.

304 French Composition: Comparison of French and English phonetic features, with application to the teaching of pronunciation. Prerequisites: 106 & 109 or equivalent.

311 History of the French Language (3). (same as Linguistics 311). Required of M.A. candidates Prerequisite: 203. cor.

312 French Medieval Literature (3). Prerequisite: 203 or equivalent. Prerequisite: Sophomore standing.

317 Seventeenth-Century French Literature (3). Prerequisite: 203 or equivalent.

318 Eighteenth-Century French Literature (3). Prerequisite: 203 or equivalent.

319 Nineteenth-Century French Literature (3). Prerequisite: 203 or equivalent.

320 Twentieth-Century French Novel (3). Prerequisite: 203 or equivalent.

321 Introduction to the Contemporary French Theatre (3). Prerequisite: 317 or equivalent.

322 Introduction to Contemporary French Poetry (3). Prerequisite: 203 or equivalent.

329 Nineteenth-Century French Novel (3). Prerequisite: 203 or equivalent.

350 Special Readings (1-3). Undergraduate must have permission of department chairman. Independent study through readings, conferences, reports. Prerequisite: 203 or equivalent.

353 Readings in French in Context (3). Subject varies according to instructor. Prerequisite: 203 or equivalent.

378 Structure of Modern French (3), (same as Linguistics 378). An introductory study of the phonological and syntactic systems of contemporary standard French. Prerequisite: 206 or equivalent or instructor's consent.

400 Problems (cr. arr.). Prerequisite: standing.

401 Bibliography and Methods (3). Principles and aims of literary scholarship; systematic study of bibliographic resources for research. Prerequisite: French 203 or equivalent.

410 Seminar (3-2). Subject varies according to instructor. Prerequisite: standing.

412 Studies in Medieval French Literature (3). Prerequisite: 411.


420 Readings (3-4). Independent research for the Ph.D. comprehensive examination in French. Prerequisite: standing.

490 Research (cr. arr.). Prerequisite: standing.

GENERAL HONORS

250GH Independent Readings (2). Independent summer reading of prescribed list of approximately 12 books, selected for their significance to a liberal arts education. Final examination at close of summer. Prerequisite: B average.

250KH Honors Group Project (1). Informal discussion group in which students and faculty discuss problems of mutual interest. Prerequisite: B average or Honors College freshmen.

100GH Independent Study (3). Subject varies according to instructor. Prerequisite: University Standing.

101 Honors Seminar (1-3). Undergraduates must have permission of College of General Studies. Subjects and earnable credit may vary from semester to semester. Repeatable upon departmental consent. Prerequisite: Sophomore standing.

105 Cultural Geography (3). Examines human culture as a geographically bounded entity, and human aspects of man's relationship to the land as emphasized. f.

111 Physical Geography I (3). Introductory study of man's physical environment. Emphasis on natural hazards. Man's effect on natural and environmental systems. cor.

112 Physical Geography II (3). Introductory study of man's physical environment; elements of climate, climatic types, soils, vegetation. Prerequisite: Sophomore standing.

113 United States and Canada (3). Examination of selected areas, processes and institutions. cor.

240GH Honors Seminar (2-3). Subject varies according to instructor. Prerequisite: Sophomore standing or one introductory course in geography. 103GH.

210 Topics in Geography (3). Survey of the geography of Asia from India through Southeast Asia and China and neighboring countries; focusing on the role of geography on current world political and economic organization. Prerequisite: Sophomore standing.

212 Physical Geography (3). Introductory study of man's physical environment; elements of climate, climatic types, soils, vegetation. May be taken independently of course 111. Prerequisite: Sophomore standing.

221 Geography of Europe (3). Survey of Europe's lands and peoples; emphasis on historical and cultural aspects of Europe's development. Sophomore standing.

222 Geography of Africa (3). Major concepts of African geography in historical and current perspective. Required of all majors. Prerequisite: Sophomore standing or one introductory course in geography. 103GH.

228 Geography of Asia (3). Survey of Asia through the lens of the human environment; emphasizing the cultural, historical, political and economic aspects of the region, its people and natural environment. Prerequisite: Sophomore standing.

230 World Political Geography (3). Geographical factors and patterns in relation to selected aspects of world politics. Prerequisite: 102GH. Special topics in geography. f.

240 Honors (3). Special work for Honors candidates in geography. w.

250 Topics in Geography (1-3). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable upon departmental consent. Prerequisite: Sophomore standing.

255 Settlement and Architectural Geography (3). Settlement patterns, as ways of life, and the people who have adapted to landscapes are viewed from a cultural similarities and variations, conflicts of interest, and current development. Sophomore standing or one introductory course in geography. 103GH.

256 Special Problems (1-3). Independent investigation leading to a paper or project. May be repeated to a maximum of 6 hours. Prerequisite: Instructor's consent.

258 Topics in Geography (cr. arr.) Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable upon consent of department. Prerequisite: Junior...
1. Introduction to Geology (3). Principles of geological history and the concept of evolution. Historical and future directions in the study of geology and the application of geological principles to other fields.


5. Mineralogy (3). Identification of minerals and the study of their optical properties. Identification of common minerals and their applications.


8. Advanced Techniques in Geology (3). Special topics in geology, including geophysical and remote sensing methods. Current research topics in geology.

9. Research Methods and Techniques (3). Research methods and techniques currently used in geology. Research projects in geology.


12. Seminar in Advanced Topics in Geology (3). Independent study of advanced topics in geology. Prerequisite: consent of instructor.

13. Directed Study (1-3). Independent study of a topic in geology. Prerequisite: consent of instructor.

14. Independent Study (1-3). Independent study of a topic in geology. Prerequisite: consent of instructor.

15. Internship in Geology (0-3). Work experience in a geologic consulting firm. May be repeated for credit. Prerequisite: consent of instructor.

16. Research Project (1-6). Research leading to a thesis. May be repeated for credit. Prerequisites: instructor's consent.

17. Advanced Seminar in Geology (3). Advanced seminar on a topic in geology. Prerequisite: consent of instructor.

18. Advanced Research Seminar in Geology (3). Research seminar on a topic in geology. Prerequisite: consent of instructor.

19. Special Topics in Geology (1-3). Special topics in geology. May be repeated for credit. Prerequisite: consent of instructor.

20. Teaching Assistantship (1-9). Work as a teaching assistant in a geology course. May be repeated for credit. Prerequisite: departmental consent.

21. Laboratory Research (1-3). Laboratory research under the direction of a faculty member. May be repeated for credit. Prerequisites: instructor's consent.

22. Independent Study (1-3). Independent study of a topic in geology. Prerequisite: consent of instructor.

23. Directed Research (1-3). Directed research in a topic in geology. Prerequisite: consent of instructor.

24. Research Project (1-6). Research leading to a thesis. May be repeated for credit. Prerequisite: instructor's consent.

25. Internship in Geology (0-3). Work experience in a geologic consulting firm. May be repeated for credit. Prerequisite: consent of instructor.

26. Seminar in Applied Geology (3). Advanced seminar on a topic in applied geology. Prerequisite: consent of instructor.

27. Seminar in Advanced Topics in Applied Geology (3). Independent study of advanced topics in applied geology. Prerequisite: consent of instructor.

28. Seminar in Research Methods and Techniques (3). Research methods and techniques currently used in applied geology. Research projects in applied geology.

29. Seminar in Advanced Research Methods and Techniques (3). Research seminar on advanced topics in research methods and techniques. Prerequisite: consent of instructor.

30. Special Topics in Applied Geology (1-3). Special topics in applied geology. May be repeated for credit. Prerequisite: consent of instructor.

31. Internship in Applied Geology (0-3). Work experience in a geologic consulting firm. May be repeated for credit. Prerequisite: consent of instructor.

32. Laboratory Research (1-3). Laboratory research under the direction of a faculty member. May be repeated for credit. Prerequisites: instructor's consent.
GREEK

1 Elementary Ancient Greek I (5). Study of forms, grammar, syntax. Early attention to reading in simple Attic prose. Offered only in the Fall.

2 Elementary Ancient Greek II (5). Continuation of Greek I. Readings in Attic prose. Prerequisite: Greek I or equivalent.

3 Greek Reading (3). Selected works of Greek literature. Prerequisite: readings and analysis of selected texts of major Greek philosophers. Latin or Greek.

4 Intensive Beginner Greek I (3). Intensive study of form, grammar, syntax; early attention to readings in simple prose. Course meets five hours weekly for three hours credit. Prerequisite: graduate standing.

5 Intensive Beginner Greek II (3). Continuation of 207. Attention to ability to read rapidly and accurately. Course meets five hours weekly for three hours credit. Prerequisite: graduate standing.

6 Intensive Greek Reading (2). Selected advanced readings in prose and poetry. Introduction to Homer. Prerequisite: Greek 3 or equivalent.

7 Problems (cr. arr.). Independent study and reports on selected topics. Prerequisite: instructor's consent.

8 Greek Stylistics (3). Study and practice of Greek prose, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

9 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.

10 Greek Comedy (3). Contains plays of Aristophanes and Menander, with special attention to cultural contexts. Prerequisite: two years Classical Greek or equivalent.

11 Greek Lyric Poetry (3). Selected readings from lyric poets, with attention to verse, forms, and dialects. Prerequisite: two years Classical Greek or equivalent.

12 Greek Philosophers (3). (same as Philosophy 308). Emphasis on major Greek philosophers. Prerequisites: two years Classical Greek or equivalent.

13 Greek Historian (3). Study and analysis of selected texts of major Greek historians. Prerequisite: two year Classical Greek or equivalent.

14 Homer (3). Homer, reading, discussion, and literary analysis of Iliad and Odyssey. Prerequisite: Greek 3 or equivalent.

15 Greek Epigraphy (3). Introduction to study of Greek inscriptions and their contribution to the understanding of other aspects of ancient culture. Prerequisite: Greek 103.

16 Greek Geography (3). Introduction to study of Greek geography and their contribution to the understanding of other aspects of ancient culture. Prerequisite: two years Classical Greek or equivalent.

17 Special Problems (cr. arr.). Special problems not covered in other courses. Prerequisites: departmental consent, two years Classical Greek or equivalent.

19 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.

20 Seminar in Greek Drama (3). May be repeated to a maximum of 6 hours.

21 Seminar in Greek Epic Poetry (3).

22 Seminar on the Study of Greek culture of mid-fifteenth C.B.C. law, religion, art, philosophy, science, and other aspects of the culture, to give students an integrated view of life of the period.

23 Seminar in Special Fields (3).

HEALTH SERVICES MANAGEMENT

101 Topics in Health Services Management (1-3). Organized study of health services management topics on an undergraduate level. Subjects vary from semester to semester. Repeatable upon consent of professor.

201 Topics in Health Services Management (1-3). Organized study of selected health services management topics for undergraduates and non-health services management graduate students. Subjects vary from semester to semester. Repeatable upon consent of department.

202H Portfolio Assessment (1). Course will assist students in applying for advanced standing based on professional and personal experiences. Credit for non-formal educational activities may be granted for learning activities related to the health planning and delivering of the American health care system. Emphasis is placed on current issues and their impact on the delivery system.

215 Principles of Health Care Management. The course introduces the fundamental principles of management, emphasizing the practical application of these principles in health care settings. Prerequisite: 3 hours.

216H Human Resources Development (3). Course provides students with an understanding of personnel management in health services and the impact of personnel management on departmental performance and assessment. Prerequisite: instructor's consent.

250H Health Planning Principles (3). Overview of health planning. Introduction to the theories, concepts and principles which make up the practice of planning and the basis on which health planning is practiced in the United States.

252H Public Health Care Finance (3). Student gain knowledge of the basic principles of financial management and application. Basic financial tools used in planning and controlling health care institutions and financial management techniques are presented. Prerequisite: 251H.

253H Practicum (3-4). Supervised field experience in an approved health agency, institution or organization. Opportunity for observation and practical work under guidance of a registered professional. Prerequisite: 252H.

300 Problems (1-3). Directed exploration of health services management problems. Prerequisite: instructor's consent.

310 Topics in Health Services Management (1-3). Organized study of selected topics. Subjects will vary from semester to semester. Repeatable upon consent of department.

339 Risk Management System in a Health Care Institution (3). Course provides the student with an understanding of the basic functions and components of a risk management system. Prerequisite: instructor's consent.

340H Economics of Health Care (3). Application of basic economic principles and concepts to the health care delivery system and to the analysis of public policies in health care. Prerequisite: Economics 51 or equivalent.

400 Problems (1-3). Intensive study of an area of health services management. Prerequisite: graduate standing & instructor's consent.

401 Topics in Health Services Management (1-3). Organized study of selected topics. Subjects will vary from semester to semester. Repeatable upon consent of department.

424H Public Health Care and Medical Economics (3). (same as Economics 424).

426 Labor Relations in the Health Industry (3). To identify role of organized labor in the health industry in its efforts to represent employees. Review history and legal status under appropriate federal and state law. Prerequisites: graduate standing & instructor's consent.

428 Management Research (1-9). Original research in health services management. Prerequisites: Consent of instructor and research report. Prerequisite: graduate standing & instructor's consent.

460 Administration of Health Care Organizations (3). Analysis of health care organizations, including non-profit, for-profit, public, and private health agencies. Prerequisites: 213, and instructor's consent.

471 Decision Making for Health Care Organizations (3). Organized study of selected topics. Subjects not covered in other courses. Prerequisites: departmental consent, two years Classical Greek or equivalent.

500H 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.

520 Seminar in Greek Drama (3). May be repeated to a maximum of 6 hours.

527 Seminar in Greek Epic Poetry (3).

528 Seminar on the Study of Greek culture of mid-fifteenth C.B.C. law, religion, art, philosophy, science, and other aspects of the culture, to give students an integrated view of life of the period.

530 Seminar in Special Fields (3).

537 Medieval German Literature 1170-1210 (3). Analysis of major narratives of the age of Chivalry. Prerequisite: German 275 or equivalent.

550 Study in the Techniques of Teaching German (3). (same as Curriculum and Instruction 550). Observation, methods, and problems related to the instruction of German. Prerequisites: 18 hours, or the equivalent, in German & instructor's consent.

551 Advanced Syllabi and Stylistics (3). Considered compositional grammatical and syntactical structures. Prerequisite: senior or graduate standing, or instructor's consent.

555 Internship in German (3). Supervised introduction to the methodology of teaching the elementary German. Conducted in a classroom environment. Prerequisite: senior standing, 275 or instructor's consent.

500 Problems (cr. arr.). Prerequisite: Graduate standing and chairperson's consent.

510 Topics in German (cr. arr.). Organized study of selected topics. Subjects vary from semester to semester. May be repeated to a maximum of six hours with departmental consent.

512 Bibliography and Methods (1). Designed to acquaint students of bibliography and research methods in German studies. Prerequisite: graduate standing or instructor's consent.

513 Seminar (3). Course content varies. Prerequisite: graduate standing or instructor's consent.

515 History of the German Language (3). (same as Linguistics 460). Prerequisite: graduate standing or instructor's consent.

516 Middle High German (3). (same as Linguistics 461). Prerequisite: graduate standing or instructor's consent.

517 Research (cr. arr.). Prerequisite: chairperson's consent.
HEALTH RELATED PROFESSIONS

Introduction to the Health Related Professions (1). Acquaints students with information about program requirements, relationship of individual professions and Health Education (carr. arr.). Permission required. Graded S/U only. Prerequisite: formal declaration of status as major.

Topics in Health Education (1-3). Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit.

The World of the Middle Ages (3), (same as Peace Studies 111). Survey of European development from the fall of Rome to the 16th century.

120 American History (5). 20th century history of the United States: introduces basic concepts of adult development and socialization.

126 Topics in Higher and Adult Education (carr. arr.). Lectures, discussions, and field experiences of special interest to students enrolled in all undergraduate divisions; not a professional course for SIU.


140 English Before the Great Revolution (3). Survey of English institutions, culture and politics from the Roman invasion to the Revolution of 1688.

141 History of the Present (3). Surveys British history from 1688 to present. Emphasizes social and economic change.

144 Civilization of India (3), (same as Anthropology 110, South Asia Studies 111). Introduction to the literatures of those societies, emphasizing Indian, Persian, and medieval European perspectives.

145 Medieval Culture (3). (same as Peace Studies 318). Development of Europe from the fall of Rome to the time of the Crusades.

146 History of Socialist Thought (3). Readings in selected problems in European history; reponses and discussion on selected topics. Course subject depends on instructor. May be repeated.

148 Undergraduate Thesis (3). Individually directed research leading to a senior thesis.

150 Undergraduate Thesis (3), Continuation of 148.

151 Honors Thesis (3). Research and completion of the thesis required for graduation. Honors in History. F.

152 Honors Thesis (3). (Same as Political Science 181). Honors in History. F.

153 Topics (carr. arr.) Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable upon department approval.

153 Topical Seminar in Environmental Studies (3). 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, regulation, agencies, grassroots action. Topical satellite courses offered concurrently.

154 The Greek World (3). Political and social institutions, intellectual and cultural development of Greece from prehistoric times to the end of 5th century B.C.

156 The Roman World (3). Origin and development of Roman institutions, Rome's expansion and culture through reign of Marcus Aurelius.

157 The Development of Greek Democracy (3). Study of Athenian democratic institutions from Solon to 404 B.C. Prerequisite: sophomore standing or instructor's consent.

158 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.

159 History of Missouri (3). Survey of Missouri's development from the beginning of settlement to present.

160 American Feminism (3), (same as Women Studies 215). History of women's role in American society, both institutional and cultural.

161 Europe in the Nineteenth Century (3), Political, social, economic, and cultural development of Europe from French Revolution to outbreak of World War I.

162 Contemporary Europe (3), Political, social, and economic developments from Europe from French Revolution to outbreak of World War II.

163 Twentieth Century America (3). Survey of American development since 1917. May be repeated for credit.

165 Independent Study (carr. arr.) Independent investigation leading to a paper or project.

166 Topical Seminar in American History, especially 356, 357, or 358.

167 American in the '60s (3). 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.

168 The Roman Republic (3). Analysis of the dissolution of Republican institutions and the origins of oratory, from the Gracchi to the Death of Julius Caesar.

169 The Roman Empire (3). Acquisition and development of Empire by the Romans; administration of the Empire; Romanization of the Western provinces; Imperial government and the provinces. Prerequisite: passing grade in 101.

170 The Later Roman Empire (3), Political, social, economic, and cultural life in the Roman Empire, especially in the West, from Diocletian to the rise of the barbarian kingdoms.

171 History of Socialist Thought (3). Survey of theoretical and political movements from 18th century to present. Topics include utopian socialism, Marx, and contemporary democratic socialism.

172 Modern Europe (3). (Same as History 318). Development of medieval culture covering a broad range of topics such as university life, scholasticism, technology, social change, and the arts of artisans, merchants, women and peasants.
HOME ECONOMICS COMMUNICATION

III Media Techniques (3). One extra credit hour may be arranged as id. Survey of mass media techniques and methods of combining them effectively to disseminate home economics information. Includes projects and field trips. Prerequisite: sophomore standing, English 60, or equivalent.

30 Problems (cr. arr.) Library or laboratory problems selected for study by student, with guidance of staff member. Report required. Prerequisite: sophomore standing in course in field of problem & senior standing & instructor's consent.

35 Readings (cr. arr.) Prerequisites: 200-level course in field of subject & instructor's consent.

30 Recent Trends (1-2). Prerequisite: at least one course in specific subject matter area or instructor's consent.

30 Field Training (4). Prerequisites: senior standing & instructor's consent.

30 Seminar (1-4). Reports and discussion of recent work in area of concentration.

40 Readings (cr. arr.) For graduate students emphasizing home economics communications. Readings in current research and other publications. Prerequisites: 300-level courses in field of problem & instructor's consent.

40 Topics (cr. arr.) Selected current topics in field of interest.

40 Research (cr. arr.) Independent research not leading to thesis. Report required.

HORTICULTURE

30 Landscape Appreciation (3). Open to all students. An inquiry into the quality of natural and man-planned landscapes. F, W

30 Basic Horticulture (3). Covers the art and science of plant selection based on aesthetic and environmental determinants, functional and visual requirements and expected maintenance. Prerequisites: 201, 202 & 293.

25 Landscape Design (3). Historical overview of the human and environmental relationships with respect to design on the land. Prerequisite: sophomore standing. F, W

25 Landforms (3). Basic site engineering correlating design and technical aspects of site development and suitability. Prerequisite: Geology 1 or 2. F


256 Plant Forcing Structures (3). Practical investigation of historical development, architectural styles, location, structural parts, climate control, interior equipment and maintenance of structures used for the production of flower and vegetable crops. ab. f, odd yrs.

256 Floral Design (3). Commercial floristry. Prerequisites and practices in commercial floral designing of corsages, gift arrangements, memoran- dums, tributes, wedding decorations. Prerequisites: 60 & Art 455, or instructor's consent. f. even yrs.

256 Floral Store Management (3). Organization, store layout, policies and principles of marketing and management business operation of a retail flower shop. Prerequisites: 206 & Marketing 204. w

271 Planning Design II (3). Spatial arrangement, understanding, compensatability, aesthetics and perceptual qualities of planting design. Prerequisites: 250 & 252. f

300 Problems (cr. arr.) Prerequisite: consent required card required.

301 Harvest Physiology (3). Physiological processes occurring after harvest in flowers, fruits, vegetables, nursery stock; control of preservation of quality. Prerequisite: 204. f, even yrs.

352 Diseases of Ornamental and Turf (2). (same as Plant Pathology 352).

300 Fruit Production (5). Advanced study of fruit industry; emphasizes production, management of deciduous tree, small fruit enterprises. Prerequisites: 203, 204, 205; instructor's consent. f, odd yrs.

344 Commercial Vegetable and Truck Crop Growing (5). Advanced study of commercial vegetable enterprises including growing areas, management & production problems. Prerequisites: 204 & 205 or 206; instructor's consent. f & w.

345 Vegetable Forcing (3). Specific problems encountered, practices employed in production of lettuce, tomatoes, mushrooms in forcing structures. Prerequisites: 204 & 205 or 206; instructor's consent. w & odd yrs.

350 Landscape Graphics Communication (3). Experimentation with various techniques & media of graphics. Prerequisites: 254 & 272; instructor's consent.

352 Plant Designing III (4). Project-oriented planting design studio projects. Prerequisites: 250, 254 & 272. w.

354 Advanced Landscape Design (4). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design. Prerequisites: 352 & instructor's consent. f & odd yrs.

355 Turf (3). Characteristics of turf materials, principles of establishment and maintenance. Prerequisites: 204 & 205 or instructor's consent.

356 Arboriculture (3). The establishment and cultivation of outdoor ornamental plants.

357 Nursery Crop Production and Management (4). Operations, methods used by wholesale, retail, landscape nurseries. Field problems, observational trips. Prerequisites: 203 & 204. f.

351 Fall Greenhouse crops (4). Business management problems of a commercial greenhouse operation; Prerequisites: 203 & 204 or instructor's consent. f.

362 Spring Greenhouse Crops (4). Continuation of 351. Production management problems and commercial culture of spring cut flowers and potted plants. w.

350 Floral Business Organization (3). Through practical work experience, under the direct supervision of an academic adviser and a horticulture business manager, a student develops and applies knowledge of horticulture. A student should consult an academic adviser for internship details. Prerequisites: junior standing, adviser's consent. (f, w).

402 Topics in Horticulture (cr. arr.) Discusses highly specialized topics in the field of horticulture. Prerequisites: graduate standing & consent card required.

450 Plant Growth Regulating Substances (3). Chemistry, physiology and practical applications of plant growth regulating substances in development of plants. Prerequisites: Biological Sciences 313 & 6 hours organic chemistry. w.

407 Breeding of Horticultural Plants (cr. arr.) Literature and original and scientific papers, selection of horticultural plants. Prerequisites: graduate standing; Agronomy 179 or Biological Sciences 202 & 341; instructor's consent. f, w.

408 Horticultural Horticulture (3). Important nutrient elements; their absorption, utilization. Prerequisite: 205 or equivalent. f. odd yrs.

410 Seminar (1). Recent investigations in horticulture and related fields.

415 Methods of Horticultural Research (3). Methods of procedure in investigations, outlining problems; assembling and analyzing data; presenting results, all. f. even yrs.

444 Advanced Research (3). Physiological factors affecting growth, harvesting, storage of vegetable crops. Survey of fundamental literature. Prerequisites: graduate standing, 344, 345. w.

450 Thesis Research (cr. arr.) Prerequisite: consent card required.

450 Research (cr. arr.)

HOUSING AND INTERIOR DESIGN

40 Principles of Environmental Design (3). Lecture. Basic principles, elements, physical properties, and history of design as they relate to housing and the community.

41 Design I (3). Studio experience. Two-dimensional aspects of visual composition: space, line, form, texture; emphasizes properties of color.

42 Design II (3). Studio experience in three-dimensional concepts. Construction in paper, wood, plastics, light metals, plaster, and other materials to promote understanding of space and form. Prerequisite: 40, 41, or equivalent.

140 Residential Design I (3). Interior space planning, furniture arrangement and selection, with emphasis on color, fabrics, and conviviality; emphasis on design and use of space. Prerequisites: junior or senior standing: Prerequisites: 140, 41 or equivalent (Mechanical & Aerospace Engineering 20 for majors).

141 Architectural Design I (3). Man's intimate environment and social emphasis on living space: new materials, new developments in materials, and space enclosures relative to human scale and habitability. Prerequisite: 140, 142.

142 Construction Techniques for Interior Components (3). Lab study of the techniques and technology in housing design and construction. Prerequisites: 40.41, & Mechanical & Aerospace Engineering 20.

143 Design Applications for Microcomputers (1). (same as Family Economics and Management 176).

147 Presentation Graphics (3). Interior perspectives and presenta- tion techniques. Prerequisites: 40, Mechanical & Aerospace Engineer- ing 20.

148 Design III (3). Advanced studio experience in interior perspective and presentation techniques. Prerequisite: 147.

149 Contract Design I (3). Introduces the profession of interior design, business principles and paractices; resources, materials, and furnishings, and lighting for the commercial interior. Prerequisites: Mechanical & Aerospace Engineering 20.

145 Contemporary Designers (3). Historical survey of contemporary designers and craftsmen. Interviews, studio visits, discussion with practicing designers and craftsmen. Prerequisites: Art History & Archaeology 10 & junior or senior standing.

344 Architectural Design II (3). Design of architectural projects influenced by form and function within the dictates of zoning and other codes. Students will design projects for architects or by other professionals. Prerequisite: 141, 147 and 149.

