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General Information

1987 University and Academic Officers

The Wichita State University

Warren B. Armstrong, President of the University
Joyce A. Scott, Executive Vice President for Academic Affairs and Dean of Faculties
Martin H. Bush, Vice President for Academic Resource Development
Roger D. Lowe, Vice President for Administration and Finance
Robert F. Hartsock, Vice President for Development, Alumni and University Relations and Executive Vice President of the Board of Trustees
Averett S. Tombes, Vice President for Research and Dean of Graduate Studies
James J. Rhatigan, Vice President for Student Affairs and Dean of Students
Douglas Sharp, Dean of the College of Business Administration
Leonard M. Chaffee, Dean of the College of Education
William J. Wilhelm, Dean of the College of Engineering
Rhoda-Gale Pollack, Dean of the College of Fine Arts
M. Diane Roberts, Dean of the College of Health Professions
Philip D. Thomas, Dean of Fairmount College of Liberal Arts and Sciences
Jacqueline J. Snyder, Dean of Continuing Education
Jasper G. Schad, Dean of Libraries
William W. Harmon, Dean of University College
Frederick Sudermann, Executive Assistant and Director of Governmental Relations
Lew Perkins, Director of Intercollegiate Athletics

Graduate Council

Averett S. Tombes, Chairperson, Vice President for Research and Dean of Graduate Studies
Michael P. Tilford, Associate Dean of the Graduate School
Gerald D. Loper, Jr., Acting Assistant Dean of the Graduate School
David Childs, Fine Arts
Emond Devun, Natural Sciences and Mathematics
Glen Dey, Personnel Services, Communicative Disorders and Sciences, and Physical Education
Elena Bastida, Social Sciences
Michael A. James, Instructional Services and Industrial Education
Frederic B. Krialt, College of Business Administration
Robert H. Ross, Master of Business Administration
Alicia A. Huckstadt, College of Health Professions
William E. Unrau, Humanities
Mark M. Jong, College of Engineering
William R. Carper, Dean's Representative
Collete Hoglund, Student Representative

Doctoral Program Subcouncil

Averett S. Tombes, Vice President for Research and Dean of Graduate Studies
Michael P. Tilford, Associate Dean of the Graduate School
William R. Carper, Chemistry
Kenneth W. Burk, Communicative Disorders and Sciences
Glen R. Dey, Educational Administration and Supervision
Glen W. Zumwall, Engineering
Dharam V. Chopra, Mathematics
Robert H. Rose, Graduate Council Representative

Board of Regents

State of Kansas

Frank J. Becker, Chairman, El Dorado
Norman W. Brandeberry, Russell
Richard W. Dodderidge, Mission Woods
Norman W. Jeter, Hiaw
Shirley Palmer, Fort Scott
Richard R. Reinhardt, Erie
Richard P. Senecal, Atchison
Linwood Sexton, Sedgwick
Donald C. Slawson, Wichita
Stanley Z. Koplik, Executive Director, Topeka

Mission Statement

In December 1986, the Kansas Board of Regents approved the following mission statement for The Wichita State University:

The Wichita State University is an urban university with a focused mission intended to meet the industrial, business, educational, social and cultural needs of the greater Wichita area. The University's primary goal is to serve citizens in the thirteen-county area surrounding Wichita and Sedgwick County, with special sensitivity to the large number of minority citizens residing in the urban area. Its urban student body is predominantly part-time and beyond the traditional college age, thus requiring special support services.

Programs of study in the liberal arts and sciences, fine arts, business, engineering, education and health and human services lead to the associate through the doctoral degree, but primary emphasis is at the baccalaureate and master's level. Building on a foundation in the liberal arts and sciences, the institution's unique role resides in the delivery of programs in the visual and performing arts, engineering, business and education.

Doctoral degrees are limited to those currently approved (doctorates in communicative disorders and sciences and engineering and the Master of Fine Arts [M.F.A.] in art and creative writing) and doctoral programs authorized for development in chemistry and applied mathematics. At an appropriate time, the institution will pursue development of a joint doctoral degree with The University of Kansas and Kansas State University in computer science and freestanding doctoral degrees in educational administration and psychology.

Research activity will occur principally in those areas with existing terminal degrees and those identified for terminal degrees. Applied research related to industry in the service area is the major thrust of these activities.

Service activities such as those conducted at the Center for Business and Economic Research, the Center for Entrepreneurship, the Small Business Development Center, the Institute for Aviation Research and the Hugo Wall Center for Urban Studies are especially tailored to meet the needs of the institution's service area.

Profile of The Wichita State University

The Wichita State University is distinguished from other state-supported schools in Kansas by its urban setting. Wichita State's location in the largest city in Kansas enhances the traditional classroom experience by providing students greater opportunities in resources, contacts with business and government leaders, employment and internships.
With an enrollment of nearly 17,000, Wichita State prides itself on specialized attention to each student. Although the University's students come from almost every state in the Union and 70 foreign countries, more than 90 percent are from Kansas, representing every county in the state.