346 Contract Design II (3). Contract design and specification procedures relative to multiple spaces, public environment. Advanced studio experience in planning and creative development. Using a variety of program packages for graphic output, pure and applied design will be generated. Prerequisite: junior standing.

143 Advanced Interior Design (3). An in-depth interior design experience involving residential clients, with emphasis on business procedures and resources, including consultation, design solutions and presentations. Prerequisite: 141, 147 and 149.

348 Design Techniques for Environmental Components II (3). Studio experience in designing environmental art for specific locations. Prerequisite: 145.

141 Design Techniques for Environmental Components I (4). Studio experience in the design of components for environmental spaces with emphasis on fabrics, floor coverings and wall coverings. Prerequisites: 141, 148.

241 Standing Fundamentals (3). Documentary film study of U.S. housing and the social and technological factors that influence housing design. Housing viewed as an accommodation for human life.

142 Housing and the Community (3). Advanced graphic and presentation procedures, team projects. Prerequisites: 149, 147, 141.

350 Readings (cr. arr.) Readings in recent research materials. Prerequisite: graduate standing.

349 Field Training (cr. arr.) Field experience in design under professional and educational supervision. Prerequisites: advanced standing & instructor's consent.

400 Problems (cr. arr.) Prerequisites: 300-level course in field of study.

410 Seminar (1-4). Reports, discussion of recent work in area of concentration.

415 Methods in Housing & Interior Design (3). A comparative study of classic and current studies in housing and design, with emphasis on research results and methodologies employed. Lectures and seminar discussions. Prerequisite: 12 hours advanced study.

415 Readings (cr. arr.) Readings in recent research materials. Prerequisite: graduate standing.

451 Advanced Interior Design I (4). Design of modern functional interiors; modern adaptations of historic material; design for residential
HUMAN NUTRITION, FOODS, & FOOD SYSTEMS MANAGEMENT

21 Elementary Food Preparation (2). Emphasizes principles of selection, preparation, combination of foods, basic cost control, menu development. Not for HNFFSM majors. No credit if taken after HNFFSM 121.

24 Nutrition, Concept 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 234.

28 Introduction to Dietetics (1). Introduction to concepts of the role of a dietitian and various settings in which these roles are performed. 121 Principles of Food Preparation (5), (same as Food Science & Nutrition 224). Organizational structure and relationship to selection and preparation of food. Lecture & lab: Prerequisite: Chemistry I or Chemistry II and equivalent.

122 Food Buying and Meal Management (2-3). Factors affecting cost of food. Applies principles of buying and food preparation to menu planning, meal preparation and service. Prerequisite: 21 or 121.

131 Human Nutrition II (3). Transdisciplinary approach to nutrition, considering anthropological, physiological, geographical, socioeconomic and psychological elements in world food systems.

221 Science of Food Preparation (3). Principles of food preparation as related to chemical and physical properties of foodstuffs. Prerequisite: 212; organic chemistry.

225 Nutrition and Identification (3). (same as Food Science & Nutrition 224) Organizational structure and relationship to selection and preparation of food. Lecture & lab: Prerequisite: Chemistry I or Chemistry II and equivalent.

234 Human Nutrition I (3). Basic concepts of normal nutrition related to physiological/chemical processes; changing nutrient needs during human life cycle, emphasis on adults; some social/psychological influences on dietary habits. Prerequisites: organic chemistry and physiology, or instructor's consent.

235 Modern Foods and Food Systems (3-4). Concepts and techniques used in nutrition education. Five hours include guided experience for medical dietetic majors in nutritional care of selected patients. Prerequisites: 234 and instructor's consent.

239 Medical Dietetics (3-12). (same as Nutrition 339). Applies concepts of sciences, humanistic studies, and dietetics to planning, evaluating, and administering the nutritional care of people. Prerequisites: 338 or instructor's consent. Only medical dietetics majors may take 12 hours.

325 Readings (cr. arr.). Prerequisites: 8 hours of course work in field of subject & instructor's consent.

355 Recent Trends (1-2). For upper-class and graduate students who wish additional knowledge and understanding in specific subject matter. Prerequisite: instructor's consent.

375 Sensory Analysis of Food (3). (same as Food Science & Nutrition 375).

390 Microwave Heating of Food (2). (same as Food Science & Nutrition 376).

391 Field Training (cr. arr.). Prerequisites: junior or senior standing & instructor's consent.

400 Problems (cr. arr.). Prerequisite: instructor's consent.

410 Seminar (1-4). Reports and discussion of recent work in area of concentration.

412 Research Methodologies for Foods Systems Management (2). An overview of research methodologies for foods systems management, with emphasis on the logistics of performing graduate research. Prerequisites: graduate standing in foods systems management or instructor's consent.

415 Readings (cr. arr.). Prerequisites: 15 hours course work in field of subject & instructor's consent.

419 Field Training (cr. arr.). Internships and/or field experiences under supervision. Prerequisites: graduate standing & instructor's consent.

421 Advanced Experimental Foods (3). Further development of the concepts and experience in planning, conducting, interpreting, and reporting food research project. Prerequisites: 321 & statistics at 200 level.

428 Advanced Food Systems Management (3). An intensive study of the application of current management concepts and management science techniques to professional accountability in food systems. Prerequisites: graduate student in food systems management or instructor's consent.

431 Nutritional Perspectives (3). Surveys various factors relating to man's health, and status and national and international nutrition problems. Prerequisite: a course in nutrition.

432 Nutritional Integration of Metabolism (3). Discusses mammalian food chains and emphasizing relationships between nutrient intake and biochemical and physiological events occurring in, and organ and whole organism. Prerequisites: 334 & advanced biochemistry.

463 Advanced Seminar (3). Lecture-discussion of current and classical literature, emphasis on normal nutrition. Prerequisite: 334 or instructor's consent.

490 Research (cr. arr.). Independent research not leading to a thesis.

499 Research (cr. arr.). Independent research leading to a thesis or dissertation.

INDUSTRIAL ENGINEERING

17 Experimental Course (cr. arr.) For freshman-level students. Credit and content to be listed in Schedule of Courses.

361 Research Methods in Industrial Engineering (3). Supervised investigation of industrial engineering problems presented as a form of research.

362 Topics in Industrial Engineering (3). Current and new technical developments in industrial engineering.

363 Research Methods in Industrial Engineering (3). Study of quantitative methods necessary for analysis, modeling and design of optimal industrial systems. Prerequisite: Mathematics 175.

365 Introduction to Linear Programming (3). Introduction to linear and nonlinear relationships. Introduction to multivariate analysis. Prerequisites: Mathematics 175.

369 Evaluation of Engineering Data (3). Use of statistical methods to aid in analysis and interpretation of simple engineering experiments and surveys. Sampling procedures, estimation, testing of hypotheses.


370 Measurement of Human Work (3). Methods of measuring productivity in work systems. Emphasis on techniques, developing standard allowed times. Introduction to assessing physical parameters in work systems. Prerequisite: Engineering 121.

401 Advanced Topics in Industrial Engineering (3). Advanced topics, problems and projects including design of man-machine systems, evaluation of human work performance, and control of systems of complex man-machine systems.

408 Measurement of Human Work (3). Methods of measuring productivity in work systems. Emphasis on techniques, developing standard allowed times. Introduction to assessing physical parameters in work systems. Prerequisite: Engineering 121.

410 Seminar (1-4). Research projects in various areas of industrial engineering.

415 Advanced Topics in Industrial Engineering (3). Advanced topics, problems and projects including design of man-machine systems, evaluation of human work performance, and control of systems of complex man-machine systems.

421 Research Methods in Industrial Engineering (3). Supervised investigation of industrial engineering problems presented as a form of research.

422 Topics in Industrial Engineering (3). Current and new technical developments in industrial engineering.

423 Research Methods in Industrial Engineering (3). Study of quantitative methods necessary for analysis, modeling and design of optimal industrial systems. Prerequisite: Mathematics 175.

425 Introduction to Linear Programming (3) Linear and nonlinear mathematical programming models necessary for analysis, modeling and design of optimal industrial systems. Prerequisite: Mathematics 175.


461 Research Methods in Industrial Engineering (3). Supervised investigation of industrial engineering problems presented as a form of research.

462 Topics in Industrial Engineering (3). Current and new technical developments in industrial engineering.

463 Research Methods in Industrial Engineering (3). Study of quantitative methods necessary for analysis, modeling and design of optimal industrial systems. Prerequisite: Mathematics 175.

465 Introduction to Linear Programming (3). Linear and nonlinear mathematical programming models necessary for analysis, modeling and design of optimal industrial systems. Prerequisite: Mathematics 175.

468 Linear and Nonlinear Programming (3). (same as Operations Research 468). Theory, methods and solution techniques of linear and nonlinear programming.

490 Research (cr. arr.). Independent research not leading to a thesis.

499 Research (cr. arr.). Independent research leading to a thesis or dissertation.
INFORMATION SCIENCE

101 Computers in Library and Information Science (3). Introduces use of computers in bibliographical problems; thorough coverage of PL/I; emphasizes character string manipulation and logical operations, including Boolean operators. Course utilizes computer in an interactive mode. Prerequisite: satisfactory computer background. f.w.s.

301 Introduction to Information Science (3). Introductory survey to information science. Includes topics in the information transfer chain, such as storage, retrieval, temporal transfer of information and information systems. w.

302 Information Systems I (3). Objectives, components, organization, and performance of information transfer of information. Prerequisite or concurrent: 101 or equivalent. f. alt. s.

350 Special Readings (cr. arr.) (same as Library Science 350). Prerequisite: instructor's consent. f.w.s.s.

400 Problems (cr. arr.) (same as Library Science 400). Prerequisite: graduate standing & departmental consent. w.

401 Library Information Systems (5). (same as Library Science 401). Introduces the use of computers in bibliographic environments through coverage of PL/I, with emphasis on character string manipulation in an interactive mode, and evaluation of current commercial systems. Prerequisite: satisfactory computer background. w.

402 Information Systems II (3). Continuation of 302. Study of information center management and planning; tools for decision making; measures for evaluation; client/information considerations. Prerequisite: 302 & graduate standing or departmental consent. w.

410 Seminar in Information Science (1-3). Discussion and critical study of current developments in information science. Prerequisite: satisfactory computer background. w.

412 Information Storage and Retrieval (3). Introduces student to those techniques and models which are currently topics of research in the field of information retrieval. Includes both digital and environment. Automatic indexing, automatic classification and bibliometrics included. Prerequisite: departmental consent. w. alt. s.

413 Abstracting and Indexing (3). (same as Library Science 413). Introduction to techniques used in the processing of documents in context; emphasizes creation of abstracts, and characteristics and use of post-coordinate indexing languages. Practical experience in use and evaluation of indexing systems stressed. Prerequisite: departmental consent. f. alt. s.

424 Micrographics and Libraries (3). (same as Library Science 424). Prerequisite: satisfactory computer background. f.

432 Automated Reference Services (3). (same as Library Science 432). General summary of available systems and their characteristics; particular emphasis on those available to the general library community. Machine-searching systems. Prerequisite: 410; 411; Library Science 332 & departmental consent. w.

441 Information Systems Resource Management (3). (same as Library Science 441). Use of bibliometric techniques for management decisions in effective utilization of resources of information systems. Intensive study of selected topics related to library and information center management. Prerequisites: Library Science 341 & departmental consent. w. alt. s.

ITALIAN

1 Elementary Italian I (3). f.

2 Elementary Italian II (3). Continuation of 1. Prerequisite: grade of C or better in 1 or its equivalent. w.

106 Elementary Italian Conversation (3). Prerequisite: 3 or equivalent. w.

109 Italian Conversation (3). Prerequisite: 3 or equivalent. alt. s.

110 Italian Civilization (3). Open to any student interested. No knowledge of Italian required. Prerequisite: sophomore standing. w.

111 Italian Literature in Translation (3). May not be included in area of concentration in Italian. Subject varies with instructor. Prerequisite: sophomore standing. w.

197 Honors Thesis (3). Required of Honors candidates. Prerequisite: major in Italian. f.w.

201 Topics (cr. arr.). Organized study of selected topics. Subjects and course credit may vary from semester to semester. Repeatable with departmental consent. w.

206 Advanced Italian Composition (3). Prerequisite: 106 or equivalent. w.

207 Intensive Beginning Italian (3). Designed for rapid acquisition of a reading knowledge of Italian. Cannot be taken to fulfill undergraduate language requirement. Prerequisite: Graduate standing or instructor's consent. w.

209 Advanced Italian Conversation (3). Prerequisite: 109 or equivalent. w.

301 Topics (cr. arr.). Organized study of selected topics. Subjects and course credit may vary from semester to semester. Repeatable with departmental consent. w.

311 Survey of Italian Literature I (3). From 1200 to 1600. Prerequisite: 3. 207 or equivalent. w.

312 Survey of Italian Literature II (3). From 1700 to present. Prerequisite: 3 or equivalent. w.

319 Nineteenth-Century Italian Literature (3). Prerequisite: 3 or equivalent. w.

321 Dante (3). Prerequisite: 3 or equivalent. w.

350 Special Readings (1-3). Independent study through readings, conferences, reports. Prerequisite: 3 or equivalent. f.w.

400 Problems (cr. arr.) (same as Library Science 400). Prerequisite: graduate standing. w.

JOURNALISM

101 Introduction to Broadcast News (3). Introduction to broadcast news; the use of audio and video tape equipment, film cameras, film editing; and the ethics and responsibilities of broadcasting. Prerequisite: instructor's consent. f.w.s.

102 Journalism and Government (3). Lecture portion of any course the student plans to take later during an intercession, with the exception of courses 112, 323, 400, 490 and 499. Prerequisite: dean's consent. f.w.s.

104 News Practicum (3). Instruction in fundamentals of newswriting for students entering the graduate program without an undergraduate degree. Prerequisite: instructor's consent. f.w.

105 News (3). Typing skill of 35-40 words a minute is essential. Introduction to fundamentals of newswriting. Lectures, discussions and laboratory work provide training under deadline pressure in writing broadcast news stories and radio spots. Prerequisites: instructor's consent. f.w.

109 Editing Practicum (3). Instruction in fundamentals of editing for students entering the graduate program without an undergraduate degree. Prerequisite: instructor's consent. f.w.

110 Editing (3). Prepare local and wire service articles and photos for newspaper publication; headlines and cutlines; introduces newspaper design and experience with video display terminals. Prerequisite: 105 f.w.

112 Communications Practice (1-2). Special laboratory instruction for seniors in various departments of the school's media. Enrollment limited to students enrolled in office of the dean, with permission of instructor. f.w.

113 Internship (2). Credit for approved employment in journalism. Specified courses for this course appear in the Undergraduate Catalog. f.w.

119 Promotional Writing (3). Basic principles of English, news writing and editing applied to areas of promotion, advertising, public relations. Practical writing and editing exercises for all media. f.w.s.

210 Advertising Principles and Practice (3). Prerequisite to all other advertising courses. Consideration of legal implications and relation to modern business activities. Two hours lab weekly. f.w.

140 Basic Press Photography (3). Introduction to news photography. Lecture, slide presentations, field work. Emphasis on the development of sensitivity to people, circumstances and events. Prerequisite: instructor's consent. f.w.

144 Intermediate Press Photography (3). Advanced techniques and applications of visual communication. (existing, studio, electronic flash), special lenses and cameras, macrophotography, copying, formal and informal portraiture, composition, illustration, sequences. f.w.

149 Journalism Careers (8). A required course for all candidates for the B.J. A survey of opportunities and problems of the young journalist. Sophomore standing. Taken in the second semester before graduation. Grade S/U only. f.w.

199 Problems (1-3). For undergraduates only. Individual research under direction of a faculty member. Project must be set up with permission at registration. Approval of department chairperson required. f.w.s.s.

231 Economic Analysis for Journalists (3). (same as Economics 231). f.w.

300 Mass Media and Society (2). (same as Peace Studies 300). Introductory course designed to acquaint student with concepts and fundamental issues in mass communication. Socio-economic relationships, basic issues and problems facing journalists and the mass media. f.w.

301 Topics in Journalism (1-3). Selected current topics in journalism. Specific topics to be announced at the time of registration. f.w.

303 Foreign Press (1-2). Consideration of foreign press in context; emphasis on the print media and differing journalistic concepts. Leading newspapers and magazines of the principal nations, with some consideration given to news agencies and broadcasting. Prerequisite: 104 or equivalent. f.w.

303 International Journalism (2). (same as Peace Studies 302). News facilities around the world, barriers in international communications, press problems of developed and especially of developing nations, and friction and understanding created by the press. w.

304 Communications Law (3). Legal limitations and privileges affecting publishing, advertising, broadcasting. Consideration of legal problems and bearing on media of communication. Prerequisite: 104 or f.w.

305 Critical Reviewing (2). Book, movie, theatre and television reviews, reading course. Prerequisites: 104 or 105 & instructor's consent. f.w.

306 Reporting (3). Assignments on a daily city newspaper covering community news, city, county and state affairs, sports, women's and interest news. Experience in gathering and writing news, rewrite under daynight deadline situations. Prerequisite: 104 or 105, f.w.

307 Advanced 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: 306. f.w.

308 Broadcast Course (3). Lectures, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers, with the consent of the instructor. Prerequisite: 105 f.w.

309 History and Principles of Journalism (3). History of the mass media in America, tracing the development from the colonial press through the complex mass media today. f.w.

310 Newspaper Editing (3). Lectures and workshops on the Columbia Missourian plus lectures on page makeup and news evaluation. Prerequisite: 110 f.w.s.s. 139
358 The Suburban Press (2). In-depth investigation of suburban journalism. Topic must be approved by instructor. f,w.

404 The Literature of Journalism (2). Analysis of the role of journalism as a social institution. Emphasis on the role of the journalist in shaping public opinion through the selection and presentation of news stories.

408 The Role of Television in U.S. Society (3). Examination of the role of television in shaping public opinion and political attitudes. Emphasis on the role of television in shaping public opinion through the selection and presentation of news stories.

410 Philosophy of Journalism (3). Seminar. Seminar in nework theory. In-depth study of the role of television in shaping public opinion through the selection and presentation of news stories.

411 The Literatute of Journalism (2). Review of the role of television in shaping public opinion through the selection and presentation of news stories. Emphasis on the role of television in shaping public opinion through the selection and presentation of news stories.

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Linguistics

20 Introduction to Language Science (3). (same as Anthropology 201). General introduction to various aspects of linguistics. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

101 Topics (cr. arr.) Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable upon consent of chairperson. Prerequisites: Sophomore standing.

102 American Phonetics (3). (Same as Speech Pathology and Audiology 102).

120 Languages of the World (3). Survey of the important language families of the world, where they are spoken, and important features presented from a minimum amount of technical detail. Prerequisites: some knowledge of one language other than English or instructor's consent.

154 Introduction to Anthropological Linguistics (3). (same as Anthropology 154).

190 Honors Thesis (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.

201 Topics (cr. arr.) Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable upon consent of the chairperson.

210 Japanese III (3). Reviews essential grammar, reinforces aural-oral skills, and promotes skills in reading and writing. Prerequisites: 101 (Topics I: Japanese I) and 101 (Topics II: Japanese II) or equivalent. f.

211 Japanese Readings (3). Reviews and reinforces major grammatical issues; introduces advanced vocabulary through oral-oral drills, readings, and written exercises. Prerequisites: 210, 211, 231, & departmental consent.

212 Speech Science (3). (Same as Speech Pathology and Audiology 212). f.

213 History of the Greek and Latin Languages (3). (same as Classical Studies 213). f.

216 Symbolic Logic (3). (Same as Philosophy 314). f.

219 The Structure of American English (3). (same as English 319). f.

222 Regional and Social Dialects of American English (3). (same as English 322). f.

233 Principles of Teaching English as a Second Language (3). f.

246 Language and Culture (3). (same as Anthropology 246). f.

250 Special Readings (1-3). Independent study through readings, conferences, reports. Prerequisites: one linguistics course & instructor's consent.

260 Phonetics (3). (Spanish Language) (same as Spanish 350). f.

261 History of the Spanish Language (3). (same as Spanish 361). f.

264 Analytic Philosophy (3). (same as Philosophy 364). f.

265 Analytic Philosophy (3). (same as Philosophy 365). f.

266 Historical Linguistics (3). (same as Anthropology 366). f.

271 Introduction to Anthropological Linguistics (3). (same as Anthropology 271). f.

272 Techniques in Linguistic Analysis (3). (same as Anthropology 272). f.

273 Linguistic Phonetics (3). (Same as Anthropology 273, Romance Languages 373). f.

274 Issues in Linguistic Analysis (3). Key issues in analysis of languages such as accounting for variation, nature and abstraction of underlying representations, and typological characteristics treated comparatively. Prerequisite: 372. w.


293 Field Methods in Linguistics (4). (same as Anthropology 393). f.

300 Problems (cr. arr.) Independent study through readings, analysis of special bibliographic literature. Prerequisite: one advanced linguistics course & instructor's consent.

410 Acoustic Phonetics (3). (Same as Speech Pathology/Audiology 410). f.

411 Physiological Phonetics (3). (Same as Speech Pathology/Audiology 411). f.

417 Studies in the English Language (3). (same as English 417). f.


428 Studies in Psycholinguistics (3). (same as Psychology 428). f.

446 Seminars in Anthropological Linguistics (3). (same as Anthropology 446). f.

460 History of the German Language (3). (same as German 460). f.

461 Middle High German.

483 Seminar (3). Topic varies according to instructor. May be repeated for credit with approval of instructor. Prerequisite: instructor's consent.

493 Research in Linguistics (cr. arr.)

493 Phonology (3). (same as Anthropology 493, Romance Languages 493). f.

494 Syntax (3). (same as Anthropology 494). f.

Management

202 Fundamentals of Management (3). Introduction to the basic concepts of management and its application to operations and personnel management. f.w.c.

254 Introduction to Business Law (3). The legal aspects of business related to society—introduction to the legal system, constitutional, criminal, personal, contract, sales law, and sales law cases and problems; administrative regulation of business and consumer issues. Prerequisite: junior standing. f.w.

255 Course on Business Organization and Operation (3). Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, as well as traditional and modern aspects of business organization. Prerequisites: administrative regulation, taxation, bankruptcy, and trade regulation. Prerequisite: 254. f.w.

300 Problems (cr. arr.)

305 Elements of the Law of Business (3). Role of law in society; body of business law applicable to corporate and only to graduate students. No credit given to those having prior courses in business law.

308 Operations Management (3). Management of operational problems, with emphasis on planning and control systems. Prerequisite: 202 or instructor's consent. f.w.

310 Personnel Management (3). Personnel management, policies, procedures of business enterprise. Prerequisite: 202 or instructor's consent. f.w.

311 Collective Bargaining (3). Content, negotiation, administration of collective labor agreements and settlement of disputes. Prerequisites: 202 or instructor's consent. f.w.

318 Management Science (3). Further development of models and quantitative analysis as applied to production management problems. Management of operational problems, with emphasis on planning and computer applications; quantitative case analyses; individual industrial field studies. Prerequisite: 308 or instructor's consent. w.

319 Production Systems Analysis (3). Constructive and quantitative analysis of the nature of inventory, production and replacement, risk, and policy considerations; systems design/simulation; analysis of networks; management problems in application. Prerequisite: 318. f.

320 Personnel Administration (3). Analysis and description of legal and administrative regulations of terms of employment; Fair Labor Standards, discriminatory practices, and health regulations, other regulations. Prerequisites: senior standing & 310, or instructor's consent.

329 Organizational Behavior (3). Examines theoretical constructs and research findings on human behavior in work organizations such as business and industry. Relationship of individual, group and small group behavior. Prerequisite: 202 or instructor's consent. f.w.

330 Organizational Theory (3). Elements of the managerial process; emphasis on theory of organization and the impact of technology and culture on organization systems. Prerequisites: 202 or instructor's consent. f.w.

345 Management of Service Operations (3). Selected operations management topics: applications of operations concepts, techniques, and methodologies applied to service sector organizations—hospitals, government, agencies, schools, banks. Focus on designing, planning, controlling service operations, with emphasis on planning and control systems. Prerequisite: 310 or instructor's consent.

356 The Law of Commercial Credit Transactions (3). Purchase and sale of goods, services and real property—discussion includes drafts, notes, and the Uniform Commercial Code, and credit financing of real estate. Prerequisite: 254. f.w.

375 Management Policies and Problems (3). Enterprise-level case studies, simulations, and exercises to integrate business and personal decision-making; assessment of environmental influences on business. Development, implementation of company strategies. Prerequisites: 202 & senior standing (BBA/PA) or instructor's consent. f.w.

383 Advanced Organizational Behavior (3). Advanced case studies, simulations, and exercises to integrate business and personal decision-making; assessment of environmental influences on business. Development, implementation of company strategies. Prerequisites: 202 & senior standing (BBA/PA) or instructor's consent. f.w.

390 Advanced Organization Theory (3). Examines manager's role in developing and changing organizational strategy and new organizational forms and processes. Considers matrix structures, environmental assessment, long-range planning and designs for innovation. Case studies, individual or team projects. Prerequisite: 330 or instructor's consent.

393 Advanced Organization Theory (3). Examines manager's role in developing and changing organizational strategy and new organizational forms and processes. Considers matrix structures, environmental assessment, long-range planning and designs for innovation. Case studies, individual or team projects. Prerequisite: 330 or instructor's consent.

402 Problems (cr. arr.) Graduate students may select topics for study and investigation from fields suggested by undergraduate courses listed above.

405 Seminar in Management (3). Intensive studies of current research and issues. Readings, independent investigations, reports. Prerequisite: open to Ph.D. students, or instructor's consent.

434 Advanced Problems in Compensation Theory (3). Intensive analysis of financial compensation systems and benefit programs: wage and salary methods, pensions, time off with pay. Theoretical-empirical approaches and applications. Prerequisite: either 390, 336, 347, or instructor's consent.
435 Topics in Management (3). Selected current topics in management. Prerequisite: Business Administration 323 or instructor's consent.

436 Advanced Personnel Management (3). Analysis of research and practice in personnel management and discriminatation of employees at work. Prerequisite: either 331, 336, or instructor's consent.

437 Management of Labor Relations (3). Managerial approaches to collective bargaining, negotiation, grievances, agreement administration, and administration of organizational change. Prerequisite: 330, Business Administration 301 or instructor's consent.

438 Organizational Behavior and Group Dynamics (3). Organizational and business applications of theory and research in individual differences, interpersonal relations, small group dynamics. Prerequisites: 329, 330, Business Administration 301 or instructor's consent.

439 Organizational Theory and Design (3). Organizational design, reorganization, technical, cultural, and environmental factors, problems of effecting change. Prerequisite: 329, 330, Business Administration 301 or instructor's consent.

440 Organizational Change and Development (3). The change process and the role of the manager. Emphasis on planned, systematic development of organizational capabilities. Prerequisite: 301, 309 or instructor's consent.

441 Operations Planning (3). Emphasizes planning and design. Selected topics in planning aggregate output, location, layout, capacity, maintenance, and equipment replacement, and the use of improvement curves and long-term forecasting. Cases, lecture, simulation, projects. Prerequisites: Business Administration 324 and Business Administration 342 or instructor's consent.

442 Operations Policy (3). Cases dealing with operations policy within the framework of objectives and service: industry and service. Analysis as a basis of policy is stressed. Prerequisite: Business Administration 342 or instructor's consent.

449 Research (cr. arr.) Thesis research for Ph.D. degree.

MATHEMATICS

302 Principles of Marketing (3). Institutions, processes, problems involved in transferring goods from producer to consumer; emphasis on marketing principles and practice. Prerequisite: Economics 51.

202 Distribution Systems (3). Analysis of physical distribution function in marketing; emphasis on transportation, warehousing, materials handling, and inventory. No credit for students who have completed a calculus course. Prerequisite: Economics 51.

204 Principles of Marketing (3). Use of scientific method in solution of marketing problems. Round table discussions, practice in field investigations. Prerequisites: junior standing and 204.

211 Statistics for Business and Social Science (3). Selected current topics from fundamental analytical, operational, and social science. No credit for students who have completed a calculus course. Prerequisite: 201 or equivalent.

215 Analytical Geometry and Calculus I (3). (Same as Statistics 204, College of Business and Public Administration. No credit for students who have completed a calculus course. Prerequisite: 201 or equivalent.

216 Analytical Geometry and Calculus II (3). (Same as Statistics 205). Examination of the rationale of international and national subsidy policies, urban transportation, and analysis of national and international transportation policy. Prerequisite: 201 or equivalent.

217 Advanced Operations Management (3). Decision-making in the marketing system. Current transportation and traffic problems analyzed. Prerequisite: 215.
404 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 classifications. Prerequisite: 201.

36 Foundations of Geometry (3). Coordination of affine, projective, metric, and some kind of algebraic structures: planar ternary rings, Veblen-Weberdian systems, divisions, rings, skew fields, and fields. Prerequisite: 201.

37 Introduction to Non-Euclidean Geometry (3). Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry. Prerequisite: 201.

372 Introduction to Topology (3). Topics from topology of Euclidean space, generalizations of Euclidean spaces and topological spaces. Fundamentals of point set topology. Prerequisite: 201.

403 Problems (1-3).

404 Theory of Functions of Real Variables I (3). Properties of functions of one real variable. Lebesgue measure and integration on the reals by means of various kinds of algebraic structures: planar ternary rings, Veblen-Weberdian systems, divisions, rings, skew fields, and fields. Prerequisite: 201.

408 Applied Mathematics Seminar (cr. arr.).

409 Research (cr. arr.).

MECHANICAL AND AEROSPACE ENGINEERING

20 Engineering Drawing (3). Lettering, drawing technique and use of instruments, orthographic, isometric, oblique, perspective and architectural drawing and sketching. Description, object representation and drafting standards. New materials, cost reduction techniques. Prerequisite: 20 or Engineering 199.


218 Introduction to Biomathematics (3). Introduces engineering topics applicable to areas of physical therapy, physical medicine, orthopedics. Student must have had basic courses in physics, chemistry, biology, algebra, and preferably trigonometry. May not be taken for credit by engineering students.


234 Engineering Materials II (3). Behavior of materials in engineering applications. Tensile testing, fatigue, creep, fracture, solidification, stress, strain, deformation, type of materials. Prerequisites: Engineering 195 or equivalent.

235 Fluid Mechanics (3). (Same as Civil Engineering 251).

236 Transportation Laboratory I (3). Static and dynamic effects; experiment design; instrumentation selection and calibration: measurement of voltage, resistance, amperage, duration, displacement, velocity, acceleration, strain, force, torque. Prerequisites: 185, Engineering 195, Mathematics 304, Engineering 124 or concurrently.

246 Properties of Materials Laboratory I (3). Experimental investigation of physical, chemical and thermal properties of materials. Prerequisites: 224, 226 or 246 concurrently.

256 Design of Machine Elements (4). Methodology of engineering design. Selection and design of materials, geometry, basic properties, manufacturing and environmental requirements. Case studies, lab demonstrations, experiments. Prerequisites: 185, 234 and Engineering 30.

261 Thermodynamics of Compressible Flow (3). One dimensional compressible flow with and without friction and heat transfer. ISENTROPIC FLOW AND SHOCK PHENOMENA IN NOZZLES AND DIFFUSERS. PRINCIPLES OF MATERIALS AND THERMOFLUID DYNAMICS. Thermal, mechanical, and electrical properties of materials. Prerequisites: Mathematics 304 or equivalent.

262 Instrumentation and Measurements Laboratory II (3). Continuation of 252 with emphasis on instrumentation to measure temperature, pressure, fluid flow, fluid velocity, sound, spectral content and emissions. Prerequisites: 251, 252.

263 Properties and Thermodynamic Properties of Materials (2). Principles underlying relationships between physical and thermodynamic properties and structures in the solid state. Prerequisites: 224, 252 or equivalent.

267 Aerodynamics (3). (Same as Civil Engineering 276).

268 Aeroacoustics (3). (Same as Civil Engineering 276).

278 Systems Dynamics (3). Three-dimensional rigid body dynamics. Mechanical vibration; response, control, and stability of mechanical systems. Prerequisites: Mathematics 304 or equivalent.


302 Problems (cr. arr.). Special design, experimental and analytical problems in mechanical and aerospace engineering. Prerequisite: senior standing or instructor’s consent.

301 Topics in Mechanical and Aerospace Engineering (3). Current and new technical developments in mechanical and aerospace engineering. Prerequisite: instructor’s consent.

304 Digital Computer Applications in Engineering (3). (Same as Chemical Engineering 304. Electrical Engineering 304, Nuclear Engineering 304).

305 Analysis of Mechanical Systems (4). Graphical, analytical and computer-aided kinematic, dynamic behavior and shaking force, time response analysis of mechanical systems including curved, gears and linkages. Cam design. Prerequisites: 185, Engineering 5.

310 Introduction to Bioengineering (3). (Same as Electrical Engineering 310).

311 Material Science for Advanced Applications (3). Study of the interaction of chemical, mechanical, thermal, and physical phenomena in advanced material applications. Prerequisite: 224.

315 Engineering Evaluation of Energy Systems and Resources (3). (Same as Electrical Engineering 313, Nuclear Engineering 313).

316 Life Support System Design (3). Environmental, ecological, and human factors for life-support systems. Prerequisite: senior standing.

321 Creativity in Design (3). Identification and strengthening of attitudes and talents essential in design. Creative aspects and value considerations in design. Prerequisite: senior or graduate standing in engineering.


352 Energy Methods in Mechanics (3). (Same as Mechanical and Aerospace Engineering 325). Utilization of energy concepts in the solution of advanced problems in mechanics. Prerequisite: 185.

353 Synthesis of Disks (3). Type, number and dimensional synthesis of linkages to produce a given input-output motion and/or force. Prerequisite: 306. Engineering 5 or equivalent.

361 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: 262 & 259.

363 Introduction to X-Ray Diffraction (3). Principles of x-ray production, instrumentation and diffraction. Application of diffraction techniques to problems of current interest. Prerequisite: instructor’s consent.

393 Solar Energy Utilization (3). Thermal aspects of solar radiation applied to human and industrial needs. Solar energy availability, hourly, monthly, and yearly solar energy resources and storage. Passive and active solar design of buildings and homes. Prerequisite: 299.


395 Introduction to Nuclear Reactor Engineering (3). (Same as Civil Engineering 346). Nuclear reactions and raditions: neutron diffusion and slowing down, steady-state and time dependent theory; reactor control; energy removal. Prerequisite: Mathematics 304 or instructor’s consent.

398 Experimental Stress Analysis (3). (Same as Civil Engineering 353).

399 Honors Research (cr. arr.). Independent investigation to be presented as an undergraduate honors thesis. Prerequisite: honors student in Mechanical & Aerospace Engineering.

419 Principles of x-ray Diffraction (3). Principles of x-ray production, instrumentation and diffraction. Application of diffraction techniques to problems of current interest. Prerequisite: instructor’s consent.

440 Advanced Probability (3). (Same as Statistics 440).

450 Topics in Applied Mathematics (cr. arr.) Selected topics in applied mathematics drawn from a variety of areas: partial differential equations, analysis, calculus of variations, asymptotic methods, integral equations, advanced theory of transforms and distributions, numerical methods.

454 Algebraic Geometry (3). (Same as Civil Engineering 455).

459 Research (cr. arr.).

469 Theory of Functions

480 Analysis Seminar (cr. arr.).

484 Geometry Seminar (cr. arr.).

486 Topology Seminar (cr. arr.).

488 Applied Mathematics Seminar (cr. arr.)

490 Research (cr. arr.).

496 Topics in Topology (cr. arr.). Advanced topics in topology or topological algebra.

497 Topics in Topology (cr. arr.). Advanced topics in topology or topological algebra.
402 Introduction to Graduate Study (2).

400 Problems (er. arr.) Consent. Prerequisites: junior standing in music and instructor’s consent.

410 Seminar (er. arr.) Topics (er. arr.) Consent. May be repeated with departmental consent. Participant bears cost of course. Sections are: Music Theory, Music History, Composition, Performance/Pedagogy.

MUSIC THEORY

1 Fundamentals of Music I (2). Introduction to rhythm, melodic, harmonic and structural elements of music. Designed for elementary education majors. No credit for music majors.

2 Fundamentals of Counterpoint of Music I. No credit for music majors. Prerequisite: 1 or instructor’s consent.


4 Syntax, Structure and Style of Music II (4). Continued study of chromatic harmony and compositions in larger forms. Application through original composition projects. Prerequisites: 6 and 103 (or 103 concurrently).

5 Aural Training and Sight Singing II (2). Development of aural and sight singing skills. Prerequisite: 3 (or concurrently).

6 Aural Training and Sight Singing IV (2). Continued of 5.

7 Composition of canons, mass movements and motets in three or more voices. Prerequisite: 4 or instructor’s consent.

8 The symmetrical fungi pathogenic to man. Isolation and identification of the pathogens, as well as common saprophytes stressed in lecture and lab. Prerequisite: medical microbiology.

9 Research (er. arr.) Original investigations in various areas of microbiology related to bacteria, fungi, rickettsia, viruses, and animal parasites, or immunology relating to antibodies and antigens of infectious and noninfectious nature. Designed for graduate thesis research.

MILITARY SCIENCE

10 Introduction to Military Science (1). Introduction to the adventure in music and the different ways to prepare for it. Prerequisites: opportunities the Army ROTC program offers. Discussion of the Army officer’s life and career.

11 The Military and Society (1). Role of the military in American society with emphasis on role of the U.S. Army and the Army officer. Examines contemporary U.S. defense organization, policy making and efforts of armaments.

12 Land Navigation (2). Study and application of map and aerial photography. Fundamentals of military use of compass, map and nature is crosscountry navigation. Individual techniques of military science.

13 Seminar in Military Instructional Techniques (2). Study of military techniques with emphasis on practical development of the students’ teaching skills. Small unit tactical organization and operations are employed as subject matter for the practical exercise teaching method.

14 Instructional Techniques of Military Science and Leadership (2). Theories, models, behavioral patterns involved in interaction among individuals, groups and leaders. Study of contemporary behavioral theories and techniques. Introduction to ethics, standards of conduct. Leadership of squad and platoon. Leadership laboratory required.

15 Command Operations (3).

16 Techniques of Military Staff Organization and Management (3). Study of principles, structure and functions of military staffs, introduction to the military training management system, development of self and written communication in the Army. Application of leadership and communication skills at staff level.

17 Military Administration and Management of Resources (3). Study of the administration and management of the Army management system and concepts of Army administration. Allocation of limited resources to accomplish organization goals. Introduction to ethics and standards of conduct.

18 The Military and Wars in American Society (3). (same as History 262).

MUSIC GENERAL

100 Topics (2). Organized study of selected topics. Subjects vary from semester to semester. Repeatable once with departmental consent.

119 Music Travel Course (1-4). Study tour designed to broaden perspective of persons interested in music. Stress relationships of music with other arts in cultural contexts. Prerequisites: instructor’s consent. Participant bears cost of course.

300 Problems (er. arr.). Independent investigation leading to a paper or project. May be repeated for credit. Prerequisites: instructor’s consent. Sections are: Music Theory, Music History, Music Performance/Pedagogy, Composition.

301 Topics (er. arr.). Organized study of selected topics in music. Subjects and credit variable. May be repeated with departmental consent. Prerequisites: junior standing in music and instructor’s consent.

303 Problems (er. arr.). Independent investigation leading to a paper or project. May be repeated for credit. Prerequisites: instructor’s consent. Sections are: Music Theory, Music History, Music Performance/Pedagogy, Composition.

402 Introduction to Graduate Study (2). Introduction to library procedures, basic sources of information in music and techniques for research. Sections are: Music, Music History, Music Education.
APPLIED MUSIC
7 Recital/Lecture Assembly (8). Required course for all music majors (B.M. and B.S. in Music Education, except during student teaching semester) for each semester in residence, excluding the summer session. (1).
8 Consent.

426 Studies in the History of Opera (2). Significant opera works from Renaissance and Baroque periods.


428 Studies in the History of Music (2). Significant works from Renaissance and Baroque periods.


443 Elementary Choral Conducting II (1). A survey of materials and techniques of instruction for beginning choral conductors. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in music education.

448 Chamber Choir (2). Chamber orchestra (2). Seminar in Chamber Music (2). Seminar in chamber music. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in music education.

471 Elementary Classical Guitar Class (1). Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and classical songs. (1).


473 Elementary Folk Guitar Class (1). Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and classical songs. (1).

474 Advanced Classical Guitar Class (1). Development of advanced skills of folk guitar. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in music education.

10 Piano Class for Proficiency I (1). Beginning piano for music majors and concentrations only. Prerequisite: instructor's consent.

11 Piano Class for Proficiency II (1). Continuation of 10. Prerequisite: instructor's consent.

12 Elementary Gothic Guitar Class (1). Develops solo techniques found in varying modern music styles. Prerequisite: 13 or equivalent.

13 Elementary Classical Guitar Class (1). Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and classical songs.

14 Intermediate Gothic Guitar Class (1). Study of advanced techniques in the interpretation of popular and classical music. Taught on a laboratory basis. Meets twice weekly. Prerequisite: major in music education.

20 Advanced Choral Conducting (2). Advanced conducting techniques in the interpretation of choral literature; score analysis. May be repeated for credit. Prerequisite: 443 or instructor's consent.

21 Advanced Choral Conducting II (2). Advanced conducting techniques in the interpretation of band and orchestral literature; score analysis. May be repeated for credit. Prerequisite: 443 or instructor's consent.

26 Piano Pedagogy Survey I (2). Discussion of approaches for teaching young beginning and intermediate student; survey of materials and resources. Prerequisite: instructor's consent.

27 Piano Pedagogy Survey II (2). Approaches for teaching older, more advanced and class pianist; survey of materials and resources. Prerequisite: instructor's consent.

28 Piano Pedagogy Lab (1). Supervised instruction in private and class piano. May be repeated once for credit. Prerequisites: 361 & 362.

29 Music Education Laboratory (1). Laboratory for research in music education.

30 Advanced Choral Conducting (2). Advanced conducting techniques in the interpretation of choral literature; score analysis. May be repeated for credit. Prerequisite: 443 or instructor's consent.

31 Advanced Choral Conducting II (2). Advanced conducting techniques in the interpretation of band and orchestral literature; score analysis. May be repeated for credit. Prerequisite: 444 or instructor's consent.

32 Advanced Piano Pedagogy I (1). (same as Curriculum and Instruction T461). A survey of materials and techniques of instruction for beginning and more advanced piano students. Supervised private teaching concurrently. Prerequisite: major in music and music education.

33 Advanced Piano Pedagogy II (1). (same as Curriculum and Instruction T462). A survey of materials and techniques of instruction for teaching class piano, the older beginner and the advanced student. Supervised private teaching concurrently. Prerequisite: major in music and music education.

34Advanced Choral Conducting (2). Advanced conducting techniques in the interpretation of choral literature; score analysis. May be repeated for credit. Prerequisite: 443 or instructor's consent.

35 Advanced Choral Conducting II (2). Advanced conducting techniques in the interpretation of band and orchestral literature; score analysis. May be repeated for credit. Prerequisite: 444 or instructor's consent.

36 Choral Techniques (3). Study of techniques to achieve and develop choral singing and musical interpretation. Prerequisites: major in music and instructor's consent.
**NEUROLOGY**

1 Medical/Surgical Neurology (5). Required course emphasizing practical experience in diagnosis and management of nervous system disorders. Focus on role of the nurse in patient care. Includes a study of medical and surgical wards and clinics, with combined teaching conferences and didactic lecture series. Prerequisite: completion of third year of medical school.

2 Nursing Elective—Third and Fourth Years (6). Students who have completed Medical/Surgical Neurology may elect an experience in which the student participates in consultations rendered to other hospital services by the Department of Neurology. Additionally, elective opportunities exist for students at all levels after satisfactory completion of the first year of medical school. Details may be obtained from the Chairman of the Department of Neurology.

**NUCLEAR ENGINEERING**

30 Topics in Nuclear Engineering (2-5). Current and new developments in the field of nuclear engineering. Prerequisite: 104 (same as Chemical Engineering 306).

31 Safe Handling of Radioisotopes (1). Introduction of methods and procedures for safe handling of radioisotopes in the research laboratory. Includes use of experimental equipment and techniques in the operation of medical, biological and agricultural laboratories. Prerequisite: instructor's consent.

32 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 use of radiation. Laboratory exercises in radiation measurement and control. Prerequisite: satisfactory completion of Physics 124.

33 Survey of Nuclear Engineering (1). Introductory topics in nuclear engineering. Atomic and nuclear physics; nuclear reactor principles; radiation and nuclear energy; introduction to nuclear safeguards. Prerequisite: instructor's consent.

34 Nuclear Reactor Theory I (3). Radiation interactions stressing neutron and gamma radiation transport; ray theory, removal theory, multiprogress transfer shield design principles. Prerequisite: instructor's consent.

35 Nuclear Reactor Theory II (3). Nuclear reactions; fission, fusion, and fission; cross-sections for neutron and gamma interactions; fission and fission product poisoning; control rod theory; transport theory. Prerequisite: 35 or 34 in Nuclear Reactor Theory I.

36 Nuclear Reactor Theory III (3). Advanced studies in nuclear reactor theory and application. Emphasis on radiation transport processes. Prerequisite: 34 in Nuclear Reactor Theory II or instructor's consent.

37 Radiation Shielding (3). Fundamentals of radiation interactions. Stressing neutron and gamma radiation transport; ray theory, removal theory, multiprogress transfer shield design principles. Prerequisite: instructor's consent.

38 Radiation Dosimetry (3). Basis of applications of conventional physical and microprobe radiation dosimetry. Dose concepts and quantities; biological-dose-response models; dose measurement; photons, charged particle, and neutron dosimetry. Prerequisite: 34 or instructor's consent.

39 Nuclear Reactor Engineering (3). Topics from reactor heat transfer and thermal stresses, fuel cycle analysis, power plant thermodynamics, shielding, and control rod analysis. Prerequisite: 35 in Nuclear Reactor Theory II or instructor's consent.

40 Fracture Mechanics I (3). (same as Mechanical & Aerospace Engineering 434).

41 Fracture Mechanics II (3). (same as Mechanical & Aerospace Engineering 444).

42 Computational Methods of Reactor Analysis (3). Applications of numerical analysis and digital computer to problems of nuclear reactor systems. Focus on integral and differential equations, with emphasis on transport theory, control theory, nuclear reactor physics, nuclear fuel cycles, and radiation shielding concepts. Prerequisite: 34 or instructor's consent.

43 Stability Theory (3). (same as Mechanical & Aerospace Engineering 434).

44 Fatigue and Fracture Prevention in Engineering Practice (3). (same as Mechanical & Aerospace Engineering 444).

45 Nuclear Reactor Kinetics and Control (3). Nuclear reactor kinetics equations; linear feedback systems; stability criteria; reactor transfer functions; and nuclear systems analysis; analog simulation; non-linear reactor kinetics; statistical control reactor and reactor noise. Inertial and thermal feedbacks.

46 Neutron Transport Theory (3). The Boltzmann equation: general properties and solution; numerical methods of solving the transport equation; neutron thermalization and neutron spectra. Prerequisites: 34, 41, 126. Mathematics 302, 307, or instructor's consent.

47 Fast Reactor Analysis (3). Analytical methods for designing fast reactor systems. Prerequisite: 41, 42, 43, or instructor's consent.

48 Radiation Protection (3). Theory and applications of radiation protection and related problems. Focus on computational and experimental methods, shielding evaluations, equipment surveys and inspection, radiological monitoring, radiation standards and regulations, and radiation protection. Prerequisites: 303 or 328.

90 Research: Independent study in nuclear engineering to be presented as a thesis.

**NURSING**

71 Concepts of Nursing (2). Introduces nursing as a professional practice discipline with historical, social, legal and ethical aspects. Considers research methods and findings in context of conceptual definition of nursing. Relates nursing to individuals and groups served. Prerequisite: 90 Nursing Process, Theory, and Assessment (6). Focuses on role theory, structure, health care system, ethical concerns and self-care as they relate to professional practice. Explores methods of assisting. Prerequisite: RN students only.

102 Nursing in Multisystem (2). Examines role nurses in focused on a selected system, e.g., pediatrics. Prerequisite: 142. Concurrent: 143, 144. Emphasis on role of the nurse as a nurse. Prerequisite: RN students only.


150 Nursing in Child Health Deviations (5). Considers role of the nurse in a selected system, e.g., pediatrics. Emphasizes role of the nurse in preventive care. Emphasizes role of the nurse in maintenance of health. Role of healthy children as self-careers and of health care system in managing health problems. Prerequisite: History and political science, Psychology 102.

152 Socialization and Professional Nursing (3). Examines role theory, structure, health care system, ethical concerns and self-care as they relate to professional practice. Explores methods of assisting. Prerequisite: RN students only.

141 Pathology and Therapeutics I (3). Considers impact of disease on the nursing process. Examines role of the nurse in admission procedures and continuity of care. Focuses on role of the nurse in preventive care. Emphasizes role of the nurse in maintenance of health. Prerequisite: History and political science, Psychology 102.

142 Methods of Assisting I (3). Develops skills in assisting selected clients throughout life cycle. Self-instructional activities in medical technology laboratories. Selected field experiences used to achieve foundation of selected assisting skills. Prerequisite: 73, F.W. Concurrent: 102, 143, 152.


144 Methods of Assisting II (3). Develops skills in assisting selected clients throughout life cycle. Self-instructional activities in medical technology laboratories. Selected field experiences used to achieve foundation of selected assisting skills. Prerequisite: 73 or instructor's consent. Concurrent: 102, 143, 152.


OPHTHALMOLOGY

Ophthalmology Elective-Senior Students--8 Weeks (O). Ophthalmology elective—senior students—8 weeks. Senior students who elect this course are assigned to the service as junior residents, so that they may take part in all clinical and teaching functions of the department.

Postgraduate Instruction (O). The department is approved for a formal three-year residency training program.

PATHOLOGY

A Pathology Elective (10). Any medical student in the elective period may make special arrangements with the department to do research on a subject of interest.

Postgraduate Instruction (O). Advanced graduate and post-graduate instruction in pathology (both short term and long term, varying from 1 4 to 6 years). Residencies are available to qualified physicians by arrangement.

Ophthalmology Female Genital Tract (18). 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.

Ophthalmology Gastrointestinal (4). A definitive study of the normal and abnormal cellular changes occurring within the organ system by means of light microscopy, with histologic correlation. Prerequisite: instructor's consent.

Ophthalmology 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.

Ophthalmology Gastrointestinal (4). A definitive study of the normal and abnormal cellular changes occurring within the organ system by means of light microscopy, with histologic correlation. Prerequisite: instructor's consent.

Ophthalmology Oral (2). Studies normal and abnormal changes within the oral cavity and oropharynx by means of light microscopy, with histologic correlation. Prerequisite: instructor's consent.

Ophthalmology Urinary (4). Studies normal and abnormal cellular morphology from kidney, ureter and bladder samples, with histologic correlation. Prerequisite: instructor's consent.

Ophthalmology Special Problems in (2). Relating hematologic and morphologic findings in conventional body fluid cytology; also review of techniques employed in chromosome studies and karyotyping, with emphasis on sex-related abnormalities.

Ophthalmology Basic Pathology (2). Provides nonmedical students with a general survey of the essential nature of disease, including mechanisms of disease involvement and response to therapy. Prerequisite: 3 hours of biology or equivalent and 5 hours of chemistry.

Ophthalmology General and Clinical Pathology, Second Year (8). Integrated study of fundamental pathological mechanisms of disease; effect on organ systems. Clinical laboratory measurement of altered organ function begun. Prerequisite: first year Medical School or equivalent.

Ophthalmology Systemic and Clinical Pathology, Second Year (8). Integrated study of organ system diseases and their clinical laboratory manifestations. Emphasis on developing critical thinking skills. Open only to medical students. Prerequisite: 210M or equivalent.

Ophthalmology Interpretation 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.

Ophthalmology General Pathology (5). Basic pathological mechanisms of human disease. Introductory principles of clinical laboratory measurements of altered organ system function studied. Prerequisites: Biochemistry 206, Physiology 250, Anatomy 301, 302, 304, 305; & instructor's consent.

Ophthalmology General Pathology Laboratory (3). Gross and microscopic applied study of basic pathological disease mechanisms, Laboratory assessment of these basic disease mechanisms. Prerequisites: Biochemistry 206, Physiology 250; Anatomy 301, 302, 304, 305; or the equivalent.

Ophthalmology Advanced Pathology (2). Demonstration and study of gross, microscopic and clinical laboratory pathology of major human organ systems. Prerequisites: 310 & 311 or equivalent & instructor's consent.

Ophthalmology Advanced Pathology Laboratory (3). Demonstration and simulation of character of work depend upon needs, qualifications, and of major human organ systems. Prerequisite: 310 & 311 or equivalent & instructor's consent.