Because of its urban setting, The Wichita State University has two side-by-side student bodies—traditional and nontraditional. The average student age is 27; more than one-third are married and more than 84 percent work full- or part-time. Although the nontraditional students are in the majority, there are 6,700 traditional students, ages 18 to 23, who devote themselves full-time to school and campus activities.

The Wichita State University offers 185 academic majors in six undergraduate degree-granting colleges: College of Business Administration, College of Education, College of Engineering, College of Fine Arts, College of Health Professions and Fairmount College of Liberal Arts and Sciences. The Graduate School offers programs leading to the specialist in education degree and to the PhD in communicative disorders and sciences and engineering. In addition, Wichita State offers PhD programs in applied mathematics and chemistry in cooperation with The University of Kansas and Kansas State University. Master's degrees are offered in almost 40 areas University College and the Division of Continuing Education meet the needs of students not yet admitted to a degree-granting college.

Committed to fulfilling the needs of each student, WSU offers the traditional fall and spring semesters, it has the largest number of evening and summer course offerings in the Kansas Board of Regents system. The summer session features a flexible time format with a three-week presession and two four-week sessions held concurrently with the regular eight-week session.

Although WSU's first commitment is to excellence in instruction, it has an equally strong commitment to excellence in research and public service as integral parts of its educational mission.

An important resource to the Wichita area business community, Wichita State supports research and development through programs such as the Center for Productivity Enhancement. The corporate community utilizes programs offered by the University's Center for Management Development for continuing professional development. The Center for Entrepreneurship and Small Business Management encourages development of small businesses, while the Hugo Wall Center for Urban Studies supports local and state government activities.

The 320-acre campus is modern and accessible and at the same time retains the flavor of the University's 90-year heritage. Fifty-one pieces of sculpture by internationally known artists adorn the campus. Personnages Osseaux, a colorful mural created by the great Spanish artist Joan Miro, is displayed on the wall of the Erwin A. Ulrich Museum of Art. During the past 15 years, Wichita State has more than doubled its instructional space, adding major buildings for art, engineering, health sciences, biological sciences, physical education, dance and liberal arts and sciences.

One of the newest additions, completed in 1986, makes Media Resources Center the largest telecommunications facility in the state. Another part of this three-stage construction project is the expansion and renovation of Abilah Library scheduled for completion late in 1986. Construction was scheduled to begin in 1987 on a new Institute for Aviation Research which will enhance further the University's research association with Wichita's aircraft industry. Architectural planning has begun on a new $12 million building for mathematics, physics, computer science and psychology, as well as the Computing Center.

Wiedemann Hall, dedicated in 1966, houses a world-famous Marcussen organ. The original Pizza Hut is located on campus and is national headquarters for ACE (Association for Collegiate Entrepreneurs). A new stadium was completed in 1985 for the nationally ranked WSU baseball team. The Heskett Center, a $10.6 million physical education facility, was completed in 1983.

More than 180 social and special interest clubs provide opportunities for students to meet and work with others who share their interests. Seven national honor societies and 12 national fraternities are active on campus.

There are sports opportunities in tennis, cross-country, basketball, track, golf, crew, soccer and bowling for all students. Teams also are fielded in baseball for men and volleyball and softball for women.

History

Wichita State began as Fairmont College and was operated by the Congregational Church from 1895 until 1926 when by a vote of the citizens of Wichita, it became the first municipal university west of the Mississippi.

After 38 years as a municipal university, WSU again changed its status July 1, 1964, when it officially entered the state system of higher education.

Now, The Wichita State University is one of six state universities governed by the Kansas Board of Regents.


Accreditation and Associations

The Wichita State University holds membership in or is accredited by the following agencies:

- North Central Association of Colleges and Schools
- National Council for Accreditation of Teacher Education
- Kansas State Department of Education Accreditation Board for Engineering and Technology
- American Speech-Language and Hearing Association
- National Dental Association
- American Physical Therapy Association
- National League for Nursing
- Association of University Programs in Health Administration
- Kansas Bureau of Emergency Medical Services
- Accreditation Council on Social Work Education
- National Association of Schools of Music
- National Association of Schools of Dance

Policies

Human Relations

It is the policy of The Wichita State University not to discriminate on the basis of race, color, religion, national origin, sex, age, disability or political affiliation in its educational programs, activities or employment policies as required by the Civil Rights Act of 1964 and subsequent amendments (including Title IX of the Education Amendments of 1972), federal executive orders, federal regulations and guidelines and the State's Executive Order No. 75-9. The University is further committed to take affirmative action to assure that equality of opportunity shall exist. Questions concerning discrimination should be directed to James J. Ratigan, vice president for student
afairs and dean of students, Grace Wilkie Hall.