Ophthalmology Advanced Pathology (cr. arr.). Graduate course in which amount and character of work depend upon needs, qualifications, and interests of student. Prerequisite: instructor's consent.

Ophthalmology Comparative Pathology (3). (same as Pathology 430, Veterinary Pathology 430).

Ophthalmology Research (cr. arr.). Open only to properly qualified graduate students, with counsel of faculty. Includes preparation of dissertation.

PHARMACOLOGY

50 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, f.w.

100 History of Modern Europe (3-4). (same as History 100).

111 The World of the Middle Ages (3). (same as History 111).

112 The Man and the City (3). (same as History 112).

139 Russia in Modern Times (3). (same as History 139).

141 Late Imperial China: China Enters the Modern World (3). (same as History 141). Survey of China under the Manchu Ch ing dynasty. Within framework of the dynamic cycle, examine imperial rule, Chinese society, culture, art, internal rebellion, Western intrusion, modernization. Prerequisite: sophomore standing.

151 Politics and the Military (3). (same as Political Science 151).

160 Social Bases of War and Peace (3). (same as Sociology 160).

171 Group Communication (3). (same as Speech & Dramatic Arts 171).

183 Undergraduate Seminar IV (3). Images of War and Peace. Study of war and peace in philosophical and religious systems, film, poetry, art, fiction, and the media. Prerequisite: 50 or consent of instructor.

184 Senior Thesis I (3). Prerequisite: consent of Peace Studies Committee.

185 Senior Thesis II (3). Prerequisite: consent of Peace Studies Committee.

195 Research (cr. arr.) (same as Political Science 195).

200 Military and War (3). (same as History 200).

201 The Study of War and Peace (3). (same as Anthropology 201).

230 Introduction to Peace Studies (cr. arr.) (same as Anthropology 230).

230 Principles of Drug Action (1). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action I (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action II (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action III (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action IV (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action V (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action VI (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action VII (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action VIII (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action IX (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.

230 Principles of Drug Action X (3). A course for graduate students in pharmacy, pharmacology, toxicology, and related fields emphasizing the physiological and biochemical principles of drug action. Discussion format. Prerequisite: 330 or instructor's consent.
120 Philosophy of Religion (3). Considers basis for and nature of religious concepts and beliefs, and the logical and philosophical implications of religions of religion, psychoanalysis and religion, mysticism and myth. Prerequisite: sophomore standing.

130 The Nature of Human Existence (3). Human existence, its nature, condition, foundations and significance, according to contemporary philosophers such as existentialism, pragmatism, Marxism, positivism, Thomism, process philosophy, religious personalism, etc. Students are expected to formulate their own self-conceptions. Prerequisite: sophomore standing.

135 Ethics and the Professions (3). Examination of ethical issues confronting the professions. Topics include: medicine, law, business and engineering are considered. Prerequisite: sophomore standing.

140 Special work for Honor candidates.

199 Honors II (3). Special work for Honors candidates.

202 Medieval Philosophy (3). Major thinkers from St. Augustine through 14th century Ockhamians. Prerequisite: sophomore standing.


207 Elementary Logic (3). Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements. Prerequisite: sophomore standing.

208 Kant to Hegel (3). Focus on the philosophical accomplishments of this very brief and yet extremely fertile period of the Enlightenment's transformation through Romanticism. Prerequisite: sophomore standing.

209 19th Century Philosophy (3). An examination of the more major thinkers of this period, notably Kierkegaard and Nietzsche. Prerequisite: sophomore standing.

210 Philosophical Ideas in Literature (3). Metaphysical, ethical, religious ideas embodied in literary classics from Plato and Lucretius to Dostoevsky and Nietzsche. Prerequisite: sophomore standing.

213 Existentialism (3). Existential ideas in Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, Tillich. Prerequisite: sophomore standing.

214 Ethical thinking in the Teaching of Philosophy (2). Critical analysis and presentation of material, plan courses, select tests. Supervised practice teaching.

230 Seminar in Aristotle (1-3). Offered in a wide variety of topics. May be repeated for credit. Prerequisite: junior standing.

231 Seminar in Plato (1-3). Advanced studies in Plato; emphasis on recent scholarship.

232 Seminar in Aristotle (1-3). Advanced studies in Aristotle; emphasis on recent scholarship.

235 Problems in Metaphysics (1-6). Different topics studied alternate years. May be taken twice for credit.

237 History of Ancient Greek Thought (3). Works of Plato, Aristotle, Kant, and Croce on art and beauty.

238 Problems in Political Theory (1-4). Critical analysis and philosophical implications of political philosophies, and recent discussion of philosophies and the nature of law. May be repeated for credit.

239 Seminar in Political Philosophy (1-6). Different topics studied in alternate years. May be taken twice for credit.

241 Seminar in Aristotle (1-3). Ethical works of Plato, Aristotle, Aquinas, Spinoza, Kant, Mill, and Nietzsche.

242 Continental Rationalism (3). Works of Descartes, Spinoza, Leibnitz.


244 Kant (1-3). Kant's Critique of Pure Reason; his contribution to ethical theory.

245 Problems in Social and Political Philosophy (1-6). Selected topics in social and political philosophy.

246 Seminar in Logic (1-4). Critical examination of selected topics from the history and theory of logic.

247 History of Ethics (1-3). Comparative study of intuition and other methods, temporal and nontemporal reality, natural religion.

248 Existentialism and Phenomenology (1-3). Comparative study of intuition and other methods, temporal and nontemporal reality, natural religion.

250 Intermediate Logic (3). Critical examination of so-called "alternative" logical systems; their problem areas, critiques and consequences. Prerequisite: sophomore standing.

302 Philosophy of Science (3). Critical analysis of methods and presuppositions of science. Prerequisites: junior standing & 10 hours science.

303 Selected Modern Philosophers (3). Reading of 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.

305 Philosophy of Mind (3). Examines problems and issues in the philosophy of mind, focusing on the works of such recent philosophers as Ryle, Strawson, Hampshire and Wittgenstein. Prerequisite: junior standing.

310 Logical Theory (3). Critical examination of subject matter and task of logic as seen from the traditional point of view and from that of symbolic logic, inductive logic, idealism, pragmatism, realism. Prerequisites: junior standing & course in logic.

320 Philosophy of Law (3). What is law? Are there pre- or trans­lational rights? Is punishment justifiable? How can judicial decisions be justified? Prerequisite: junior standing.

321 Medieval Political Philosophy (3). Survey of major philosophical issues posed by developments in biological sciences and medical technology. Topics may include: genetic engineering, abortion and euthanasia, distribution of health care resources. Prerequisite: junior standing.

323 Philosophy of Life (3). What is love? Are there pre- or translational rights? Is punishment justifiable? How can judicial decisions be justified? Prerequisite: junior standing.

324 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.

325 Special Readings (1-3). Prerequisite: junior standing.

326 The Transformation of Culture Through Romanticism. Prerequisite: sophomore standing.

330 Survey of Philosophical Ideas in India, China and other centers. Prerequisite: junior standing.

331 Latin American Philosophy (3). Examines philosophical and related ideas in Latin America. Prerequisite: course in philosophy or 314. Two classes weekly.

332 Philosophy of India (3). Same as South Asia Studies 362). General development of Indian philosophy. Prerequisite: junior standing.

333 Analytic Philosophy (3). Same as Linguistics 364). Writings of Russell, Moore, Ayer, Carnap, Ryle, Austin and Wittgenstein. Prerequisite: junior standing.

334 Classical Theories in Ethics (3). A survey of classical approaches to traditional problems of ethics: the nature of moral obligation; the nature of good and evil; the nature of the good life. Mill, Hume and Kant are among the philosophers considered. Prerequisite: junior standing.

335 Ethics and the Teaching of Philosophy (2). Discusses presentation of material, plan courses, select tests. Supervised practice teaching.

340 Seminar in Aristotle (1-3). Offered in a wide variety of topics. May be repeated for credit.

341 Seminar in Plato (1-3). Advanced studies in Plato; emphasis on recent scholarship.

342 Seminar in Aristotle (1-3). Advanced studies in Aristotle; emphasis on recent scholarship.

343 Problems in Metaphysics (1-6). Different topics studied alternate years. May be taken twice for credit.

344 History of Ancient Greek Thought (3). Works of Plato, Aristotle, Kant, and Croce on art and beauty.

345 Problems in Political Theory (1-4). Critical analysis and philosophical implications of political philosophies, and recent discussion of philosophies and the nature of law. May be repeated for credit.

346 Problems in Political Philosophy (1-6). Different topics studied in alternate years. May be taken twice for credit.

347 History of Ethics (1-3). Ethical works of Plato, Aristotle, Aquinas, Spinoza, Kant, Mill, and Nietzsche.

348 Continental Rationalism (3). Works of Descartes, Spinoza, Leibnitz.

349 British Empiricism (1-3). Philosophies of Locke, Berkeley, Hume.

350 Kant (1-3). Kant's Critique of Pure Reason; his contribution to ethical theory.

351 Problems in Social and Political Philosophy (1-6). Selected topics in social and political philosophy.

352 Seminar in Logic (1-4). Critical examination of selected topics from the history and theory of logic.

353 Scholasticism (1-3). An introduction to classical and contemporary approaches to the problems of metaphysics: ontology, cosmology and theology. The relationships of the problems to other philosophical areas: metaphysics, epistemology and ethics are considered. Prerequisite: junior standing.

354 Theories of Knowledge (3). Study of major issues in epistemology. The nature and limits of knowledge, the limits of knowledge. Prerequisite: junior standing.

355 Symbolic Logic (3). Same as Linguistics 314). Fundamental operations in variety of recent systems of logic using symbolic techniques. Prerequisite: junior standing.

356 Intermediate Logic (3). Critical examination of so-called "alternative" logical systems; their problem areas, critiques and consequences. Prerequisite: sophomore standing.

357 Aesthetics (3). Typical components of art; theories of art as representation, form, expression; relation of art to value. Prerequisite: junior standing.

358 Advanced Symbolic Logic (3). Analyzes formal systems with respect to such properties as consistency and completeness. Prerequisite: 314.

359 Philosophy of Science (3). Critical analysis of methods and presuppositions of science. Prerequisites: junior standing & 10 hours science.

360 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.

362 Philosophy of India (3). Same as South Asia Studies 362). General development of Indian philosophy. Prerequisite: junior standing.

363 Analytic Philosophy (3). Same as Linguistics 364). Writings of Russell, Moore, Ayer, Carnap, Ryle, Austin and Wittgenstein. Prerequisite: junior standing.

366 Classical Theories in Ethics (3). A survey of classical approaches to traditional problems of ethics: the nature of moral obligation; the nature of good and evil; the nature of the good life. Mill, Hume and Kant are among the philosophers considered. Prerequisite: junior standing.

368 Problems in Political Philosophy (1-6). Different topics studied in alternate years. May be taken twice for credit.

369 Seminar in Political Philosophy (1-6). Different topics studied in alternate years. May be taken twice for credit.

371 History of Ethics (1-3). Ethical works of Plato, Aristotle, Aquinas, Spinoza, Kant, Mill, and Nietzsche.

372 Continental Rationalism (3). Works of Descartes, Spinoza, Leibnitz.

373 British Empiricism (1-3). Philosophies of Locke, Berkeley, Hume.

374 Kant (1-3). Kant's Critique of Pure Reason; his contribution to ethical theory.

375 Problems in Social and Political Philosophy (1-6). Selected topics in social and political philosophy.

376 Seminar in Logic (1-4). Critical examination of selected topics from the history and theory of logic.

377 Scholasticism (1-3). An introduction to classical and contemporary approaches to the problems of metaphysics: ontology, cosmology and theology. The relationships of the problems to other philosophical areas: metaphysics, epistemology and ethics are considered. Prerequisite: junior standing.

378 Theories of Knowledge (3). Study of major issues in epistemology. The nature and limits of knowledge, the limits of knowledge. Prerequisite: junior standing.

379 Symbolic Logic (3). Same as Linguistics 314). Fundamental operations in variety of recent systems of logic using symbolic techniques. Prerequisite: junior standing.

380 Intermediate Logic (3). Critical examination of so-called "alternative" logical systems; their problem areas, critiques and consequences. Prerequisite: sophomore standing.

381 Aesthetics (3). Typical components of art; theories of art as representation, form, expression; relation of art to value. Prerequisite: junior standing.
R303 Teaching of Gymnastics (2). Analysis of dance patterns and motions, methods of instruction, practice teaching in, team, safety and social. Prerequisite: R282.
R331 Psychology and Sociological Perspectives of Sports (2). An introduction to psychological concepts relating to physical performance, sport and athletics; relationships between movement forms and socialization processes; social control, conflict, change and stratification. Prerequisite: Junior standing.
R356 Intramural Sports (2). Instructional activities related to interpersonal communication, decision-making ability and clarification of values. Course is designed for both teachers and health-care personnel. Prerequisite: H125.
R358 Organizational and Administration of Physical Education Programs (2). A social science study of the basic elements of organization and administration of physical education programs, with particular reference to the determination of standards. Prerequisites: H119 or equivalent.
R377 Teaching of Individual and Dual Sports (2). Prepares teachers of physical education in techniques, methods and materials for individual and dual sports. Prerequisite: Junior standing.
R373 Teaching of Physical Education in Techniques, methods and materials for team sports. Prerequisite: Junior standing.
R385 Driver Education. Introductory course in the preparation of teachers of driver education in secondary schools. Includes classroom instruction in the basic knowledge of driving and laboratory experience in basic skills of driving.
R406 Advanced Driver Education (2). Advanced course in the preparation of teachers of driver education. Modern teaching techniques in the classroom; driving simulators; testing range; in-car supervision. Prerequisites: Education Psychology A102, Anatomy 201 or Physiology 201, or instructor's consent.
R401 Organization and Administration of Health Education Programs (2). An introduction to problems, methods of organization and administration of health education programs, relative to use of facilities, schedule of activities, budget, personnel, purchase and care of equipment. Prerequisite: Introductory course in Health and Physical Education (I-8).
R398 Supervised experience in an approved setting. Approval is based upon the recommendation of the student's degree objective and advisor's consent. R399 Introduction to Physical Therapy (3). The biological, 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.
R400 Professional Literature in Physical Education (3). Critical examination of physical education activities, programs leading to certification of general, special curricula for schools. Prerequisite: H119.
R401 Intramural Sports (2). Consideration of objectives, principles of administration in intramural sports in high schools, colleges. Prerequisites: Physical Education A102, Anatomy 201 or Physiology 201, or instructor's consent.
R403 Developmental and Physiological Aspects of Sport (2). Relations of muscular activity to bodily development. Efficiency. Prerequisite: Anatomy 201.
R409 Physiological and Sociological Perspectives of Sports (2). Analysis of dance patterns and motions, methods of instruction, practice teaching in, team, safety and social. Prerequisite: Junior standing.
R410 Seminar in Physical Education (1-3). Study of current research and issues in health and physical education. Prerequisite: H65 or equivalent.
R414 Sports Officiating (2). Principles and practice of physical education, recreation and motor sport for the exceptional child and adult. Prerequisite: Educational Psychology A102, Anatomy 201 or Physiology 201, or instructor's consent.
R423 Professional Literatures in Physical Education. Role and application of motor activities in the physical and educational development of children and youth. Prerequisite: Educational Psychology A102, Anatomy 201 or Physiology 201.
R425 Exercise Physiology (2). Effects of exercise on the human organism; physiologic capacity and limitation for activity; role of exercise in health and fitness. Prerequisites: Anatomy 201 and Physiology 201.
R430 Problems (1-3). Studies professional programs and issues in health or physical education. Prerequisite: instructor's consent.
R431 Administration of Athletics (2). Organization, management of interscholastic, intercollegiate athletics.
R432 Health Education in the Elementary School (3). Defines practice of health education in the elementary school; investigates health needs of school children; focuses on teaching strategies, health resources and development of elementary school health education curricula and materials.
R436 Advanced Rhythmic Structure and Dance Accompaniment (2). Analysis and synthesis of movements, with selection and experience in various accompaniments. Prerequisite: senior standing.
R437 Dance Composition and Production (3). Perception-Motor Development and the Severely Handicapped Child (3). Study of the experimental and experiential research concerning reflex integration and perceptual-motor development and the severely handicapped child. Prerequisites: Special Education L339 and departmental permission.
R438 Outdoor Education Programs (3). Use of the outdoors in teaching in the regular school program; development of field study and teaching materials: administrative aspects of teaching outdoors; research and evaluation of outdoor education. Meets 6 hours weekly.
R449 Practicum in Outdoor Education (1-2). Appropriate selected experiences in observation and supervised teaching in outdoor education, establishment of programs and institutions, under the direction of qualified professionals.
R450 Topics in Health and Physical Education (1-3). Social, psychological, and physiological perspectives of health education, 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: H125.
R453 The School Curriculum in Physical Education (2). Critical examination of physical education activities, programs leading to certification of general, special curricula for schools. Prerequisite: H119.
R466 Intramural Sports (2). Consideration of objectives, principles of administration in intramural sports in high schools, colleges. Prerequisites: Physical Education A102, Anatomy 201 or Physiology 201, or instructor's consent.
R469 Sports Officiating (2). Principles and practice of physical education, recreation and motor sport for the exceptional child and adult. Prerequisite: Educational Psychology A102, Anatomy 201 or Physiology 201, or instructor's consent.
R473 Developmental and Physiological Aspects of Sport (2). Relations of muscular activity to bodily development. Efficiency. Prerequisite: Anatomy 201.
R479 Physiological and Sociological Perspectives of Sports (2). Analysis of dance patterns and motions, methods of instruction, practice teaching in, team, safety and social. Prerequisite: Junior standing.
R485 Exercise Physiology (2). Effects of exercise on the human organism; physiologic capacity and limitation for activity; role of exercise in health and fitness. Prerequisites: Anatomy 201 and Physiology 201.
R489 Professional Literature in Physical Education (3). Critical examination of physical education activities, programs leading to certification of general, special curricula for schools. Prerequisite: H119.
R490 Research in Physical Education (cr. arr.).
190 Honors Seminar (cr. arr.) Presentation of topics of current interest in physics by staff and students at junior-senior level.
196 Honors Problems in Physics (cr. arr.)
201 Introduction to Modern Astrophysics (3, same as Astronomy 201).
202 Astronomical Observations and Measurements (2, same as Astronomy 202).
215 Intermediate Modern Physics II (3), Introduction to low-energy neutron scattering to investigate structure and dynamics of aggregate matter including lattice vibrations, ordered spin systems, spin waves, diffusive motions in liquids: experimental techniques discussed. Prerequisite: 415.
261 Research (cr. arr.) Selected experiments in advanced physics or selected topics in advanced reading. Report required. Does not lead to dissertation.
275 Stellar Interiors (3, same as Astronomy 452).
281 Dynamics (3), Hamilton's principle and Weis's principle; interplay of dynamics and symmetry. Lagrangian, Hamiltonian, Hamilton-Jacobi formulations applied to point particles, rigid bodies, small oscillations, celestial mechanics, fluids and (continuous) systems.
Prerequisite: instructor's consent.
471 Quantum Mechanics I (3), Basic definitions, axioms, exact solutions to the non-relativistic Schrödinger's equation, angular momentum, and perturbation theory. Prerequisite: 461.
472 Quantum Mechanics II (3), Approximation methods, semiclassical treatment of radiation, identical particle systems, scattering theory, relativistic quantum mechanics, and introduction to quantum field theory. Prerequisite: 471.
473 Quantum Mechanics III (3), Quantum theory of fields; discussions on quantization of the Klein, Gordon, Dirac, and Maxwell fields. Reduction methods, Feynman perturbation theory, applications to quantum electrodynamics. Prerequisite: 472. w.
478 Topics in Solid State Theory (3). Selected topics in solid state theory, including various elementary excitations in solids and their interactions.
486 Theory of Elementary Particles (3), Invariance principles: parity, charge conjugation, time reversal, isotopic spin, g-parity, SUR, etc. Variational methods, perturbation theory, and dispersion relations. Prerequisite: 473 or instructor's consent.
490 Research (cr. arr.) Work for preparation of dissertation for master or doctor's degree.

ASTRONOMY
1 Introduction to Astronomy (4), Survey of methods of astronomy; history, instrumentation, observational techniques. Prerequisites: 201, 314.
2 Introduction to Modern Astronomy (2), Laboratory supplement to I. satisfies physical science laboratory requirement. Survey of astronomical methods, instruments, observations and measurement techniques.
3 Modern Physics I (3), Special relativity and elementary wave mechanics. Schrödinger equation for harmonic oscillator and hydrogen-like atoms discussed in detail. Prerequisite: instructor's consent. Recommended: Mathematics 175; Mathematics 201.
314 Electricity and Magnetism I (3), Survey of field of electricity and magnetism for students covering subjects not included in courses regularly offered.
315 Solar System Astrophysics (3). Elements of astronomical observational techniques and procedures for reduction of astronomical data: theory of the photographic plate. Emphasis on development of observing skills through use of the telescope. Prerequisite: 201 or equivalent.
325 Stellar Astrophysics (3, same as Astronomy 325).
335 Galactic Astronomy (3, same as Astronomy 335).
340 Extragalactic Astronomy (3, same as Astronomy 340).
370 Introduction to Methods in Mathematical Physics (3), Introduces mathematical concepts and computational tools used in research methods. Topics usually not covered in formal curricula are complex analysis, partial differential equations, integral equations and tensor analysis. Prerequisite: Mathematics 304.
375 Stellar Astrophysics (3, same as Astronomy 325). Lecture and laboratory courses in modern computational techniques in solving a wide variety of problems in solid state, nuclear, and quantum description of systems. Prerequisite: 215.
380 Modern Physics II (3), Special relativity and elementary wave mechanics. Schrödinger equation for harmonic oscillator and hydrogen-like atoms discussed in detail. Prerequisite: instructor's consent. Recommended: Mathematics 175; Mathematics 201.
390 Research (cr. arr.) Opportunities for research in astronomy leading to dissertation.
400 Research (cr. arr.) Research in physics, leading to dissertation.

PLANT PATHOLOGY
305 Introduction to Plant Pathology (3, same as Forestry, 105). Principles of infection by biotic and abiotic agents that cause plant disease, and current approaches to disease control. Prerequisite: minimum of 5 hours of college chemistry.
306 Soil Microbiology (4, same as Biological Sciences 304). Introduction to soil microbiology, including the growth and development of microorganisms in soil and their role in nutrient cycling and disease suppression. Prerequisite: 101 or Biology 101 or instructor's consent.
313 Plant Physiology II (3, same as Plant Physiology 313). Introduction to the physiology of plants, including their response to environmental stimuli and their role in the agricultural and horticultural industries. Prerequisite: 312 or instructor's consent.
317 Genetics of Plant Disease Development (3, same as Biological Sciences 369).
319 Plant Pathology Field Survey (2, same as Pest Management 319). Principles of pest management, identification of biotic and abiotic agents that cause plant disease, and current approaches to disease control. Prerequisite: 305 or equivalent. w. 1/2 semester, 3 lectures, 1/2 laboratory weekly.
325 Diseases of Ornamentals and Turf (2, same as Horticultural Sciences 328). Study of the diseases of ornamental plants and turf. Prerequisite: 335 or equivalent. w. 1/2 semester, 3 lectures, 1/2 laboratory per week.
361 Insects in Relation to Plant Diseases (3, same as Entomology 361). Principles of insect transmission and dissemination of plant pathogens. Lectures, laboratory. Prerequisite: 325 or Entomology 101 or Entomology 210 or instructor's consent. w. 1/2 semester.
374 Genetics of Plant Disease Development (3, same as Biological Sciences 369).
391 Plant Pathology Field Survey (2, same as Pest Management 319). Principles of pest management, identification of biotic and abiotic agents that cause plant disease, and current approaches to disease control. Prerequisite: 305 or equivalent. w. 1/2 semester, 3 lectures, 1/2 laboratory weekly.
393 Plant Pathology Field Survey (2, same as Pest Management 319). Principles of pest management, identification of biotic and abiotic agents that cause plant disease, and current approaches to disease control. Prerequisite: 305 or equivalent. w. 1/2 semester, 3 lectures, 1/2 laboratory per week.
395 Plant Pathology Field Survey (2, same as Pest Management 319). Principles of pest management, identification of biotic and abiotic agents that cause plant disease, and current approaches to disease control. Prerequisite: 305 or equivalent. w. 1/2 semester, 3 lectures, 1/2 laboratory weekly.
396 Plant Pathology Field Survey (2, same as Pest Management 319). Principles of pest management, identification of biotic and abiotic agents that cause plant disease, and current approaches to disease control. Prerequisite: 305 or equivalent. w. 1/2 semester, 3 lectures, 1/2 laboratory per week.
40 Problems (er. arr.) Advanced individual studies; minor research problems. I, w.

41 Topics (er. arr.) Specialized topics in advanced plant pathology available through regularly offered courses.

45 Plant Virology (2). Principles of plant virus biology, structure, and pathogenesis. Prerequisites: 305 or equivalent, and 3 hours of molecular or equivalent. First half winter.

51 Plant Bacteriology (2). Detailed study of diseases caused by bacteria; infection process, establishment of host pathogen complexes, basic defense mechanisms against bacteria. Types of bacterial diseases. Prerequisites: 305 or equivalent, and 3 hours of microbiology or equivalent. Second half winter.

52 Topics of Plants (Fungi) (3). First 9 weeks. w.

60 Genera Fungi Imperfecti (3). (er. as Biological Science 307). Condensed monogous-based system examined for basis of dermatomyces cottons. Covers representative ascomycotic fungi but not human pathogens. Prerequisite: Equivalent of Botany 441.


62 Biochemistry and Physiology of Plant Diseases (3). Physiology of infectious plant diseases; physical/chemical plant surface interactions; host-pathogen interactions. Topics selected from: 305. Biological Sciences 313 & Chemistry 210. alt. f. odd yrs.

63 Experimental Plant Disease Physiology (4). In-depth discussion of recent concepts in area of host-pathogen interactions. Laboratory experiments provide experience with techniques used to measure physiological changes in the diseased plant. Prerequisites: 411, organic chemistry, microbiology, biochemistry and instructor's consent. alt. w. odd yrs.

64 Transport and Metabolism of Plant Nutrients (3). (as Agromy 416). Current concepts in ion transport across plant membranes and translocation of nutrients in the plant; nitrogen fixation and the function of plant nutrients; and stress caused by imbalance of mineral elements and/or pathogens. Prerequisites: Biological Sciences 330 in Agromy 315 and Biochemistry 270 & 272. alt. f. odd yrs.

65 Comparative Pathology (3). (as Veterinary Pathology 430, Pathology 430).

67 Research (er. arr). Research not expected to terminate in dissertation.

68 Electromicroscopy (1). (as Veterinary Pathology 451). Basic principles of electron microscopy; emphasis on biochemical applications. Prerequisites: graduate status & instructor's consent.

69 Transmission Electron Microscopy Laboratory (4). (as Veterinary Pathology 452). Provides experience with current techniques and instrumentation with emphasis on applications of transmission electron microscopy to pathological research. Prerequisites: graduate status, 451 and instructor's consent.

70 Scanning Electron Microscopy Laboratory (3). (as Veterinary Pathology 453). Basic principles of scanning electron microscopy instrumentation and current procedures required for scanning electron microscopic analysis of physical and biological materials. Prerequisites: graduate status, 451 and instructor's consent. May be taken concurrently with 452. Second half winter.

71 Research (er. arr.) Independent investigation in field of plant pathology to be presented as a thesis.

POLITICAL SCIENCE

1 American Government (3-5). Topics covered include Constitution, institutions, political processes, interest groups, political parties, nominations, elections, campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirements.

1 Introduction to Political Science (3). Introduces scope and nature of political science: theory and operation of democracy and nondemocratic governments. Meets state law constitutional requirement. Students may count course as one, two, or three units.

1 International Relations (3). Contemporary international affairs affecting family of nations, control of national foreign policies, role of the United Nations, and cooperation in legal, political, economic, social, and cultural affairs.

1 Topics (3-6). Organization of selected topics. Subjects and credit may vary from semester to semester. Repeatable upon departmental consent.

1 State Government (3). Government and politics at the state level, with emphasis on Missouri.

1 Campaign Finance (3). Analysis of role played by organized political parties and courts in democratic policy formation.

1 Comparative Political Systems (3). Analysis of major political systems of the Western world, Latin America, and major political systems of Europe, Asia, Africa, and Oceania. Emphasis on basic concepts of comparative political study. Prerequisite: 1 or 1.

1 Politics and the Military (3). (as Social Science 151). Dynamics of contemporary civil-military relations; the military industrial complex and the military regime. Also deals with military as an interest group and as a modern socializing agent.

1 Comparative Political Systems (3). (as History 181). Asian political systems. Introduction of selected civilizations of China and Japan. 

1 Promoter in Political Science (1-3). For political science honors candidates. Analyzes content, methods, and problems of the discipline using classical and contemporary writing. Normally taken in junior or senior years.

1 Honors (1-6). Special reading reports, in the several fields of political science. For political science honors candidates.

1 Current Issues in American Politics (3). Investigation primarily through reading and discussion of contemporary issues in American politics. Content varies. Prerequisite: 1 or 1.

1 Topics in Political Theory (3). (as Political Science 315). Selected systems and issues in political theory, specific subject matter. Representative seminar topics. Prerequisite: 1 or 1.

1 Classical Political Thought (3). Origin and development of political theory; nature of justice; ethics and politics; political regimes and types; government and the rule of law; Christian natural law concepts; and church-state relations. Prerequisite: junior standing or instructor's consent.

1 Modern Political Thought (3). Political theory of modern state; political thought in the United States; political theory f. political thought in Germany, France, England, and Italy. Prerequisite: 1 or 1.

1 Special Problems (er. arr.). Independent investigation to meet the needs of the individual student. Prerequisite: instructor's consent.

1 900 (1-3). Organized study of selected topics. Subjects and credit vary from semester to semester. Repeatable with departmental consent. Prerequisite: junior standing & instructor's consent.

1 Politics and War (3). (as same as Peace Studies 303). Why do wars occur? The functions of force and uses of threat of force. Problems of national security strategy and arms control.

1 Political Parties (3). Development, organization, functions, activities of major and minor political parties, pressure groups; election administration, especially in the United States. Prerequisites: junior standing; 1 or 1.

1 Municipal Government (3). Study of government of cities; political organization and urban problems. Prerequisites: 1 or 1, junior standing.

1 Political Campaigns and Voter Behavior (3). The role of elections in a democracy, the bases on which voters make decisions, and the principles and procedures of managing campaigns, including the gathering of campaign money, workers and other resources. Prerequisite: 1 or equivalent.

1 Comparative Urban Politics (3). Comparing political processes in metropolitan areas of the United States and those in other cultural settings. Includes an examination of political participation, conflict, influence and relationships of political and social organization in urban areas.

1 Introduction to Public Administration (3). Surveys recurring themes, trends, and institutions in public administration. An introduction to public administration with particular attention to U.S. public bureaucracies. Core.

1 Administrative Law and Regulation of Business (3). Role of administrative agencies in development of regulatory policy in the U.S.

1 Issues in Public Bureaucracy (3). Investigates selected political and administrative problems affecting public bureaucratic units. Context varies.

1 American Foreign Policies (3). Basic framework, evaluation, current American foreign policies. Prerequisite: upper-class standing.

100 Political Parties (3). (as History 181). government, and the role of government in the United States. Analyzes public policy choices of national, state, and local governments and the variety of forces which serve to shape policy decisions.

1 Comparative State Politics (3). Analyzes similarities and differences of state politics and the ways in which such political systems are shaped by political and socioeconomic environments of the states.

1 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 on the political aspects of the market reform movement.

1 The American Constitution (3). Leading American constitution- al principles as they have evolved through important decisions of the United States Supreme Court. Prerequisite: 1 or 1.

1 The Constitution and Civil Rights (3). Civil rights in American constitutional context emphasizing freedom of religion, freedom of expression, minority discrimination, loyalty, rights of defendants. Prerequisites: junior standing; 1 or 1.

1 The United States Supreme Court (3). Role of Supreme Court in American system of government; particular attention given to reading biographies and following current cases. Prerequisite: 1 or 1.

1 Law and the Political Process (3). Political uses of courts and legal bureaucracies; development of legal issues, recruitment, internal dynamics of national and state courts, and public opinion.

1 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.

1 Politics of Pressure Groups (3). Internal politics of special interest groups—business, labor, agriculture, etc.; techniques of influencing policy in American political system. Prerequisites: junior standing; 1 or 1.

1 Data Analysis in Political Research (3). Introduces methods and techniques of data collection and analysis. Prerequisites: 1 or 1; junior standing.

12 Political Behavior (3). Economic, psychological, and social dimensions of political behavior; participation, leadership and elites; political attitudes; voting behavior and decision-making processes. Prerequisites: junior standing; 1 or 1.

1 Administrative Agency Processes (3-6). Work experience with government agency at local, state, or national level. S/U grade only. Prerequisite: Junior standing. 102 or 306 concurrent with 332 is recommended.

1 Legislative Internship (3-6). Weekly work experience with an assigned individual legislator in Jefferson City during regular session of state legislature. Prerequisites: junior standing; 1 or 1. S/U grade only. Suggested 102 or 316 previously or simultaneously.

1 Campaign Internship (3-6). Participation in political campaigns with coordination by faculty member. Prerequisite: 102 or 316.

1 The Modern Welfare State (3). Focus on the evolution of the modern welfare state in advanced industrial, Western societies. Designed to enable students to acquire a critical understanding of public policy actions. Prerequisite: junior standing or instructor's consent.

1 Western European Political Systems (3). Comparison of political institutions, policies, and practices from the perspective of contemporary European states and West Germany, Italy and selected smaller countries in Western Europe.

1 Western Europe's Foreign Policy (3). (as same as Peace Studies 355). Comparison of foreign policies of the major Western European countries and the roles they play in the international system and institutions of functioning of the European community and its potential as an emerging world power.

1 Comparative Welfare States (3). Dynamics of communist revolutions; methods of consolidation, development-mobilization techniques, domestic problems, attempted solutions. Emphasis predom­inantly on the United States and on European socialist countries. Prerequisite: instructor's consent.

1 Soviet Foreign Policy (3). Principles, problems, and evolution of Soviet foreign policy toward Western powers, developing nations, and other members of Soviet bloc. Prerequisite: junior standing.

1 African Politics (3). (as same as Political Science 370). 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 for the Middle East.

1 Government and Politics in Southeast Asia (3). Comparative analysis of the political systems of Southeast Asian states, such as Indonesia, Vietnam, Malaysia, Thailand, the Philippines. Special attention given to problems of political and socioeconomic development.

1 Comparative International Relations (3). (as same as Political Science 315). Interdisciplinary analysis of the political and institutional problems among nations of the United States in the region. Prerequisite: junior standing.

1 Contemporary South Asian Political Systems (3). (as same as Political Science 374). Comparative analysis of the political systems of China and India, and the Philippines. Special attention given to problems of political and socioeconomic development.


1 Problems (er. arr.) For graduate students with necessary prerequisites. Courses in topics of the individual's political science background.

1 Topics (er. arr.) Organized study of selected topics. Subjects and credit may vary from semester to semester. Repeatable with departmental consent. Prerequisite: instructor's consent.
POULTRY SCIENCE

12 Animal Science (5). (same as Agriculture 12, Animal Science 12, Dairy Science 12).

101 Poultry Science (3). Basic information on the industry: reproduction, feeding and management of poultry. Introductory courses in poultry science, management, marketing, nutrition, and the impact of judicial decisions and regulations on poultry industry. Repeatable with permission. Prerequisite: Sophomore standing.

207 Intensive Study in Poultry Husbandry (3). Reading and critical evaluation of major works in the classics of poultry science. Prerequisite: 206 or 109.

208 Field Study in Poultry Husbandry (3). Observation, employment in selected fields. Planned study program, written reports, final exam required. Prerequisite: 207 or equivalent. Prerequisite: Sophomore standing.

309 Avian Physiology (3). Anatomy, physiology of domestic fowl. Application of principles of physiology, recent research to growth, reproduction and environmental problems of poultry. Prerequisites: Biology Sciences 1 & 2, 1 or 2 yrs.

310 Field Study in Poultry Husbandry (cr. arr.) Study, observation, employment in selected fields. Planned study program, written reports, final exam required. Prerequisite: 309 or equivalent. Prerequisite: Sophomore standing.

391 Field Instruction in Animal Science (1-3). (same as Animal Science 391, Dairy Science 391).

400 Problems (cr. arr.) Advanced study on a selected research problem. f.w.s.

410 Seminar (1). Scientific literature, problems in poultry science reviewed, discussed. Prerequisites: 309 or 310.

423 Genetics of Populations (4). (same as Animal Science 423, Biological Sciences 423). Genetic composition of populations and conditions influencing their rate of change. Relationship of various breeding plans. Prerequisite: 3 hours genetics & 3 hours statistics.

450 Research (cr. arr.) Independent research not leading to a thesis. f.w.s.

490 Research (cr. arr.) Graduate research investigations. Presented as a thesis. f.w.s.

PRACTICAL ARTS AND VOCATIONAL-TECHNICAL EDUCATION

F100 Foundations of Agricultural Education (1-3). Orientation program, course planning, introduction to the professional fields within each program area of PAVE. Prerequisite: Education Admission Seminar 75. f.w.

F175 Directed Occupational Experience (1-2). (same as South Asia Studies 175). Directed study and/or observation of selected topics in the internal and external politics of China, Japan and Korea. Prerequisites: graduate standing & instructor’s consent.

F176 Independent Readings for Ph.D. Comprehensive Examinations (1-6).

490 Research (cr. arr.) Independent research leading to thesis.

AGRICULTURAL EDUCATION

F100 Foundations of Agricultural Education (1-3). Orientation program, course planning, introduction to the professional fields within each program area of PAVE. Prerequisite: Education Admission Seminar 75. f.w.

F115 Directed Occupational Experience (1-2). (same as Practical Arts and Vocational-Technical Education 115). Directed study and/or observation of selected topics in the internal and external politics of China, Japan and Korea. Prerequisites: graduate standing & instructor’s consent.

F175 Directed Occupational Experience (1-2). (same as South Asia Studies 175). Directed study and/or observation of selected topics in the internal and external politics of China, Japan and Korea. Prerequisites: graduate standing & instructor’s consent.

F201 Teaching of Agricultural Education (2). Organization of instructional program and of instruction in agriculture in the community school. Prerequisites: baccalauriate degree & instructor’s consent.

F205 Field Study in Occupational Education (1-4). Directed study in a cross-section of business and industry combined with reports, weekly seminars &/or conferences. May repeat until 4 semester hours are satisfied.

F300 Problems (cr. arr.) Study of professional problems in agricultural education. Especially designed for those who can qualify as coordinators of occupational education programs of a complex nature.

F321 Vocational Guidance (2-3). Problems, methods, products, procedures and techniques of vocational counseling. Special emphasis upon, progressing in their vocations. For teachers, counselors, school administrators.

F335 Study in Occupational Education (1-4). Directed study in a cross-section of business and industry combined with reports, weekly seminars &/or conferences. May repeat until 4 semester hours are satisfied.

F360 Topics in Practical Arts and Vocational-Technical Education (cr. arr.)

F365 Vocational Counseling (2). Techniques, procedures of analyzing individuals into their basic elements. Required of all students in the counseling field.

F371 Vocational Education for Handicapped Students (3). Internship.

F400 Problems (cr. arr.)

F406 Foundations/Program Development in Adult Vocational Education (2-4). The adult vocational education movement; characteristics of occupational programs in agencies and industries; for counselors, teachers, supervisors of vocational education, school administrators, employment service personnel.

F408 Measurement and Evaluation in Vocational Education (1-2). Design and construction of measurement instruments for vocational education. Emphasis on mathematical models, improvement of instruction, and program evaluation. Prerequisite: course in statistics or equivalent. Prerequisite: Sophomore standing.

F419 Administration and Supervision of Vocational Education (2-3). Types of organization, approved administrative and supervisory practices in vocational schools, practical arts programs in secondary and post-secondary institutions.

F460 Topics (cr. arr.)

F490 Research (cr. arr.)
DISTRIBUTIVE EDUCATION

F25 Principles of Salesmanship (3). Role of selling in distribution, and methods and techniques involved in selling. Emphasizes student demonstration, through simulation and role playing, of effective sales procedures.

F75 Principles of Retailing (3). Examines problems, opportunities and trends in retailing. Problems and cases deal with store organization, budgeting, control, personnel, and sales procedures.

F100 Foundations in Distributive Education (1-3). Orientation to program service areas of PAVE, degree program planning and introduction to the professional: experience. Emphasizes preparation to become supervisors in vocational economics education. Prerequisite: Education admission Seminar S75. F.w.

F125 Merchandising (3). Develops basic competencies essential to successful merchandising. Includes study of salesmanship, and analysis of merchandising functions and activities.

F175 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.

F195 Practicum in Vocational Education (1-3). Supervised field experience in a selected area.

F299 Student Teaching in Distributive Education (6-8). Student teaching in the secondary schools.

F300 Problems (cr. arr.). Studies professional programs and issues or technical problems related to the field of practical arts and vocational education.

F308 Coordination of Cooperative Vocational Education (4). 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.

F325 Field Study in Occupational Education (1-4). Directed observation in selected areas of business and industry combined with reports, weekly seminars and/or conferences. May repeat until four semester hours accumulated.

F360 Topics in Practical Arts and Vocational-Technical Education (cr. arr.).

F797 Curriculum Construction in Marketing and Distributive Education (3). Development of objectives, selection and arrangement of instruction units and materials for marketing and distributive education. Construction and use of relevant instructional resources.

F798 Principles of Teaching Distributive Education (3). Development of distributive education, organization of distributive education, cooperative project experiences, instructional materials, and the program of Distributive Education Clubs of America.

F400 Problems (cr. arr.).

F460 Topics (cr. arr.).

F475 In-Service Course in Distributive Education (cr. arr.)

F490 Research (cr. arr.).

HOME ECONOMICS EDUCATION

F100 Foundations (1-3). Orientation to program service areas of PAVE, degree program planning and introduction to the professional fields within each program area of PAVE. Prerequisite: Education admission Seminar S75. F.w.

F112 Introduction to Metals Processing (3). Basic methods of bench layout, measurement and inspection, basic machining and foundry processes, welding, forging, cutting.

F154 Energy & Power Technology (3). Survey of energy sources, conversion and storage; power transmission, instrumentation and power generation; introduction to alternative energy sources. Lecture plus laboratory.

F155 Electricity/Electronics (3). Direct current circuits; alternating current circuits, rectification and power supplies; measurements in the electronics laboratory. Lecture plus laboratory.

F175 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.

F221 Machine Woodworking (2-3). Operation of woodworking machines, sawing, planing, machining, cabinetmaking, upholstery and finishing. Prerequisite: F10.

F224 Power Technology (3). An intermediate treatment of internal and external combustion engines, power transmission, automotive systems; testing, instrumentation and control; maintenance and repair of power systems. Lecture plus laboratory. Prerequisite: F154.

F226 Alternate Energy Technology (3). An intermediate treatment of active and passive solar heating and cooling; wind energy, hydro-electric energy; biomass; alcohol and synthetic fuels. Lecture plus laboratory. Prerequisite: F154.

F275 Instrumental Training in Home Economics Education (3). Prerequisite: F10.

F300 Problems (cr. arr.). Studies professional programs and issues or technical problems related to the field of practical arts and vocational education.

F325 Field Study in Occupational Education (1-4). Directed observation in cross section of business and industry combined with reports, weekly seminars and/or conferences. May repeat until four semester hours accumulated.

F351 Technology of Woodworking (2-3). Problems. Methods, procedures in planning and conducting occupational home economics programs. For prospective elementary and secondary teachers. Prerequisites: F225 & Educational Psychology A102.

F375 Principles of Salesmanship (3). Study of professional programs and issues or technical problems related to the field of practical arts and vocational education.

F376 Homemaking Education for Adults (2-3). Problems. Methods, procedures in planning and conducting occupational home economics programs. For prospective elementary and secondary teachers. Prerequisite: F225 & Educational Psychology A102.

F399 Student Teaching in Home Economics Education (6-8). Student teaching in the secondary schools.

F400 Problems (cr. arr.).

F431 Technology of Woodworking (2-3). Problems. Methods, procedures in planning and conducting occupational home economics programs. For prospective elementary and secondary teachers. Prerequisite: F225 & Educational Psychology A102.

F436 Industrial Design (3). Problems. Methods, procedures in planning and conducting occupational home economics programs. For prospective elementary and secondary teachers. Prerequisite: F225 & Educational Psychology A102.

F440 Supervision of Student Teaching of Vocational Home Economics (2-3). For those preparing to become supervisors in vocational home economics education. Prerequisites: F280 & Curriculum & Instruction T299.

F444 Adult Planning Programs of the instructional program in farm management. Prerequisite: baccalaureate degree or instructor's consent.

F445 Adult Determines needs, selects and organizes course content, and evaluates the instructional program in farm management. Prerequisite: baccalaureate degree or instructor's consent.

F450 Adult Surveys agricultural situations. Develops activities which aid in establishment. Examines programs with different groups.

F460 Topics (cr. arr.).

F465 In-Service Course in Business Education (cr. arr.)

F470 Research (cr. arr.).

INDUSTRIAL EDUCATION

F9 Industrial Materials (3). Classification of materials, their characteristics, properties and testing, extraction methods, selection, applications.

F10 Fundamentals of Woodwork (3). Hand tool processes, machine operation, wood and wood products, assembling and fastening, simple and advanced joinery.

F24 Power Technology (3). Oriented to internal and external combustion engines, power transmission, automotive systems; testing, instrumentation and control; maintenance and repair of power systems. Lecture plus laboratory. Prerequisite: F154.

F275 Instrumental Training in Home Economics Education (3). Prerequisite: F10.

F300 Problems (cr. arr.). Studies professional programs and issues or technical problems related to the field of practical arts and vocational education.

F325 Field Study in Occupational Education (1-4). Directed observation in cross section of business and industry combined with reports, weekly seminars and/or conferences. May repeat until four semester hours accumulated.

F351 Technology of Woodworking (2-3). Problems. Methods, procedures in planning and conducting occupational home economics programs. For prospective elementary and secondary teachers. Prerequisite: F225 & Educational Psychology A102.

F375 Principles of Salesmanship (3). Study of professional programs and issues or technical problems related to the field of practical arts and vocational education.

F376 Homemaking Education for Adults (2-3). Problems. Methods, procedures in planning and conducting occupational home economics programs. For prospective elementary and secondary teachers. Prerequisite: F225 & Educational Psychology A102.

F399 Student Teaching in Home Economics Education (6-8). Student teaching in the secondary schools.

F400 Problems (cr. arr.).

F431 Technology of Woodworking (2-3). Problems. Methods, procedures in planning and conducting occupational home economics programs. For prospective elementary and secondary teachers. Prerequisite: F225 & Educational Psychology A102.

F436 Industrial Design (3). Problems. Methods, procedures in planning and conducting occupational home economics programs. For prospective elementary and secondary teachers. Prerequisite: F225 & Educational Psychology A102.

F440 Supervision of Student Teaching of Vocational Home Economics (2-3). For those preparing to become supervisors in vocational home economics education. Prerequisites: F280 & Curriculum & Instruction T299.
PSYCHOLOGY

A Psychology, Third and Fourth Years (Clinical Clerkship) (10).
In experience in the clinical study of child andremotically disordered
children. Under supervision, students participate in
involving the selection of activities of the psychiatric
setting, outpatient, and consultation services, including
work in other departments of the hospital and in affiliated public medical
hospitals and community mental health agencies. Students have the
opportunity to plan a portion of the clerkship core program in
accordance with their own interests. Eight weeks full time during
the third and fourth years; required of all medical students.

B Psychology Elective Third and Fourth Years (10).
Special work in Department of Psychology on a subject of the student's choice, during
the elective and free periods in the junior or senior year. Such work may include
professional activities, clinical or school psychology service, or supervision
under practicing psychologists in psychiatric clinics or centers or community mental
health services, or laboratory or clinical research, or a combination of these. In addition, fourth and fifth year
academic affiliations are available in child psychology, community psychology, research and other sub-specialties. Individualized assignment permits flexible starting dates.

PSYCHOLOGY

1 General Psychology (3). Survey of facts, principles, methods in study of human behavior.

2 General Experimental Psychology (5). Scientific study of human behavior: emphasis on biological foundations. Lectures and laboratory.

3 Experimental Psychology (2). Consists entirely of laboratory work similar to that of psychology 1:1. Offerable: 1:1 or equivalent.

4 Psychology of Personal Adjustment (3). Dynamic principles of human behavior; emphasis on motivation, emotion, defense against anxiety, and personality structure. Offerable: 1:1 or equivalent.

5 Applied Psychology (3). Application of psychology to professional practice; emphasis on advertising, personnel selection, efficiency. Brief reference to professional and social applications. Offerable: 1:1 or 2:1 with instructor's consent.

101 Topics (cr. arr.). Organized study of selected topics in psychology. Particular topics and credit may vary from semester to semester at the discretion of the instructor.

120 Human Sexuality (3). Surveys of information on heterosexual behavior, sex norms, childhood, venereal disease, homosexuality, and legal aspects of sexual behavior. Guest lecturers. Attendance at small group discussions required. Offerable: 1:1 or 2:1 with instructor's consent.

130 Drugs and Behavior (3). (same as Pharmacology 130). Basic principles of drug action on the nervous system: importance of psychology as a biological science. Offerable: 1:1 or 2:1 with instructor's consent.

150 Psychology of Sleep and Dreams (3). Survey of current research on sleep and dreams. Includes sleep EEG, nature of REM sleep, and recent developments in the study of sleep disorders. Offerable: 1:1 or 2:1 with instructor's consent.

151 The Psychobiology of Women (3). An integrated perspective on the biological basis of behavior, emphasizing both historical, evolutionary, developmental, and proximal (physiological, social) influences on the female life cycle. Offerable: 1:1 or 2:1 with instructor's consent.

170 Child Psychology (3). Origins and development of child behavior, with emphasis on basic processes, theory and research rather than on application. Offerable: 1:1 or 2:1 with instructor's consent.

190 Introduction to Social Psychology (3). Basic survey of maladaptive human behavior and experience, including character disorder, alcohol and drug abuse, neurosis, and psychosis. Offerable: 1:1 or 2:1 with instructor's consent.

191 Honors Seminar (3). Individual research on assigned topics: class discussions of research strategies and problems. Offerable: senior or junior standing: overall and psychology GPA 3.3 and instructor's consent.

194 Honors Seminar (3). In consultation with instructor, students work on Honors Thesis. Successful completion of thesis leads to degree with Honors in psychology. Offerable: 1:1 or 2:1 with instructor's consent.

200 Special Problems (cr. arr.). Research participation with a faculty member, including a faculty member in the development and execution of research. May be repeated to 6 hours maximum. Offerable: 1:1 or 2:1 with instructor's consent.

205 Environmental Psychology (3). Survey of the effects of environmental variables (e.g., temperature, noise, crowding, etc.) on behavior. Some coverage of techniques for modifying behavior to preserve the environment. Offerable: 1:1 or 2:1 with instructor's consent.

211 Theories of Learning (3). Considers viewpoints in learning, emphasizes classical theories and contemporary issues in the field. Offerable: 1:1 or 2:1 with instructor's consent.

215 Research in Learning (3). Research in Learning. Emphasis on the role of experimental and other forms of information gathering in psychology; survey of research methods. Offerable: 1:1 or 2:1 with instructor's consent.

226 Experimental Psychophysics (3). Individualized supervision in planning, conducting, and communicating of original research. Recommended for majors desiring opportunity to work in research setting. Prerequisite: 211 and instructor's consent.

230 Individual Differences (2). Surveys individual, group differences. Contributions of various factors to variations in behavior. Offerable: 1:1 or 2:1 with instructor's consent.


280 Psychology of Personality (3). Introduction to study of human personality. Offerable: 1:1 or 2:1 with instructor's consent.

290 Special Problems (cr. arr.). Independent investigation leading to thesis or project upon consent of department. Offerable: instructor's consent.

301 Topics (cr. arr.). Organized study of selected topics in psychology. Particular topics and credit may vary from semester to semester. Repeatable upon consent of department. Offerable: instructor's consent.

302 Theories of Personality (3). Readings in human personality theories. Offerable: 1:1 or 2:1 with instructor's consent.

314 Industrial Psychology (3). Training, efficiency, supervision, morale, group dynamics, consumer research in business and industry. Emphasis on research and contemporary issues. Offerable: 1:1 or 2:1 with instructor's consent.

313 Physiological Psychology (3). Survey of response systems and biological events as independent variables in behavior. Offerable: 1:1 or 2:1 with instructor's consent.