**Student Responsibility**

Students at The Wichita State University have the following responsibilities:

1. To consult with advisers on all matters pertaining to their academic careers, including changes in their programs.
2. To observe all regulations of their college and select courses according to the requirements of that college.
3. To attend all meetings of each class in which they are enrolled (instructors will announce at the beginning of the semester if they consider attendance in computing final grades).
4. To fulfill all requirements for graduation.
5. To be personally responsible for fulfilling all requirements and observing all regulations at Wichita State.
6. To forward promptly to all written notices from advisers, faculty, deans and other University officials.
7. To file an Application for Degree card in the dean's office of the appropriate college at least two semesters before the expected date of graduation.
8. To enroll in only those courses for which the stated prerequisite(s) (if there are any) have been satisfactorily completed. Failure to comply with this procedure may result in administrative withdrawal.

Students should also comply with the principles in the following statement, which was adopted by the Student Senate, the Faculty Senate and the Administrative Council of the University:

The Wichita State University reaffirms the principle of intellectual freedom in scholarly activity for University students, and it recognizes the full citizenship rights of students in inquiry, discussion and such actions as they may choose to take on public issues.

The rights and freedoms of students involve concomitant responsibilities. Incumbent on all students, as on all citizens, is the responsibility to observe the University's rules of orderly procedures and the laws of the larger community of which the University is a part. In the matter of actions on public issues, to speak one's opinion, to petition, to distribute literature, to assemble peacefully and hold meetings, to use the persuasion of ideas and other actions within the bounds of orderly and lawful procedures are sanctioned by the University. But infringement on the rights of others, acts or threats of violence to persons, destruction of property, disruption or other interference with the normal functioning of the University and its personnel and other disorderly and unlawful acts will not be countenanced.

Within its sphere of responsibilities the University will afford students proper procedural safeguards to resolve matters in dispute. Those who willfully violate these University standards must expect to face disciplinary action on the part of the institution, which may include reprimand, probation or suspension, consistent with campus provisions for due process.

**Academic Honesty**

Opportunities for learning at The Wichita State University involve the students' rights to express their views and to take a reasoned exception to the views of faculty, to examine all questions felt to be appropriate to a course of study, to be protected from improper disclosure of their views and beliefs, to be examined in a fair and impartial manner, and to be treated with dignity and respect. Students are responsible, however, for learning the content of any course of study outlined by their instructors, regardless of any views or judgments privately held and for demonstrating their attainment in an honest manner.

Students who compromise the integrity of the classroom are subject to disciplinary action on the part of the University. Violations of classroom standards include:

1. Cheating in any form, whether in formal examinations or elsewhere.
2. Plagiarism, using the work of others as one's own without assigning proper credit to the source.
3. Misrepresentation of any work done in the classroom or in preparation for class.
4. Fabrication, forgery or alteration of any documents pertaining to academic records.
5. Disruptive behavior in a course of study or abuse of authority of faculty or fellow students.

A standard of honesty, fairly applied to all students, is essential to a learning environment. Students violating such standards must accept the consequences; penalties are assessed by appropriate classroom instructors or other designated persons. Serious cases may result in discipline at the college or university level and may result in suspension or dismissal. Students accused of abridging a standard of honesty may protect themselves through established academic appeal procedures and are assured of due process and the right of appeal from accusations or penalties felt to be unjust.

**Open Records**

Students may inspect and review their educational records maintained by Wichita State. According to law, the University is allowed 45 days to respond to the requests, but typically less time is required.

Students wishing to challenge the accuracy of their records are entitled to a hearing, upon written request to the dean of the college in which they are enrolled. The hearing is arranged by the dean.

Students may also receive the names of persons from outside the University who request access to their records and the reason for such requests. Similarly, students may also be informed of requests for records from individuals within the University who normally do not review students' education records.

Information in a student's records will not be released without his or her written permission.

Exceptions to these statements are noted in Public Law 93-380. A copy of the law is available to all students in the Division of Student Affairs, Grace Wilkie Hall.

**Accident or Injury**

The State of Kansas and The Wichita State University do not insure against accidents or injury to students which may occur during University-sponsored activities on or off campus. The University will make every reasonable attempt to advise students concerning potential danger of accident or injury. Students are expected to act responsibly by taking necessary precautions to prevent accidents. Students are also advised to protect themselves from the financial burden of accident or injury through a personal insurance policy.

**Student Affairs**

**Structure**

The Vice President for Student Affairs and Dean of Students is responsible for the coordination and supervision of the Division of Student Affairs. Issues involving student life, development, programs, problems and activities on The Wichita State University campus are addressed by the staff of the division.