316 Experimental Approaches to Personality (3). Surveys current research in personality, emphasizes experimental evidence from human and animal studies. Offerable: 1:1 or 2:1 with instructor's consent.


347 Emotional Disorders in Infancy and Childhood (3). Discusses behavioral development in childhood and factors which produce disturbances and deviations. Emphasis on social exchange and social comparison processes. Emphasis on theoretical integration of recent findings. Offerable: 1:1 or 2:1 with instructor's consent.

349 Advanced Abnormal Psychology (3). Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizing experimental and explanatory approaches. Offerable: 1:1 or 2:1 with instructor's consent.


386 Methods in the Neurosciences Applied to the Study of Psychopathology (3). Emphasis on the evaluation of the psychological literature on abnormal behavior. Offerable: 1:1 or 2:1 with instructor's consent.

394 Cognitive Psychology (3). Application of cognitive psychology to contemporary issues and research areas. Offerable: 1:1 or 2:1 with instructor's consent.


400 Problems (cr. arr.). Advanced study to meet individual needs of the student. Repeatable upon consent of department. Offerable: instructor's consent.

401 Functional Neurobiology (3). Basic techniques, data and theory in the neurosciences applied to the study of psychophysiology, psychopharmacology, developmental brain damage, brain disorder and the "brain and behavior." Offerable: graduate standing or instructor's consent.


411 Studies in Professional Problems (2-3). Independent investigation leading to thesis or project upon consent of department. Offerable: instructor's consent.

412 Orientations to Clinical Psychology (3). History, current professional identities and activities. Survey of major concepts, issues, methodology of professional practice and the role of the clinician in the assessment of intervention. Offerable: graduate standing or instructor's consent.

413 Mental Health (3). Objectives and techniques of mental health service delivery. Areas of service that are currently effective and those that are under investigation. Offerable: graduate standing or instructor's consent.

414 Test Theory and Test Construction (3). Theory of psychological measurement. Construction of one or more psychological tests. Offerable: 1:1 or 2:1 with instructor's consent.

415 Clinical Measurement (3). Topics include psycho­metric principles, intelligence testing, objective and projective personality testing, and behavioral assessment. Offerable: graduate standing in psychology and 412. Offerable: 1:1 or 2:1 with instructor's consent.

416 Professional Psychology (3). The psychology of learning, memory, motivation, attention, and emotion. Offerable: 1:1 or 2:1 with instructor's consent.
1. Advanced Psychological Statistics (3). Introduction to the statistical analysis of psychological data, emphasis on understanding and interpreting the results of the various psychotherapeutic drugs, drug abuse and its treatment.

2. Conceptual Approaches to Personality (3). Evaluation of major and contemporary systems of personality theory and their relationship to theoretical and experimental literature, especially, abnormal behavior. Prerequisites: 280 & 345 or equivalent.

3. Social Learning: Theory and Research (3). Focuses on recent theoretical and developmental research concerning social learning in personality development, functioning. Theories of Rotter, Bandura and Walters, those having to do with operant human behavior. Prerequisite: 242, graduate standing in psychology, or instructor's consent.


5. Seminar in Social Psychology II (3). Broad survey of orientation to psychological research, emphasizing integration of personality theory, techniques of personality and behavior change, and research findings in the area. Prerequisite: instructor's consent.

6. Seminar in Personality Theory (3). Critical consideration of selected experimental work in psychology of learning and memory. Repeatable upon consent of department. Prerequisites: 378 or 379. w.

7. Seminar in Social Psychology (3). Critical consideration of recent theoretical, experimental work. Repeatable upon consent of department. Prerequisite: 313. w.

8. Seminar in Psychometrics (3). Broad survey of orientation to psychological testing, emphasizing integration of personality theory, techniques of personality and behavior change, and research findings in the area. Prerequisite: instructor's consent.


10. Seminar in Personality Theory (3). Critical evaluation of current theories, contemporary research in visual perception. Repeatable upon consent of department. Prerequisite: 380.

11. Seminar in Personality Theory (3). Same as Linguistics 428). Selected topics in psycholinguistics; emphasizes language competence versus performance, effects of syntax on memory, developmental linguistics, etc. Prerequisite: graduate standing in psychology or instructor's consent.

12. Advanced Theories of Learning (3). Intensive coverage of major learning theories and evaluation of them in the context of the contemporary field of psychology.

13. Studies in Contemporary Psychological Theory (3). Focuses on modern psychology; emphasis on recent major methodological shifts in theory construction. Repeatable upon consent of department. Prerequisite: 360.

14. Medical Orientation for Clinical Psychologists (2). Consideration of relationships between psychological and medical problems. Prerequisite: A. in psychology or equivalent. w.


16. Seminar in Social Psychology II (3). (Same as Sociology 434) Entitulation of 433. Required of all Ph.D. candidates in social psychology program. Prerequisite: 433 or instructor's consent.


18. Trace Behavior (3). Integrative study of hypnotic and related behaviors. Prerequisites: 345 & instructor's consent. f.

19. Human Sexuality for Psychotherapists (3). Background information for understanding the role of human sexual behaviors in treatment. Prerequisite: instructor's consent.

20. Use of Computers in Psychology (3). Surveys use of digital imaging systems in psychology and other behavioral sciences. Topics: structuring data bases, language processing, simulation of mental processes, on-line facilities in research. Prerequisite: Computer Science 104 or instructor's consent.

21. Behavior Modification (3). Surveys principles and research findings relative to treatment of abnormal behavior through the utilization of learning principles. Prerequisites: advanced graduate standing in psychology & instructor's consent.


23. Clinical Practicum (3). Intensive supervised training in use of research methods in psychology and in psychology. Prerequisites: 412, 414, & instructor's consent. f.w.s.


27. Structured Groups (3). Intended to train students to develop and use group techniques. Prerequisite: e.g. anxiety management, affective parenting 2. Life Theme, e.g. self-esteem, women's awareness 1. Life Transition, e.g. divorce, personal loss. Instructor's consent.

28. Research (cr. arr.) Research investigations not leading to thesis.

29. Psychopharmacology for Psychologists (3). Basic principles of understanding the influence of drugs on behavior and the influence of the various psychotherapeutic drugs, drug abuse and its treatment.

30. Conceptual Approaches to Personality (3). Evaluation of major and contemporary systems of personality theory and their relationship to theoretical and experimental literature, especially, abnormal behavior. Prerequisites: 280 & 345 or equivalent.

31. Social Learning: Theory and Research (3). Focuses on recent theoretical and developmental research concerning social learning in personality development, functioning. Theories of Rotter, Bandura and Walters, those having to do with operant human behavior. Prerequisite: 242, graduate standing in psychology, or instructor's consent.


33. Seminar in Counseling Research and Outcome (3). The focus concerns the fundamentals of research design, the counseling process, and counseling research and psychological writing. Prerequisites: 419, 448, or equivalents.

34. Research (cr. arr.) Investigations in psychology; leads to thesis.
RECREATION AND PARK ADMINISTRATION

10 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 society.

11 Career Orientation in Recreation, Parks and Leisure Service (1). Orientation to the field and analysis of career opportunities in leisure services. Academic planning leading to B.S. in recreation and leisure administration, S.U. only. Prerequisite: RPA major.

107 Organization of Human Resources in Leisure Services (1). Preparation of the human resources component of a recreation program. Prerequisite: 106 or instructor's consent.

111 Administration and Evaluation of 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. Prerequisite: 10 or instructor's consent.

115 Consortium Field Experience (1-3). An organized undergraduate experiential learning opportunity. S.U. only. Prerequisite: instructor's consent.

120 Adaptive Equipment/Therapeutic Recreation Applications (1). Identification, application and techniques of adapted equipment associated with special populations. Course uses demonstration, application, lecture and media. Prerequisites: RPA major and instructor's consent.

140 Camp Leadership and Management (3). Organization and administration of camping enterprises and training of camp staff; camp site selection and development; health and safety; camp history, standards, trends; practical application of campcraft skills. Prerequisite: instructor's consent.

142 Leadership of Social Recreation (2). Study and practice in techniques of leading social activities suitable for various social characteristics and treatment of various disabling conditions concomitant leisure facilitation techniques.

151 Introduction to Leisure Service Management (3). An introduction to public recreation and leisure services. Prerequisites: RPA major and completion of professional core. Prerequisite: 10, 11, 111 or instructor's consent. F. W. C.

156 Program Development in Leisure Services (3). An overview of public recreation and leisure services, natural environment, supply-demand-necessity relationships, interpretative programming, management philosophies/practices will be studied. Prerequisite: 10, 11, 111 or instructor's consent.

226 Introduction to Leisure & Special Populations (3). Principles, concepts and development of leisure and recreation services to special populations. Specific strategies, evaluation of attitudes, issues, practices and barriers related to leisure fulfillment. Prerequisite: 10, 11, 111 or instructor's consent.

230 Introduction to Parks and Outdoor Recreation Services (3). An overview of public recreation and leisure services, natural environment, supply-demand-necessity relationships, interpretative programming, management philosophies/practices will be studied. Prerequisite: 10, 11, 111 or instructor's consent. F. W. C.

231 Principles of Interpretive Outdoor Recreation (3). Interpretive principles and techniques employed to communicate values, natural history and cultural features to the recreation user. Prerequisite: RPA major, completion of professional core or instructor's consent.

236 Recreation and Park Administration Field Experience (12). Supervised experience in an approved organization concurrent with seminars relating to professional recreation and park administration. Prerequisites: upper class standing, 10, 11, 305; 306 & instructor's consent.

300 Problems (3), cont.

315 Senior Seminar in Leisure Services (3). Presentation of professional principles and issues in leisure services. Seminar study resulting in presentations and discussions. Prerequisite: RPA majors, professional core or instructor's consent.

316 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. Prerequisites: RPA major, completion of professional core or instructor's consent.

327 Operation of Therapeutic Recreation: Procedures and Principles (3). Therapeutic recreation as it applies to recreation services for the ill, handicapped, and aged. Prerequisites: 326 & instructor's consent.

328 Leisure and Aging (3). Basic understanding of problems/needs of later maturity in relation to recreation. Characteristics/capabilities of aged, program settings, financial support, planning guidelines emphasized. Objectives: provide fundamentals for recreation planning work with aged individuals; instructor's consent. F. W. C.

331 Administration of Outdoor Recreation-Education Programs (3). Philosophies, essential principles, methods, techniques, resources, administrative and practical problems of outdoor recreation and education. Prerequisites: RPA major and completion of professional core.

333 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. Prerequisite: instructor's consent.

340 Advanced Recreation Land Management (3). (Same as Forestry, Fisheries and Wildlife 340).


355 Private and Commercial Recreation Principles and Practice (3). Considers principles, practices, influences in public/private leisure services; influences of tourism/travel on public/private services. Prerequisites: RPA major and completion of professional core or instructor's consent.

391 Topics in Leisure Studies (1-3). Specialized topics in leisure delivery systems. Subject and variable credit vary semester. Specific content varied depending upon available faculty resources and student needs. Course content announced in advance. Prerequisite: instructor's consent.

400 Problems (1-6). Independent research on special projects. Prerequisites: advisor's consent; open to recreation majors and minors.

401 Foundations of Recreation (3). Basic theories and philosophies of recreation and leisure time as they apply to the recreation profession in modern society. Prerequisites: 10 & 11 or equivalent of instructor's consent.

402 Organization of Recreation Programs within the Community & Region (3). Assesses recreation needs within community through organization and planning. Consideration given to various public agency programs, leadership, facilities, services. Prerequisite: instructor's consent. F. W. C.

409 Research Methods in Recreation and Park Administration (3). Review, analysis of research completed in recreation field. Prerequisite: graduate standing in department or elementary course in statistics and test and measurements approved by instructor.

412 Field Readings in the Field of Recreation (1-3). Selected readings based on student's needs. Emphasis may be placed on a student's area of interest. Prerequisites: advisor's consent; open to students majoring in recreation.

410 Seminar (2). Contemporary problems in field of recreation. Prerequisite: graduate standing in recreation field.

427 Organization of Public Parks and Recreation (3). In-depth study of basic principles of recreation administration and governmental services. Prerequisites: 316 or equivalent & instructor's consent.

429 Analysis of Leisure with Special Populations (3). Survey of the delivery of leisure services to special populations in institutional, transitional and community based settings. Emphasis on the philosophy, characteristics and treatment of various disabling conditions and concomitant leisure facilitation techniques.

428 Contemporary Issues in Therapeutic Recreation (3). The course will include new issues and ideas in the field of therapeutic recreation and agency administration and leadership. Prerequisite: 289 or equivalent & instructor's consent.

430 Thesis Research (1-6). Supervised student practice in recreation, park administration, leadership and planning, study and investigation into a major problem. Prerequisite: 289 or equivalent & graduate departmental standing.

490 Thesis Research (1). Research leading to thesis in field of recreation. Prerequisites: graduate standing & 481 or equivalent.

RELIGIOUS STUDIES

1 Introduction to Religion (3). Engages students in reflection on the major religious traditions, their historical development and their diversity.

10 Religion and the Mediterranean World (3). History, influences on the development of early Christianity, the development of the Christian church.

10 Religion and Early Judaism (3). Introduction to Jewish religious literature, including gnostic mysticism, the Zohar, Lurianic kabbalah and the mysticism of Hasidism. Prerequisite: Sophomore standing.

10 How the Holocaust and Reflections on Genocide (3). Examines the nature of genocide as an historical phenomenon using the Holocaust as the primary case study. Prerequisite: Sophomore standing.

10 Judaism in the Modern World (3). Impact of secularization in Jewish communal life, the Jewish community in the modern world. Prerequisites: Sophomore standing.

2 Introduction to Judaism (3). A religious introduction to Judaism. History, beliefs and practices of Judaism. Prerequisite: Sophomore standing.

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2 Introduction to Judaism (3). A religious introduction to Judaism. History, beliefs and practices of Judaism. Prerequisite: Sophomore standing.
Sociology 225. Overview of the social process of effective interpersonal communication and media impact and strategies for implementing the acceptance of new technology within social systems or societal sectors. Prerequisite: 1 or Sociology 1.
255 Youth in Today's World (3). (same as Sociology 255). Study of the demographic and social status of youth in today's society. Examines are types of behavior such as mating, deviance and the role of schools, parents, TV and friendship groups. Prerequisite: 1 or Sociology 1.
270 The Sociology of Religion (3). (same as Sociology 270).
284 Social Impact Analysis (3). (same as Sociology 284). Procedures for predicting the social consequences of energy and water resources development. Involves plans, highways and housing projects. Emphasis on the prediction and evaluation of the social impacts of proposed development. Prerequisite: instructor's consent.
290 Practicum in Sociology (3). (same as Sociology 290). Independent research or professional experience under faculty supervision. Projects must be arranged by student and faculty member prior to registration. Prerequisite: senior standing in social work.
299 Recent Theories in Sociology (3). (same as Sociology 299).
300 Problems (cr. arr.). Prerequisite: Written consent of instructor.
301 Topics in Rural Sociology (3-5). Organized study of selected topics. Subjects and earned credit may vary from semester to semester. May be repeated. Prerequisite: six hours Rural Sociology or Sociology I or junior standing.
303 Social Demography (3). (same as Sociology 303).
306 Applied Demographic Methods (3). (same as Sociology 306). Description of sources of population data and methods of practical application for businesses and public organizations. Primarily for those people going into planning or development. Prerequisite: 120 or 305.
310 Rural Social Organization (3). (same as Sociology 310). Overview of current issues in the study of rural society. Emphasis is on how rural societies are organized. Includes coverage of technology, rural development and the world of the environment. Prerequisite: junior standing.
311 Economics and Program Analysis (3). (same as Sociology 311).
315 Social Change and Trends (3). (same as Sociology 335). Nature of social change. Emphasis on sociological theories and models of system analysis. Prerequisite: Organizational Change: Analysis of impact of change in social structures. Prerequisite: 1 or Sociology I and junior standing.
326 Seminar in Development Perspectives and Third World Realities (3). An interdisciplinary approach to the problems of development with special reference to the problems of the rural poor in Africa, Asia and Latin America. Prerequisite: junior standing.
340 Community Social Structure (3). (same as Sociology 340).
357 Social Statistics (3). (same as Sociology 375). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction of computer applications.
400 Research (cr. arr.). Prerequisite: Graduate standing.
453 Phonology (3). (same as Anthropology 493, Linguistics 493). Examination of current theory and methods of describing sound patterns of language, particular attention to the generative model and distinctive features. Prerequisite: 374 or equivalent.

RURAL SOCIOLOGY

1 Rural Sociology (3). Introduction to the sociology of rural society and small towns: structure, functioning, trends, and interrelations with the larger society. (NO credit for both Rural Sociology 1 and Sociology 1)
101 Topics in Rural Sociology (1-3). Organized study of selected topics. Subjects and earned credit vary from semester to semester. May be repeated. Prerequisite: 1 or Sociology 1.
129 Population and Ecology (3). (same as Sociology 129). Changes in the structure and characteristics of population groups and their relationship to physical and social aspects of the biophysical environment. Prerequisite: 1 or Sociology 1.
150 The Amish Community (3). Examines historical antecedents and contemporary characteristics of the Amish. Topics in culture, cultural symbols, life ceremonies, the family, cultural-cultural pressures, stresses, social change. Prerequisite 1, Sociology, or Anthropology.
155 Structure of Agricultural Production in Collective Settings (3). Critical analysis of various groups and societies with special attention given to Hutterites, Israeli kibbutz and moshav, the Soviet Union and China, and others.
170 Social Disparities and Poverty (3). Social characteristics of poverty as reflected in rural and urban settings. Analyzes causes and consequences of poverty, and attempts to alleviate this problem. Prerequisite: 1 or Sociology 1.
175 Ownership and Control of American Farms (3). Examines current structures in agricultural production systems, forces for change, possible social consequences of alternative structures. Assumes a basic understanding of the food production/distribution system. Prerequisite: 1 or Sociology 1.
180 Social Research I (3). (same as Sociology 180).
181 Social Research II (3). (same as Sociology 181).
182 Senior Seminar (3). (same as Sociology 182). Senior majors only.
185 Comparative Rural Social Problems (3). Social problems of major concern to rural society, including technological change, employment, health, crime, environmental concerns, energy, poverty, education, and/or natural resources. Prerequisite: 1 or Sociology 1.
186 Social Research I (3). (same as Sociology 180).
187 Social Research II (3). (same as Sociology 181).
188 Senior Seminar (3). (same as Sociology 182). Senior majors only.
189 Social Research I (3). (same as Sociology 180).
191 Social Research II (3). (same as Sociology 181).
192 Senior Seminar (3). (same as Sociology 182). Senior majors only.
185 Comparative Rural Social Problems (3). Social problems of major concern to rural society, including technological change, employment, health, crime, environmental concerns, energy, poverty, education, and/or natural resources. Prerequisite: 1 or Sociology 1.
190 Social Research I (3). (same as Sociology 180).
191 Social Research II (3). (same as Sociology 181).
192 Senior Seminar (3). (same as Sociology 182). Senior majors only.
185 Comparative Rural Social Problems (3). Social problems of major concern to rural society, including technological change, employment, health, crime, environmental concerns, energy, poverty, education, and/or natural resources. Prerequisite: 1 or Sociology 1.
190 Social Research I (3). (same as Sociology 180).
191 Social Research II (3). (same as Sociology 181).
192 Senior Seminar (3). (same as Sociology 182). Senior majors only.
185 Comparative Rural Social Problems (3). Social problems of major concern to rural society, including technological change, employment, health, crime, environmental concerns, energy, poverty, education, and/or natural resources. Prerequisite: 1 or Sociology 1.
190 Social Research I (3). (same as Sociology 180).
191 Social Research II (3). (same as Sociology 181).
192 Senior Seminar (3). (same as Sociology 182). Senior majors only.
185 Comparative Rural Social Problems (3). Social problems of major concern to rural society, including technological change, employment, health, crime, environmental concerns, energy, poverty, education, and/or natural resources. Prerequisite: 1 or Sociology 1.
190 Social Research I (3). (same as Sociology 180).
191 Social Research II (3). (same as Sociology 181).
192 Senior Seminar (3). (same as Sociology 182). Senior majors only.
185 Comparative Rural Social Problems (3). Social problems of major concern to rural society, including technological change, employment, health, crime, environmental concerns, energy, poverty, education, and/or natural resources. Prerequisite: 1 or Sociology 1.
190 Social Research I (3). (same as Sociology 180).
191 Social Research II (3). (same as Sociology 181).
192 Senior Seminar (3). (same as Sociology 182). Senior majors only.
308 Comparative Social Policy (2-3). (same as South Asia Studies 308). A comparative study of social policy aspects in the framework of international regional and national systems. Course includes South Asia, as well as other regions relevant to such study. Prerequisite: instructor's consent.

309 Social Work Practice (3). This course develops the generalist approach to practice in social work. Systems, processes and techniques, with emphasis on the generic aspects of intervention at several levels of social organization. Prerequisite: standing in social work. f.

313 Community and Organization Dynamics (3). Examination of techniques employed in communication for securing reliable, valid information, and constraints of human development. Prerequisites: 125 and course in welfare policy and social interventions. Prerequisite: senior or graduate standing.

315 Development of self-awareness is stressed, and health services. Emphasis on policy and program analyses relevant to concentrating interests, developing depth in clinical skills in direct practice and theoretical models of social group work practice, including policies on aging. Prerequisite: graduate standing.

316 Advanced Social Work Practice for Planning and Administration (3). Focus on integration of cognitive and skill components of policy development and micro-level social organization. Prerequisites: social work administrators and planners. Prerequisite: 323.

317 Social Work Practice in the Health Field (3). Focus is on the application of research and assessment to loneliness and psychological health in private and public sector environments. Prerequisite: graduate standing.

318 Health Policies and Programs (3). Graduate seminar on policies and programs relevant to social work in the health field, including physical health, rehabilitation and mental health. Prerequisite: graduate standing.

319 Social Work Practice in the Family and Child Welfare Field (3). Focus on the family and child welfare organizations. Prerequisite: graduate standing.

320 Human and Child Welfare Policies and Programs (3). Graduate seminar on policies and programs relevant to social work in the family and child welfare field, including policies on aging. Prerequisite: graduate standing.

321 Research Design in Social Work (3). An intensive exposure to the theories and models of social group work practice through cognitive, affective and experiential (laboratory) methods of teaching/learning. Prerequisites: graduate standing, 330 and instructor's consent.

322 Social Research (1-3). (same as Rural Sociology 184). Seminar in social research methodology and design as applied to the study of social work techniques and problems. Emphasizes differential uses of scientific observation and the techniques for developing knowledge and improving practice. Prerequisite: graduate standing.

323 Advanced Social Group Work (3). An intensive exposure to the theories and models of social group work practice through cognitive, affective and experiential (laboratory) methods of teaching/learning. Prerequisites: graduate standing, 330 and instructor's consent.

328 Intermediate Skills Workshop (3). Interaction skills for generalist practice at individual, group and community levels. Group communication and social influence theories address generic and unique aspects of intervention. Systematic planning and structuring of the social work process. Prerequisite: graduate standing.

330 Values and Values in Teaching and Research (2) (3). (same as Rural Sociology 255). Provides integrative learning experience in social work practice in an area of beginning specialization in autonomous social work practice. Prerequisites: graduate standing, 330 and 365 & 391.

331 Intensive Study Seminar (3). (same as Rural Sociology 211) Intensive seminar using various research methods on selected topics and problems. Conduct of complete research project from problem formulation to data analysis and interpretation. Prerequisite: 180 or instructor's consent.

332 Social Impact Analysis (3). (same as Rural Sociology 184).

333 Social Problems (3). Trends in modern societies: urbanization, industrialization, social changes, technological changes, etc. These have produced alienation and illegitimately legitimate. Political, economic, health, welfare, military, justice institutions may be varied. Prerequisite: 1 or 40.

334 Social Research I (3). (same as Rural Sociology 180). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Prerequisite: 1 or 40 or Rural Sociology 1.

335 Social Research II (3). (same as Rural Sociology 181). Seminar in social research using various research methods on selected topics and problems. Conduct of complete research project from problem formulation to data analysis and interpretation. Prerequisite: 180 or instructor's consent.

338 Social Research Topics (2, 3-6). (same as Rural Sociology 184).

339 Social Problems (3). Trends in modern societies: urbanization, industrialization, social changes, technological changes, etc. These have produced alienation and illegitimately legitimate. Political, economic, health, welfare, military, justice institutions may be varied. Prerequisite: 1 or 40.

340 Urban Sociology (3). (same as Rural Sociology 214). Families, kin and households as interacting groups; roles, socialization, problems, structural change; family in relation to other social institutions; historical, cultural and class variations. Prerequisites: 1 or 40 or Rural Sociology 1.

341 The Behavior (3). (same as Peace Studies 215). Analysis of crowd behavior and related phenomena: rumors, disasters, fashes. Social responses to unclear, dangerous or unjust conditions. Theoretical and empirical perspectives. Prerequisite: 1 or instructor's consent.

342 Rural Sociology (3). (same as Rural Sociology 216).

347 The Role of Sport in Modern Society. Includes violence in sport; politics and economics of sport; male and female athletes; political and social conditions and changes; historical, cultural and class variations. Prerequisites: 1 or 40 or Rural Sociology 1.

348 Social Movements and Conflicts (3). Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the United States; collective protest and politics; political power and resistance; media and instruction. Prerequisite: 1 or instructor's consent.

349 Occupation and Occupations (3). Analysis of occupational and occupational socialization in America. Focus on organizational patterns, occupational mobility and work, and occupation and professional organizations. Prerequisite: 1 or 40.

350 Youth in Today's World (3). (same as Rural Sociology 255).
of sociology in contemporary society as they are affected by culture; vocational and professional institutions, employment. Prerequisite: senior sociology major.

Prerequisite: I or 40 or Rural Sociology

conflict, exchange, symbolic interaction, phenomenological methodological theories. Prerequistes: 4 hours credit.

301 Topics in Sociology (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 & instructor's consent.

302 Social Studies of Science (3). Effects of social, political, economic and cultural factors on science. Organization of science into work groups and disciplines. Communication patterns in science. Prerequisites: or Science

303 Modernization, alienation, class consciousness, self-management. Stands in sociology in Europe and United States since 1950. Recent developments in social theory. May be repeated with departmental consent. Prerequisite: 405 or equivalent.

310 Civilization of India (3). Cultural development of India; the work of various religious, social, political and economic elements in the history of India. Prerequisites: 1 or Rural Sociology 1 and junior standing.

310 Elementary Hindi (I). Oral-aural and structural approach. Devanagari script. Offered only in the Fall. 1 credit hour.

315 Elementary Hindi II (3). Continuation of I. Prerequisite: I. 2 credit hours.

320 Cultural and Social Psychology (3). Social psychological approaches to the study of human behavior. Empathy, impression management, love, intimacy, cycle of relationships. Prerequisite: 260 or instructor's consent.

320 Seminar in Social Psychology (3). Topics in social psychology. May be repeated with departmental consent. Prerequisite: 260 or equivalent. 3 credit hours.

322 Modernization and Social Change (3). Historical survey of modernization in different societies. Prerequisites: 1 or Rural Sociology 1 and junior standing.

326 Sociological Health Care Systems (3). Focus on the study of the organization of health care services at the community and national level. Elements of health care systems. Evaluation of system effectiveness. Prerequisite: junior, senior or graduate standing. 3 hour credit.

327 Sociology of Health Occupations and Organization (3). Organizational basis of health care agencies; recruitment, socialization, professionalization, structure of health occupations. Comparison of bureaucratic and professional organizations. Structure, social inequality, politics and the social change. junior standing. 3 credit hours.

330 Social Change and Trends (3). (same as Sociology 335)

335 Social Change and Trends (3). (same as Sociology 335)

337 Race and Ethnic Relations (3). The experience of racial and ethnic minorities; inequality, assimilation, ethnic and racial conflict, acculturation. Continuity, change and contemporary socialization. 3 credit hours.

340 Community Social Structure (3). (same as Sociology 340). Study of the nature and function of the community as a social system. Community organization; community development; community crisis and change. 1 hour credit.

343 Advanced Social Psychology (3). (same as Psychology 343). Major theoretical fields and their application to human problems. Prerequisites: 260 or equivalent. 3 credit hours.

344 Group Dynamics and Role Theory (3). (same as Psychology 344).

345 Structure of Interpersonal Behavior (3). (same as Psychology 346). Patterns and processes of social interaction and interpersonal relationships. Analysis of such topics as communication, non-verbal behavior.

related sociological theories of historical development, including Weberian, Marxist and other perspectives applied to a topical human problem. Prerequisite: 405 or equivalent.

426 Seminar in Sociological Theory Construction (3). Philosophical structure of science; critical examination of selected models and theories with special concern for theory construction. Prerequisite: 405 or equivalent.

430 Research (cr. arr.). Not expected to terminate in thesis or dissertation. Prerequisite: instructor's consent.

436 Seminar on the Sociology of Health and Sickness (3). Analysis of selected topics in the sociological study of health and sickness. In-depth exploration of theoretical stances and research addressing those issues. Prerequisite: advanced standing.

437 Legal Problems in Health Care Research (1-18). Practice experiences in the application of sociology to teaching, research, planning a health field. May be repeated to a maximum of 18 hours. Prerequisite: graduate standing in sociology.

438 Seminar (cr. arr.). Analysis of selected topics in the sociological study of aging. Critical evaluation of selected points of view in current sociological theory. May be repeated to a maximum of 18 hours. Prerequisite: consent of instructor.

439 Social Interaction Research (3). (same as Psychology 470).

440 Seminar in Sociological Research Methods (1-6). (same as Rural Sociology 480). Organized study of selected research topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent. Prerequisite: 430 or equivalent.

445 Research (cr. arr.). Advanced work leading to thesis or dissertation. Prerequisite: consent of major advisor.

SOUTH ASIA STUDIES

1 Elementary Hindi I (3). Oral-aural and structural approach. Devanagari script. Offered only in the Fall. 1 credit hour.

2 Elementary Hindi II (3). Continuation of I. Prerequisite: grade of C or better in 1 or equivalent. 2 credit hours.

110 Civilization of India (3). (same as Anthropology 110, History 110, and Philosophy 110).

120 Hindi Literature (3). (same as Religious Studies 120).

133 Buddhism of India & Tibet (3). (same as Religious Studies 133).

137 Comparative Religion (3). (same as Religious Studies 137).

181 Asian Civilizations (3). (same as History 181, Political Science 181).

203 Elementary Hindi Readings (4). (same as Elementary Hindi III). Continuation of 3. 4 credit hours.

204 Advanced Hindi Readings I (4). Directed readings in literature of the student's area of concentration, and advanced conversation. 4 credit hours.

230 Mythology of South Asia (3). (same as Religious Studies 230)

301 Topics in (cr. arr.). Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent. Prerequisite: junior standing.

332 The Vedas (3) (same as Religious Studies 332)

350 Special Readings in South Asian Languages (1-4). Individual advanced study of various South Asian languages. Prerequisites: at least 2 years of South Asian languages.

360 Asian Philosophy (3). (same as Philosophy 360).

369 Principles of Anthropology (3). (same as Philosophy 369).

371 Sociology of Asia (3). (same as Geography 371).

372 Geography of South Asia (3). (same as Geography 372).

374 Contemporary South Asian Political Systems (3). (same as Political Science 374).

384 Religion and Politics in Modern India, 1857-1947 (3). (same as History 384).

386 Topics in (3). (same as History 400).

474 Problems of South Asia (3). (same as Political Science 474).

SPANISH

1 Elementary Spanish I (3). I

2 Elementary Spanish II (3). Continuation of I. Prerequisite: grade of C or better in 1 or equivalent. 3 credit hours.

211 Elementary Spanish I (3). Elementary skill course following I, centering on cultural/literary readings, and including a grammar review, practice in the spoken language, as well as some practical writing exposure. Prerequisite: Grade of C or better in 1.

103 Spanish Reading (3). Prerequisite: 2 or equivalent. 3 credit hours.

104 Intermediate Spanish Composition and Conversation (3). Prerequisite: 3 or equivalent.

106 Intermediate Spanish Composition and Conversation (3). Prerequisite: 3 or equivalent.

108 Spanish Civilization (3). Survey of Spanish history, arts and culture. Open to any student interested. No knowledge of Spanish required. Prerequisite: Sophomore standing.

111 Spanish Literature in Translation (3). May not be included in area of concentration in Spanish. Subject varies with instructor. Prerequisite: Sophomore standing.

112 Latin American Civilization (3). Survey of Latin American history, arts and culture. Open to any student interested. No knowledge of Spanish required. Prerequisite: Sophomore standing.

164
SPECIAL EDUCATION

L40 Advisory Seminar in Special Education (1). Orientation to the departmental programs, degree program planning and introduction to the professional field of special education. Required course for departmental writing credit. F, W, S.

L59 Freshman Readings in Special Education (1). Introduction to special education through small discussion groups that read and review books relating to lives of exceptional children. Prerequisite: departmental consent.

L61 Survey of Special Education (3). Historical orientation, professionals of special education, and current legislation in special education. Prerequisite: departmental consent. F, W, S.

L68 Special Readings (1-3). Directed study of literature and research reports in special education. Prerequisite: permission of instructor.

L169 Field Experiences: Introduction to Special Education (1). Supervised observation and instruction-related activities in early childhood special education. F, W, S.

L162 Field Experiences: Primary Special Education (1-3). Supervised observation and instruction-related activities in primary special education. F, W, S.


L299 Summer Teaching in Special Education (cr. arr.) Hours, credit must be arranged before preregistration. Application should be made in term preceding enrollment. Prerequisite: curriculum methods course(s) in area of specialization.

L321 Introduction to Mental Retardation (3). Overview of field of mental retardation, including its historical development, concepts, problems, issues, definitions, and nomenclature basic to its understanding. Prerequisites: L310 or L339, F, W, S.

L339 Education of Exceptional Children (3). Study of special education and psychosocial problems of the child who deviates from the normal.

L424 Introduction to Learning Disabilities (3). Overview of field of learning disabilities through study of certain historical developments, concepts, problems, issues, definitions, and nomenclature basic to its understanding. Prerequisite: L101 or L339, F, W, S.

L431 Introduction to Education of Behaviorally Disturbed Children (3). Provides overview of field of education of emotionally disturbed children through study of certain historical developments, concepts, problems, issues, definitions, and nomenclature basic to its understanding. Prerequisite: L339 or Educational Psychology A102. F, W, S.

L434 Behavioral Management with Exceptional Children (3). Study of educational practices specific to teaching behaviorally disturbed children. Consideration is given to the extension of information acquired in methods courses in management of behavior. Prerequisite: instructor's consent.

L353 Educational and Behavioral Intervention Procedures in Special Ed (3-3). Acquaints students with historical background, development, and current issues, concepts, and procedures of educational and behavioral intervention, as well as practical application of these procedures. Prerequisite: Educational Psychology A102. F, W, S.

L391 Teacher Education in Special Education (1-4). Conceptualization and development of selected aspects of special education, with attention to evaluation of these procedures. Prerequisite: Educational Psychology A102.

L361 Psychopathology and the Exceptional Child (3). Study of assessment techniques and assessment instruments with the exceptional child. Prerequisite: L363, or concurrently.

L362 Psychopathological Assessment of Exceptional Children (3). Study of psychopathology and psychosocial problems of the exceptional child. Prerequisites: L363 and major standing.

L363 Behavior Management of Exceptional Children (3). Acquaints students with/psychosocial determinants of behavior and procedures for effective behavioral intervention in the education of exceptional children. Prerequisites: L339 and junior standing.

L365 Instructional Programming for Exceptional Children (3). Orientation to theoretical and pragmatic aspects of curriculum development and instructional programming with the exceptional child. Prerequisites: L339 and junior standing.

L366 Instructional Programming for Exceptional Children (2). Simulated and actual experiences relative to curriculum development and instructional programming. Prerequisite: L365, or concurrently.

L367 The Use of Instructional Materials With Exceptional Children (1-3). A study of instructional materials and materials appropriate for the exceptional child. Prerequisites: L339 and junior standing.

L368 Instructional Materials With Exceptional Children (2). Exposure to materials and media in an instructional materials center and special education programs. Prerequisite: L367, or concurrently.

L369 Vocational Education for Handicapped Students (3). (same as Practical Arts and Vocational-Technical Education F371). Provides a non-categorical orientation to secondary and post-secondary level vocational special education. Prerequisite: L339.

L381 Introduction to Early Childhood Special Education (3). An overview of theoretical perspectives, issues underlying education of young handicapped children (birth to five years). Rationale, scope, theoretical foundations for early intervention and legislative issues. Prerequisites: L339 and junior standing. F, W, S.

L400 Problems in Special Education (cr. arr.)

L410 Seminar in Special Education (1-3).

L415 Practicum in Special Education Area of Handicapped (2-4). Provides graduate practicum experience relevant to the education of exceptional children. Prerequisites: admission to graduate study & instructor's consent.

L420 Trends and Issues in Special Education (3). A study of the historical developments and trends, issues and problems associated with special education in the current era. Prerequisites: admission to graduate study & instructor's consent.

L421 Research With Exceptional Children (3). Explores historical, significant, and current research in special education. Emphasizes the application of research to practice and the development of problems facing the practitioner. Prerequisites: admission to graduate study & instructor's consent.

16 Honors Readings in Spanish (1). Directed readings in area of honors research. Prerequisite: permission of instructor.

17 Honors Thesis in Spanish (3). Required of Honors program members.

20 Topics (cr. arr.) Organized study of selected topics. Subjects and credits vary from semester to semester. Repeatable with permission of instructor.

27 Introduction to Hispanic Literature (3). Selected prose fiction and nonfiction prose of Spain and Spanish America. Prerequisite: 106 or equivalent.

34 Introduction to Hispanic Literature II (3). Selected plays and poetry of Spain and Spanish America. Prerequisite: 106 or equivalent.

39 Advanced Spanish Composition (3). Prerequisite: 106 or equivalent.

40 Intensive Beginning Spanish (3). Designed for rapid acquisition of a reading knowledge of Spanish. Cannot be taken to fulfill undergraduate major requirement. Prerequisite: Graduate standing or instructor's consent.

41 Commercial Spanish (3). Business terminology and forms. Translates business documents and advertises for promotion, trade and commerce, imports and exports, and money and banking. Prerequisite: 106 or equivalent.

42 Spanish Conversation (3). Prerequisite: 106 or equivalent.

43 Intensive Beginning Spanish II (3). Intensive approach designed for rapid acquisition in acquisition of multiskills of the language. Prerequisite: 106 or equivalent.

45 Mexican Culture and Civilization (2). Study of Mexican culture and civilization through field trips, excursions and selected readings in Mexican history and civilization of Spain. Open only to participants in UMC's summer study program in Mexico. Prerequisite: Sophomore standing or instructor's consent.

46 Stylistics (3). Prerequisite: 206 or equivalent.

47 Topics in Spanish Literature (3). Selected study of selected topics. Subjects and credits vary from semester to semester. Repeatable with departmental consent. Prerequisite: Junior standing.

48 Spanish Language and Literature (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

49 Renaissance and Golden Age Poetry (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

50 Renaissance and Golden Age Prose (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

51 Spanish Theatre in the Golden Age (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

52 Don Quijote (3). Prerequisite: 3 or equivalent. Recommended: 3 & 206.

53 Spanish Poetry in the Nineteenth and Twentieth Centuries (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

54 Nineteenth-Century Spanish Drama (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

55 Nineteenth-Century Spanish Novel (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

56 Twentieth-Century Spanish Drama (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

57 Twentieth-Century Spanish Novel (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

58 Literary and Cultural History (3). Study of Mexican culture and civilization through supervised field work experience. Prerequisite: 103 or equivalent. Open only to participants in UMC's summer study program in Mexico.

59 Techniques of Literary Translation (3). Introduces the history, theory and practice of literary translation. Emphasizes practice. Students are expected to produce a brief, published translation assignment totaling 10 pages.

60 Survey of Spanish American Literature I (3). From beginning to 1880. Prerequisite: 3 or equivalent. Recommended: 203 & 204.

61 Survey of Spanish American Literature II (3). From 1880 to present. Prerequisite: 3 or equivalent. Recommended: 203 & 204.

62 Argentine Literature (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

63 Modernist and Contemporary Poetry (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

64 Special Readings (1-3). Independent study through readings, discussions and written assignments. Prerequisite: permission of instructor. Undergraduates must have department chairmen's consent.

65 Readings in Spanish (2-3). Subject varies according to instructor. Prerequisite: permission of instructor. Recommended: 203 & 204.

66 The Spanish American Theatre (3). Prerequisite: 3 or equivalent. Recommended: 203 & 204.

67 Prosodic Studies (3). (same as Linguistics 360). Prerequisites: 3 or 109 or equivalent.

68 History of the Spanish Language (3). (same as Linguistics 361). Exodau analysis of phonological, morphological, and syntactic systems. Primary emphasis on Latin to contemporary dialects. Prerequisite: Graduate standing.

69 Problems (cr. arr.) Prerequisite: Graduate standing.

70 Literary and Cultural History (3). Prerequisite: 3 or equivalent. Herein: scholarly subject matter of bibliographic resources for research. Prerequisite: Graduate standing.

71 Women's Studies (1). Course varies according to instructor. Prerequisites: 3 or equivalent.

72 Studies in Spanish American Literature of the Renaissance (3). Prerequisites: 203 & 204 or equivalent. Recommended: 310.
L422 Assessment and Remediation of Learning Disabilities (3). Identification and remediation of learning disabilities and current research on psychodiagnostic assessment and program planning for the disabled learner. Prerequisites: L432 or Instructor's consent, f,w,s.

L423 Modules on Curriculum and Instruction for Exceptional Children (3). Empirical examination of selected aspects of teaching the exceptional child as a group of students who serve as consultants or resource persons in special education programs. Prerequisites: admission to graduate study & instructor's consent.

L424 Programmatic Approaches to Educ. of Child. with Behav. Disorders (3). Course provides an in-depth study of the major educational and behavioral disorders of children. Prerequisites: admission to graduate study & instructor’s consent.

L425 Psychological and Sociological Aspects of Mental Retardation (3). Explores basic psychological and sociological factors in mental retardation. Emphasizes development of the mentally retarded and mental retardation as a social problem. Prerequisites: admission to graduate study & instructor’s consent.

L499 Research in Special Education (cr. arr.)

SPEECH AND DRAMATIC ART

2 Voice and Articulation (2). Techniques for improving speaking voice; theories underlying techniques. Attention to student's articulation, pronunciation, voice quality, general expressiveness. f.w.

3 Television and Radio in Modern Society (2-3). Introduction to the history, nature, and potential social and educational aspects of broadcasting. f,w.

4 Stage Movement for the Actor (2). Basic work in the techniques that comprise movement training for the actor. Prerequisite: instructor's consent.

6 The Theatre in Society (2). Examines the role and scope of the theatre in the modern world community. f.w.

20 Principles of Technical Theatre Production (2). Practical experience in planning and execution of all aspects of theatre production. f.w.

21 Stage Format for the Actor (2). Basic work in the techniques that comprise movement training for the actor. Prerequisite: instructor's consent.

90 Black Theatre Workshop (2-3). Performance-oriented course which explores the Black Experience through study of voice, movement, and application of acting theory. May repeat to 6 hours maximum.

105 Basic Audio Production and Performance (3). Radio speaking in various types of programs; console operations, tape editing, microphone techniques. Prerequisite: instructor's consent.

118 Great Speeches (2). Analysis of masterpieces of British, American, oratory. Audience, occasion, speaker, subject. Prerequisite: sophomore standing.

120 University Theatre Workshop (1). Credit earned in performance and participation in student and/or faculty supervision of or in support of University Theatre productions. May be repeated to total of 3 hours. Prerequisite: instructor's consent.

141 Oral Interpretation of Literature (3). Study of role and impact of communication in political and marketing campaigns; historical and contemporary study of influence by communication; case studies and current events.

275 Business and Professional Speech Communication (3). Principles and practice of speech communication in business and professional settings. Emphasis on interviews, group conferences and personal presentations. Prerequisite: L343 or instructor's consent.

276 Persuasive Speaking (3). Principles, techniques of persuasive speaking. Prerequisite: 75 or instructor's consent.

280 History of Literature I (3). An overview of literature and analysis of speeches and speakers from 1950 to present. Emphasis on contemporary issues. Prerequisite: sophomore standing.

301 Topics (cr. arr.) Organization of study of selected topics. Subjects and credit by approval. May be repeated with departmental consent. Prerequisite: junior standing & instructor's consent.

302 Experimental Film and Video (3). An historical and theoretical overview of experimental film and video which examines sample productions from the beginning of the form through contemporary trends.

352 Scenic Design (3). An introduction to 16mm film techniques and structures, requiring student construction of brief individual films. Prerequisites: 302 or 310 and instructor's consent.

357 Television and Electronic Media (3). Analysis and evaluation of program scheduling, audience research methodologies, and issues related to management of media facility. Prerequisite: 105 or instructor's consent.

359 Television Studio Production (3). Operation of television studio production equipment; processes and procedures of producing and directing. Prerequisites: 206 and/or instructor's consent.

377 Broadcast Journalism 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.

378 Television Program Analysis and Criticism (3). Development of critical thinking skills for the analysis of television programming, genres, and television aesthetics. (Will count as partial fulfillment of the requirements in humanities) Prerequisites: instructor's consent.

380 Film and Television Documentary (3). An historical and theoretical overview of the international actuality film from the early work of Plaeterly and Grierson through contemporary television documentaries of significance.

381 Beginning Playwriting (3, same as Linguistics 310). Analysis ofios of Middle Western American dialects. Standards of pronunciation, feature analysis, transcriptions, articulatory mechanisms in assimilation, coarticulation.

390 Theatre Practicum (1-3). Credit earned in advanced juryed projects in acting, directing, and theatrical design. Prerequisite: instructor's consent. f.w.

395 Television Field Production (3). Theory and practice of TV field production, including preproduction, production, with portable equipment, including use of tape, and an examination of scheduling, audience, and technical proficiency. Prerequisites: 325 and/or instructor's consent.

397 Professional Practicum (1). Directed professional experience within and outside the University in communications-related fields or organizations. Prerequisites: junior standing and instructor's consent.

399 Television Technology (3). Introduction to television hardware systems involving studio and playback systems, emphasis on nonprofit operation of and understanding of common causes of problems within those systems. Prerequisites: 305 or 325 or instructor's consent.

391 Communication Issues in Telecommunications (3). Introduction to current issues and trends in telecommunications and new communication technologies. Recent developments in telecommunications and new communication technologies. Prerequisites: 206 and/or instructor's consent.

398 Communication Issues in Broadcasting (3). Introduction to current issues and trends in broadcasting, and potential impact on society. Prerequisites: 206 and/or instructor's consent.

402 Studio Production in Undergraduate Theatre (3). Directed study in theatre production under faculty supervision involving planning, research, and execution of a student-directed theatre production. May be repeated to total of 3 hours. Prerequisite: sophomore standing.

403 Playwriting (3-6). Directed study in playwriting under faculty supervision.

407 Seminar in Speech Communication (3). Directed research selected topics concerning theories of speech communication. May be repeated. Prerequisite: instructor's consent.

408 History and Critique of Broadcasting (3). Critical analysis of the history and development of television broadcasting and its influence on society. Prerequisite: instructor's consent.

409 Seminar in Film Theory (3). An historical survey of major film movements and personalities. Prerequisites: 408 and instructor's consent.

410 Topics (cr. arr.) Individual study not leading to thesis or research paper. Prerequisite: instructor's consent.

411 Independent Study (1-3). Credit earned in selected topics in speech and dramatic art. Topic and credit may vary semester to semester. Repeatable up to 3 hours. Prerequisite: department consent. Prerequisite: instructor's consent.

412 Field in Speech Communication (3). Directed research in selected topics concerning theories of speech communication. May be repeated. Prerequisite: instructor's consent.

413 History of Broadcasting (3). Cultural development of broadcast media with emphasis on radio. Prerequisite: instructor's consent.

414 Seminar in Film Theory (3). An historical survey of major film movements and personalities. Prerequisites: 410 and instructor's consent.

415 International Broadcasting (3). Comparative systems of broadcasting: influence, purposes of international propaganda, broadcasting; importance of international networks and satellite communication. Prerequisite: instructor's consent.

416 Educational Media (3). Fundamentals of television production, evaluation, technical aspects and management of educational television. Prerequisite: instructor's consent.

419 Study in Radio-TV-Film (1-4). Directed study in radio, television and film. Prerequisites: 9 hours radio-television courses or equivalent and instructor's consent.

420 Seminar in Study of Shakespeare (3). Directed readings in selected philosophical, historical, social, political, economic aspects of Shakespeare. Prerequisite: instructor's consent.

421 Introduction to Graduate Study (3). Introduction to research methods and techniques. Prerequisite: instructor's consent.

422 Professional Development (3). Research in advanced study leading to report. Prerequisite: instructor's consent.
41 Seminar in Speech Education (3). Directed research on selected patterns in instruction and research methods in the field of speech. Prerequisite: instructor's consent. May be repeated, w.s.
42 Seminar in Theatre History (3). Selected problems in theatre history. Prerequisite: instructor's consent. Since 1875.
43 Seminar in Dramatic Theory and Criticism (3). Directed research on selected topics in dramatic theory and criticism. Prerequisite: instructor's consent.
44 Seminar in American Rhetoric and Public Address (4-6). Directed research on selected topics in American rhetoric and public address. Prerequisite: instructor's consent.
45 Rhetorical Criticism (3). Principles, practice of rhetorical theory from 16th century to present. Prerequisite: 381 or instructor's consent.
46 Seminar in Theories of Rhetoric and Criticism (1-6). Directed research on selected topics in rhetorical theory and criticism. Prerequisite: instructor's consent.
47 Philosophical Foundations of Speech (3). Examines central themes and trends in philosophy, in practice and representatives of various schools of speech. Prerequisite: instructor's consent.

**SPEECH PATHOLOGY/AUDIOLOGY**

2 Introduction to Speech Pathology-Audiology (1). Types of speech, language hearing, disorders: preparation of speech pathologist, audiologist: professional settings, requirements, ethics.
4 American Speech and Language (3-5). Same as Linguistics 102.
4 Communication Disorders - A Survey (3).
6 The Development of Spoken Language (3). Acquisition of oral language by preschool children; attention to developmental stages. Prerequisite: English 319 or equivalent.
10 Introduction to Clinical Practice (1-3). Students taking this course function as junior clinicians, involved in activities such as during patient care, consultation, and attending senior clinicians during patient care. Prerequisite: 101, 120.
12 Communicative Disorders - Management and Diagnostic Techniques (3). Basic therapeutic, diagnostic and case management techniques related to varying communication disorders. Includes 10 hours of clinical observation. Prerequisite: 120 or equivalent.
14 Hearing Science (3). Physical acoustics, anatomy, physiology related to hearing. Prerequisite: 120.
30 Topics (cr. arr.) Organized study of selected topics. Subjects and number of credit hours indicated by the arr. Prerequisite: departmental consent. Prerequisite: junior standing & instructor's consent.
31 Articulation Disorders (3). In-depth investigation of articulation disorders, including their description, diagnosis and remediation. Application of current clinical approaches to articulatory disorders. Includes a minimum of 5 hours of clinical observation. Prerequisite: 20.
35 Clinical Practice in Speech Pathology (1-3). Application in clinical practice of diagnostic and remedial techniques for speech, language disorders. May be repeated for credit. Prerequisites: 215, 220.
37 Introduction to Audiology (3). Hearing sciences, evaluation, measurement, and rehabilitation. Prerequisite: 130.
40 Auditory Rehabilitation (3). Speechreading, principles, and techniques of auditory training for hearing impaired children and adults. Prerequisite: Psychology 101, 120.
41 Reading Disorders (3). Research practices in communication disorders, statistical inference based upon parametric and non-parametric tests. Prerequisites: Sociology 110, Psychology 120.
42 Directed Reading (1-3). Independent reading, reports. Prerequisite: junior standing. f.w.s.
46 Topics (cr. arr.) Individual study not leading to thesis or dissertation.
47 Topics (cr. arr.) Study of selected topics in Speech and Dramatic Art. Topic and credit may vary from semester to semester. Repeatable one time with instructor's consent.
48 Developmental Linguistic Disorders (3). Disorders of oral language: linguistic retardation, acquired aphasia. Prerequisite: 202 or instructor's consent.
49 Acquired Linguistic Disorders (3). Nature, etiology, management of dysphasia. Prerequisite: 402 or equivalent or instructor's consent.
50 Acoustic Phonetics (3). Same as Linguistics 410. Research methodologies in analysis of acoustic features underlying speech, language processes, and perceptual correlates. Prerequisite: 210, 230 equivalent.

411 Physiological Phonetics (3). Same as Linguistics 411. Research methodologies in analysis of physiological features underlying speech, language processes; theories of encoding and encoding control mechanisms. Prerequisite: 210 or equivalent.
421 Research on Language and Communication Disorders (3). Theory, research, practice in use of instruments for evaluation of normal/abnormal voice, articulation. Prerequisite: 210, 410, or 411 or instructor's consent.
422 Motor Speech Disorders (3). Description, etiology, diagnosis and remediation of speech and language problems resulting from neurological and/or myogenic impairments. Prerequisite: 210, 220 or equivalent.
431 Fluency Disorders (3). Identification and remediation of fluent disorders in children and adults. Prerequisite: 210, 220 or equivalent.
441 Voice and Cleft Palate (3). Communication disorders associated with vocal anomalies and craniofacial anomalies. Prerequisite: 210, 220 or equivalent.
451 Clinical Practice in Speech Pathology (1-3). Supervised clinical practice in speech pathology for graduate students. May be repeated for credit. Prerequisite: 325 or equivalent.
461 Phonology (3). Supervised clinical experiences with children and adults having speech and/or language disorders. Prerequisite: instructor's consent.
471 Pathology of Hearing (3). Etiology, nature and rehabilitative implications of specific hearing impairments. Prerequisite: 330.
482 Advanced Audiology I (3). Advanced pure tone and speech audiometry; special tests, exploratory techniques; principles, procedures for hearing aid selection. Prerequisite: 330.
423 Advanced Audiology II (3). Advanced principles of diagnostic audiology; central auditory assessment; audiometric standards in calculation; electromyography and techniques; acoustic impedance measurements. Prerequisite: 342.
452 Clinical Practice in Audiology (1-3). Supervised; integrated with diagnostic and rehabilitation programs. May be repeated for credit. Prerequisite: 330.
459 Research (cr. arr.) Research of an advanced nature leading to a report.
469 Research (cr. arr.) Research leading to a dissertation or thesis.

**STATISTICS**

31 Elementary Statistics (3). Collection, presentation of data; averages; dispersion; introduction to probability and regression and correlation. Prerequisite: Mathematics 10, f,w,s. cr.
150 Introduction to Probability and Statistics I (3). Designed primarily for business and social science majors. Prerequisites: Probability theory; random variables; expectation; probability distributions; descriptive statistics; sampling distributions. Prerequisite Mathematics 31.
198 Honors (2). Special work for Honors candidates in statistics.
199 Honors (2). Special work for Honors candidates in statistics.
207 Statistical Analysis (3). For graduate students and superior seniors with no previous training in statistics. Intensive study of concepts, techniques of statistical analysis, and their applications. Prerequisite: Mathematics 10 or equivalent. f,w,s.
234 Intermediate Probability and Statistics (3). Elements of sampling; tests of hypotheses; methods of estimation; regression and correlation. Prerequisite: 210, 220 or equivalent.
250 Introduction to Probability and Statistics II (3). Continuation of 150. Estimation; hypothesis testing; regression; correlation; statistical decision theory; Bayesian inference. Prerequisite: Mathematics 31.
301 Problems (1-3). Independent investigations. Reports on approved topics. Prerequisite: 207 or 234 or equivalent.
31 Topics (cr. arr.) Organized study of selected topics. Subjects and earning credit may vary from semester to semester. Repeatable with departmental consent. Prerequisites: junior standing and instructor's consent.
30 Statistical Methods in the Health Sciences (3). Basic inference methods; both parametric and non-parametric, appropriate for answering questions arising in health sciences research. Computer exercises involving data from real experiments from health science area. Prerequisite: Mathematics 10 and graduate standing or instructor's consent.
304 Statistical Computing (3). Acquaints students with requisite computing tools for organizing, summarizing, and manipulating large data sets, applying statistical methods to real data. Prerequisite: 207 or 234 or 320 or instructor's consent.
37 Nonparametric Statistical Methods (3). Statistical methods when the functional form of the population is unknown. Applications emphasized. Comparison with parametric procedures. Goodness-of-fit, chi-square, comparison of several populations, measures of correlation. Prerequisite: 207 or 224 or equivalent.
39 Introduction to Mathematical Statistics I (same as Mathematics 320). Introduction to theory of probability and statistics using concepts and methods of calculus. Prerequisite: Mathematics 210 or instructor's consent. f,w,s.
32 Statistical Inference I (3). Same as Mathematics 326. Sampling point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses. Prerequisite: 210 or instructor's consent. f,w,s.
326 Statistical Inference II (3). Same as Mathematics 326. Sampling point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses. Prerequisite: 210 or instructor's consent. f,w,s.
423 Advanced Audiology (3). Same as Mathematics 440. Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit theorem. Prerequisite: 325 or 401, & 406; or instructor's consent.
425 Special Topics in Statistics (cr. arr.) Prerequisite: instructor's consent.
460 Theory of Estimation and Hypothesis Testing (3). Theory of both estimation and test of hypotheses including sufficient statistics, expectation, likelihood, maximum likelihood, Neyman-Pearson lemma, locally best tests, confidence ellipsoids and sequential tests and estimates. Prerequisite: 326.
463 Advanced Audiology (3). Same as Mathematics 440. Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit theorem. Prerequisite: 325 or 401, & 406; or instructor's consent.
464 Linear Models I (3). Elementary regression (curve fitting) and analysis of variance (crossed classification, blocking, analysis of covariance) applied to scientific examples. Various numerical examples provided. Prerequisites: calculus & a first course in statistical inference. f.
465 Linear Models II (3). Mathematically more mature study and application of the general linear model. Other related regression and analysis of variance models. Prerequisite: 464. Corequisite: 326, Mathematics 202 or 310, Mathematics 331.
470 Theory of Nonparametric Statistics (3). Estimation, hypothesis testing, ranking and selection procedures. Parametric and nonparametric tests. Prerequisite: 403 or instructor's consent.
490 Research (cr. arr.)

**SURGERY**

A Surgery Clerkship Block 1 (3). A required surgical clerkship of 12 weeks is offered to third year students throughout their junior year. The students spend six weeks on two of the surgical specialties. Emphasis is placed upon the principles of diagnosis and treating common surgical disorders. Students are an integral part of the surgical
team and participate in the preoperative examination and evaluation of patients, assist in surgical procedures, and aid in the postoperative management. The student is expected to function as a member of the surgical team. Clinical responsibilities are increased in proportion to the student’s knowledge and ability. Teaching rounds are supplemented by lectures, seminars, and conferences.

B Surgery Clerkship Block II (5). Students spend the entire time on general surgery. During which emphasis is placed upon surgical pathology and anatomy and upon the principles of diagnosis and treating common surgical disorders. Students are an integral part of the surgical team and participate in the preoperative examination and evaluation of the patients, assist in the surgical procedures, and aid in the postoperative management. Teaching rounds are supplemented by lectures, seminars, and conferences.

Surgical Electives (10). Each of the surgical divisions offers elective in clinical and investigational surgery. These electives offer the student an opportunity to gain clinical experience with close supervision.

Pregraduate Instruction (6). Formal training programs are established in the following divisions of surgery: general surgery, 5 years; genito-urinary surgery, 5 years; neurosurgery, 4 years; orthopedic surgery, 5 years; ophthalmology, 4 years; plastic surgery, 2 years; and thoracic surgery, 2 years.

VETERINARY ANATOMY

202V Veterinary Anatomy (8). Correlative study of the anatomy of domestic and laboratory animals in which microscopic, developmental, and gross anatomy are integrated. Attention given to medical problems, connective tissues, muscular, respiratory and circulatory systems.

203V Veterinary Anatomy (10). Continuation of 202V. Particular attention is directed toward the normal and diseased, and degenerative systems, endocrine glands, skin and its derivatives.

219 Elements of Veterinary Anatomy (3). For agriculture and other students desiring basic zoological terminology and the comparative functional anatomy (developmental, microscopic and gross) of domestic animals. Prerequisite: 5 hours biological sciences (zoology) or equivalent.

303 Cytology, Histology and Microscopic Anatomy of Domestic Animals (5). Detailed study of cytology, histology and microscopic anatomy, including an examination of organology of domestic animals through lectures and laboratory activities. Prerequisites: graduate standing, background in biological sciences, instructor’s consent.

305 Histological and Anatomical Techniques (cr. arr.). Detailed study and practice of techniques used in preparation of specimens for microscopic and macroscopic study. Prerequisites: background in chemistry and anatomy; instructor’s consent.

307 Embryology and Development of Domestic Animals (2). Developmental anatomy of domestic animals. Special written report and/or review required. Prerequisites: background in biological science & departmental consent.

311 Canine Dissection (6). Study of gross anatomy of the dog by lecture, dissection, discussion. Special written report and/or review required. Prerequisites: background in biological science & departmental consent.

312 Anatomy of Common Domestic Animals (5). Gross anatomy of horse, ox, sheep, pig, cat, chicken; particular attention to areas of veterinary medical importance. Special written report and/or review required. Prerequisites: 311 or equivalent, biological science background & departmental consent.

409 Advanced Microscopic Anatomy (cr. arr.). Advanced microscopic study of both normal and abnormal microscopic anatomy. Special report required. Prerequisites: graduate standing, 303 or equivalent, instructor’s consent.

418 Correlative neuroanatomy (4). Comprehensive study of neuroanatomy of common domestic and laboratory animals. Prerequisite: graduate standing and/or instructor’s consent.

VETERINARY MEDICINE AND SURGERY

200V Problems (cr. arr.). Studies in specific areas of veterinary medicine and surgery.

251V Food Animal Medicine and Surgery I (10). Technicial, diagnostic and therapeutic procedures common to the practice of large animal medicine and surgery. Experience in the operation of a large animal hospital and farm outpatient practice. Offered six times yearly.

252V Food Animal Medicine and Surgery II (10). Continuation of 251V, with opportunity for concentrated study and experience. As part of continuing education program. Prerequisite: 251V.

253V Small Animal Medicine and Surgery. Study of medical diseases of dogs, cats and exotic pets as they affect body systems. Practical experience in the operation of a small animal hospital and outpatient practice program. Prerequisite: 251V.

254V Small Animal Medicine II (1-10). Continuation elective offered to 3rd- and 4th-year students. Opportunity for concentrated study and experience in medical areas. Enrollment subject to approval of course coordinator. Available to veterinarians under continuing education program. Prerequisite: 253V or equivalent.

255V Equine Medicine and Surgery I (10). Technicial, diagnostic and therapeutic procedures common to the practice of large animal medicine and surgery. Opportunity for concentrated study and experience in medical areas. Enrollment subject to approval of course coordinator. Available to veterinarians under continuing education program. Prerequisite: 251V or equivalent.

256V Equine Medicine and Surgery II (1-10). Offered to 3rd- and 4th-year students, subject to approval of course coordinator. Continuation of 255V, with opportunity for concentrated study in specific area of interest. Available to veterinarians under continuing education program.

257V Small Animal Surgery I (10). Diagnostic procedures and surgical techniques applied to small animal surgery. Practical experience in the operation of a small animal surgical practice. Offered six times yearly.

258V Small Animal Surgery II (1-10). Continuation of 257V, with opportunity for concentrated study and advanced surgical experience. Available to veterinarians under continuing education program. Prerequisite: 257V or equivalent.

259V Theriogenology I (10). Diseases of the male and female reproductive systems. Manipulative and surgical techniques applicable to normal and abnormal parturition. Practical experience in reproductive diagnostic techniques and management of normal and abnormal reproduction. Experience in hered and herd reproductive health programs. Offered six times yearly.

260V Theriogenology II (1-10). Continuation of the prerequisite. Offered to 2nd- or 3rd-year students. Opportunity to obtain an in-depth experience with close supervision. Available to veterinarians under continuing education program. Prerequisite: 260V or equivalent.

261V Medical Services I (10). Fundamentals of radiology and anesthesiology: indications for use, techniques, pathophysiologic alterations, interpretation of results, patient aftercare, protective measures against radiation. Preparation for collaborative experience in the provision of health care services. Offered six times yearly.

262V Medical Services II (1-10). Continuation of the prerequisite. Opportunity for concentrated study and experience. An elective, subject to approval of course coordinator and faculty member(s) who supervise student’s work. Available to veterinarians as a continuing education program.

265V Laboratory Animal Medicine and Management I (10). Principles of veterinary medicine applied to animals used in experimental investigations. Selection of appropriate species and methods; husbandry, facilities, handling techniques and diseases of these animals. Offered twice yearly.

266V Laboratory Animal Medicine and Management II (10). Elective offered 3rd- and 4th-year students, subject to approval of course coordinator and supervising faculty. Concentrated study experience in laboratory animal disease/colony management. Available to veterinarians as a continuing education program.


268V Herd Health Management and Nutrition II (1-10). Elective offered 3rd- and 4th-year students, subject to course coordinator and supervising faculty. Concentrated study experience in feed lot, dairy, calf/cow, swine herd. Preparation for enterprises applicable to veterinary practice. Prerequisite: 267V.

271V Introduction to Clinical Sciences (7). Integrates preclinical sciences with a systems offered in the ninth instructional period only. Oriented approach to medicine and surgery. Clinical experience in small animal hospital, large animal hospital, and clinical animal surgery. Prerequisites: 265V and 266V.

272V Small Animal Radiology I (2.5). Lectures (fundamental through advanced) on small animal surgery. Practical laboratory involvement in soft and hard tissue procedures. Offered in the tenth instructional period only.

273V Radiology II. Introduces lectures and demonstrations the principles of radiographic examination and interpretation of disease processes of domestic animals. Offered in the ninth instructional period only.

274V Small Animal Medicine (2.5). Didactic presentations regarding pathophysiology, diagnosis and therapeutic management of organ system diseases in small animals. Offered in the tenth instructional period only.

275V Food Animal Medicine and Surgery (3.5). Introduces the medical and surgical diseases of food-producing animals. Diagnostic and therapeutic procedures common to the practice of large animal medicine and surgery. Experience in the operation of a large animal hospital and farm outpatient practice. Prerequisite: 251V.

VETERINARY MICROBIOLOGY

241V Veterinary Immunology (2). Fundamentals of immunology applied to domestic animals. Instructional period 4.

242AV Veterinary Bacteriology I (3). Classification and properties of pathogenic bacteria and fungi of animals; relationship to public health. Offered with laboratory and field component. Prerequisite: enrollment in College of Veterinary Medicine. Instructional period.

242BV Veterinary Bacteriology II (2). Continuation of 242AV. Prerequisite: enrollment in College of Veterinary Medicine. Instructional period.

243V Veterinary Virology (3). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Prerequisite: enrollment in the College of Veterinary Medicine. Instructional periods 6 & 7.

245 AV Veterinary Parasitology I (3). Parasites and parasitic diseases of rodents, horses, swine, dogs, cats, poultry and other animals. Includes classification, life cycle, biology and control of parasitic helminths and arthropods. Prerequisite: enrollment in the College of Veterinary Medicine. Instructional period.

246V Veterinary Clinical Parasitology (2). Continuation of 245AV. Prerequisite: same as 245AV. Instructional period.

247V Introduction to Epidemiology and Infectious Disease (1). Epidemiology and infectious disease with an emphasis on the epidemiologic principles and methods. Consider multifactorial causes of infectious disease. Instructional period 1.

248V Veterinary Clinical Epidemiology and Preventive Medicine (4). Epidemiology, food hygiene control, ecology and communicable diseases of populations of animals and man. Preparation for epidemiology. Prerequisite: 247V.

249V Public Health and Epidemiology (10). Epidemiology, anatomy and pathogenesis of disease in populations of animals and man. Principles of public health. Prerequisite: 248V.

304 Microbiological Physiology (3). Microbial structure and function, with biochemistry of life processes at cell and subcellular level. Prerequisites: Microbiology I & II, general biology, cell and molecular biology. Prerequisites: instructor’s consent. Instructional period.

305 Advanced Animal Immunochemistry (cr. arr.). Elective covering advanced aspects of epidemiology and community health. Emphasis problem solving and is designed to meet needs of the individual student. Prerequisite: instructor’s consent. Instructional period.

340 Microbial Physiology (3). Microbial structure and function, with biochemistry of life processes at cell and subcellular level. Prerequisites: Microbiology I & II, general biology, cell and molecular biology. Prerequisites: instructor’s consent. Instructional period.

343 Clinical Epidemiology and Environmental Health (1). Epidemiology, food hygiene control, ecology and communicable diseases of populations of animals and man. Preparation for epidemiology. Prerequisite: 244V.

344 Environmental Microbiology (cr. arr.). Elective covering advanced aspects of epidemiology and community health. Emphasis problem solving and is designed to meet needs of the individual student. Prerequisite: instructor’s consent. Instructional period.

345 Animal Immunochemistry and Toxicology (1). Prerequisites: one course in microbiology & one in lineal biochemistry, or equivalent. Prerequisite: instructor is biochemistry. Prerequisite: one course in microbiology. Prerequisite: instructor’s consent. Instructional period.

346 Clinical Epidemiology and Environmental Health (1). Epidemiology, food hygiene control, ecology and communicable diseases of populations of animals and man. Preparation for epidemiology. Prerequisite: 244V.
438 Epidemiology of Zoonotic Diseases (1-10). Zoonotic diseases of major public health importance in North America. Includes epidemiology and transmission of these diseases, with particular emphasis on control/eradication methods. Prerequisite: enrollment in a professional medical, dental or public health curriculum.

439 Seminar (1). Open to graduate students in veterinary microbiology and allied biological sciences. Study and discussion of current knowledge and research in microbiology, infectious diseases and epidemiology.

421 Advanced Epidemiology (3). (Same as Family & Community Medicine 421).

441 Topics in Veterinary Microbiology (1-3). Subjects appropriate to veterinary microbiology and/or epidemiology, taught on an individual or infrequent basis. May include highly specialized topics. Specific course must be approved by departmental faculty. Prerequisites: graduate standing & instructor’s consent.

422 Advanced Veterinary Pathogenic Bacteriology (3). Study of pathogenic bacteria causing animal disease. Pathogenic bacteria causing animal disease and host-parasite relationships are emphasized. Laboratory procedures for isolation and identification of pathogens are included. Prerequisites: graduate standing and instructor’s consent. alt. f. odd yrs.

433 Veterinary Oncology (3). Study of animal neoplasms. Prerequisite: departmental consent.

434 Advanced Clinical Pathology (4). Laboratory techniques; application to diagnosis of animal diseases. Prerequisite: departmental consent. alt. f. even yrs.

435 Pathology of Laboratory Animals (3). (Same as Laboratory Animal Medicine Area 437). Gross and microscopic study of spontaneous and naturally occurring diseases in laboratory animals. Prerequisite: departmental consent.

436 Pathology of Laboratory Animals (3). (Same as Laboratory Animal Medicine Area 438). Diseases and pathology of primates. Prerequisite: departmental consent. alt. f. even yrs.

453 Electron Microscopy Laboratory (3). (Same as Plant Pathology 453). Second half winter.

454 Research (cr. arr.) Open to graduate students with requisite preparation. Research on specific animal diseases, prevention and treatment.

VETERINARY PATHOLOGY

200 Problems (cr. arr.) Assignment of special topics for research training in veterinary pathology.

230 Animal Sanitation and Disease Prevention (3). Preventative measures for diseases and parasites of farm animals. Prerequisite: Veterinary Anatomym-Physiology 219 or Veterinary Anatomym-Physiology 221.

231V General Pathology (3). Fundamental biochemical and anatomical alterations of disease. Includes disturbances in metabolism, circulation, growth, and cell differentiation. Also includes the pathology of tumors.

232A Systemic and Special Pathology I (3). Pathologic manifestations of disease in the organ systems. Includes changes caused by infective agents and metabolic disturbances. Stresses the gross and microscopic criteria by which definitive diagnoses are made.

232B Systemic and Special Pathology II (3). Continuation of 232AV.

263V Diagnostic Pathology and Special Species Medicine I (10). Application of laboratory techniques used to diagnose disease by macroscopic, microscopic, biochemical, microbiological, and toxicologic findings. Case method of teaching. Domestic avian species and laboratory animals emphasized. Prerequisite: introductory laboratory work.

264V Diagnostic Pathology and Special Species Medicine II (1-10). Third- and fourth-year students. Elective. Approval of coordinator and supervisory staff. Continuation of 263V with more depth. Available to D.V.M.’s as part of continuing education program. Prerequisite: 263V or equivalent.

390 Problems (cr. arr.) Prerequisites: D.V.M. & departmental consent.

335 Techniques in Pathology (cr. arr.) Methods and techniques in fixation, processing, staining, pathological specimens

419 Seminar (1). Presentation, research and topics in animal diseases. Section 1: for students in the pathology area program. Section 2: for students not in the area program. For students in veterinary medicine and allied biological fields.

430 Comparative Pathology (3). (Same as Plant Pathology 430, Pathology 430). Biochemical and morphologic lesions related to the mechanism of disease expression in plants and animals.

431 Advanced Veterinary Pathology (3-5). Specific assignments on diagnostic methods including surgical pathology, necropsy, toxicology. Prerequisite: departmental consent.

432 Advanced Histopathology (5). Advanced microscopic study of pathological tissues. Prerequisite: departmental consent.

VETERINARY PHARMACOLOGY AND TOXICOLOGY

226V Veterinary Pharmacology (3). General principles of pharmacology. Particular emphasis on pharmacodynamics.

227V Veterinary Pharmacology-Anesthesia (3). Systemic study of drugs commonly employed in veterinary practice. Particular emphasis on pharmacotherapy, anesthetics and drugs affecting the central nervous system.

228V Veterinary Toxicology (3). Biological responses to foreign chemicals, especially those not discussed in nutrition and pharmacology. The principles and molecular basis of intoxication are presented.

326 Veterinary Pharmacology (3). General principles of pharmacodynamics in domesticated animals.

328 Principles of Toxicology (3). Essentials of toxicology and survey of major toxicant groups, including poisonous plants, and the industrial and agricultural chemicals. Prerequisite: biochemistry or instructor’s consent.

VETERINARY PHYSIOLOGY

222V Veterinary Physiology (5). Physiology of muscle, nervous, circulatory, respiratory systems. Lecture, lab designed to emphasize principles important to practice of veterinary medicine.

223V Veterinary Physiology (5). Continuation of 222V. Digestion, excretion, endocrinology, and reproduction.

224 Fundamentals of Animal Physiology (3). For students not enrolled in the professional veterinary medicine curriculum. Relationship of structure and function in the common domestic animals. Study of cell, tissues, organs, and systems.

224V Veterinary Physiological Chemistry (5). Chemistry of carbohydrates, lipids, proteins, other physiologically important chemical systems. Basic intermediary metabolism with special attention to areas of importance to veterinary medicine.

225 Veterinary Physiology (5). Systematic physiology for graduate students with primary interest in animals other than man. Function of nerve, muscle, circulatory and respiratory systems. Prerequisites: Biochemistry 270 & Biochemistry 272, or equivalent.

241 Veterinary Physiology (5). Continuation of 240. Digestion, excretion, endocrinology, reproduction.

WOMEN STUDIES

60 The Female Experience: Body, Identity, and Culture (3). (Same as Sociology 60). 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.

101 Topics (1-3). Organized study of selected topics in women studies. Subjects and enrollable credit may vary from semester to semester. Repeatable up to 6 hours with consent. Prerequisite: sophomore standing.

105 Feminism: The Basic Questions (3). Introduction to the basic issues of Western feminist thought through a study of classical and contemporary sources. Course will consider images, conditions, activities and visions of women as they vary historically and socially.

201 Topics (1-3). Organized study of selected topics in women studies. Subjects and enrollable credit may vary from semester to semester. Repeatable up to 6 hours. Prerequisite: junior standing and/or 105.

215 American Feminism (3). (Same as History 215). Study of the American feminist movement from its roots in the 19th century to the present. First and second waves of feminism will be analyzed from historical and social movement perspectives. Prerequisite: junior standing and/or 105.
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# ACADEMIC CALENDAR

## Winter Semester
- **Orientation and Registration**
  - Registration: 1984
  - Classwork begins, 7:40 a.m.: Th Jan 19
  - Spring Recess begins, 12:30 p.m.: F Jan 20
  - Classwork resumes, 7:40 a.m.: M Jan 23
  - Stop Day: Sa Mar 17
  - Final examinations begin: M Mar 26
  - Winter semester closes, 5 p.m.: Th May 10
- **Annual Commencement**
- **Stop Day**
- **Final examinations begin**
- **Winter semester closes, 5 p.m.**

## Summer Session
- **8-week session**
  - Orientation & Registration: M Jun 4
  - Classwork begins, 7:30 a.m.: Tu Jun 5
  - Independence Day Recess: W Jul 4
  - 8-week session closes, 5:30 p.m.: F Jul 27
- **First 4-week session**
  - Orientation & Registration: M Jun 4
  - Classwork begins, 7:30 a.m.: Tu Jun 5
  - First 4-week session closes, 5:30 p.m.: F Jun 29
- **Second 4-week session**
  - Registration; Classwork begins, 7:30 a.m.: M Jul 2
  - Independence Day Recess: W Jul 4
  - Second 4-week session closes, 5:30 p.m.: F Jul 27
- **Summer Commencement**

## Fall Semester
- **Orientation & Registration**
  - Registration: Th Aug 23
  - Classwork begins, 7:40 a.m.: F Aug 24
  - Labor Day Recess: M Aug 27
  - Thanksgiving Recess begins, close of day: M Sep 3
  - Classwork resumes, 7:40 a.m.: Tu Nov 20
  - Classwork ends, close of day: M Nov 26
  - Stop Day: Tu Dec 11
  - Final examinations begin: W Dec 12
  - Fall semester closes, 5 p.m.: Th Dec 13
- **Winter Semester**
  - Orientation and Registration: Th Jan 17
  - Registration: F Jan 18
  - Classwork begins, 7:40 a.m.: M Jan 21
  - Spring Recess begins, 12:30 p.m.: Sa Mar 16
  - Classwork resumes 7:40 a.m.: M Mar 25
  - Classwork ends, close of day: W May 8
  - Stop Day: F May 10
  - Final examinations begin: Sa May 11
  - Winter semester closes, 5 p.m.: F May 17
  - Annual Commencement: Sa May 18

## Summer Session
- **8-week session**
  - Orientation & Registration: M Jun 3
  - Classwork begins, 7:30 a.m.: Tu Jun 4
  - Independence Day Recess: Th Jul 4
  - 8-week session closes, 5:30 p.m.: F Jul 26
- **First 4-week session**
  - Orientation & Registration: M Jun 3
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