The dean of Student Life and Services is responsible for the residence halls, off-campus housing concerns, handicapped services, fraternities and sororities, student organizations, preschool, veterans, women's activities, placement and career services, student health, student activities, counseling and challenges and encouraging academic achievement.

The dean of University College is responsible for the programs and policies of University College. (See the University College section of the Catalog.)

An assistant dean of students is responsible for Operation Success, Project Discovery and Upward Bound, the
federal TRIO programs for educationally disadvantaged students. (See the Special Programs section of the Catalog for a more complete description of these programs.)

Orientation
Special orientation programs are presented through small-group interaction and discussion. For more details about the orientation program, see the University College section of the Catalog.

Counseling
The Counseling Center provides psychological services and counseling for personal and career/life planning issues. Professional counseling is available on a cost-shared basis to all members of the University community—students, their families, faculty and staff. Individual, couple, family and group counseling are aspects of the professional counseling services. Testing services are part of the Counseling Center's function. The credit by exam program and the National Testing program are administered directly by the Counseling Center. The National Testing program includes certification tests for community professionals, CLEP tests and entrance exams for colleges and graduate schools.

Office of International Programs
International Programs, 303 Grace Wilkie Hall, serves the special needs of approximately 1,100 international students from more than 70 countries enrolled at Wichita State. (For international student admission requirements, see the Admission to Wichita State section of this Catalog.) An orientation program specially designed for newly arriving foreign students prepares them for entrance into the American academic system and way of life.

International Programs also sponsors the International Conversation Partners Program, the Global Classroom Program and various other activities that promote interaction between American and foreign students.

In addition, the International Program houses a Study Abroad Center which provides information to American students on study, work and travel opportunities abroad. Information concerning Fulbright-Hays grants may be obtained from this center.

Placement and Career Services
The Placement and Career Services office provides services to students and alumni seeking career advice or employment-related assistance.

Individual career counseling is available to assist students and alumni with planning and decision making. Assessment instruments, including SIGI (a computer guidance system) are offered for self-assessment. Workshops, presentations and classroom instruction are offered to enable persons to learn about the responsibilities of various career fields, to prepare job resumes and letters of application, to conduct effective employment interviews and to make informed decisions.

Occupational and career information, employer directories, information on employment trends, employer recruiting literature, annual salary survey reports and information on graduate and professional school opportunities are available in the Career Center.

Placement services also include part-time and summer employment opportunities.

Housing
The Wichita State University requires new freshmen to live in a university residence hall, unless exempted, because research repeatedly has shown that freshmen who live on campus are more successful academically than freshmen who do not live on campus. All other students may select their own accommodations; however, University housing is highly recommended. The Wichita State University housing policy states:

1. Married
2. Living with a parent or legal guardian
3. Living with a grandparent, uncle or aunt

Special exceptions to these regulations will be reviewed by the housing officials in the Division of Student Affairs.

Admission to Wichita State does not mean automatic room reservation. Each student admitted will receive information concerning housing from the Office of Admissions and the proper forms must be filled in and returned to the housing office to reserve a room. Students are encouraged to apply early since space is limited.

Requests for information should be sent to:
Director of Housing
The Wichita State University
Wichita, Kansas 67208-1595

The Wichita State University reserves the right to make policy adjustments when unusual situation demands enrollment changes or cancel residence accommodation of any student in cases where such action is deemed desirable.

University Preschool
The University Cooperative Preschool is a licensed school for children of WSU students. Four certified preschool teachers and 20 part-time aides supervise activities which include art, language, music, science and literature. The school is available from 7:30 a.m. to 5:30 p.m. Monday through Friday for children 2½ to six years old and 5 to 10 p.m. Monday through Thursday for children 2½ to 12 years old. Each child must stay for a minimum of two hours per day. The program permits children to attend preschool while their parents are in class. It is available to the greater community as well.

Handicapped Services
The handicapped services office provides supportive services for students with impaired sensory, motor and/or speaking skills.

Student aid assistance during the 1986-87 school year has included note-takers, readers, library assistants, wheelchair pushers, test proctors, escort services, transfer assistants, transcribers and clinical services. Those interested in these services should contact the handicapped services office for updated information on such assistance. Auxiliary aids and materials available for student use include the Perkins Braillerwriter, IBM Braille typewriters, slates and stylis, raised line drawing kits, the Speech Plus Calculator, Braille measuring instruments, mobility canes, print magnifiers, four-track cassette tape recorder players with earphones, standard tape recorder players, phonographs, digital Braille clocks, lap boards, transcribing papers and blank tapes. Textbooks are ordered through this office for students requesting books on tape, in Braille or in large print. Tactile campus guides, Braille campus maps and manual wheelchairs for emergency use can be provided.

The Association for Handicapped Students, a campus affiliated group of handicapped and nonhandicapped individuals, promotes fellowship while exploring issues which affect the postsecondary education of individuals with physical disabilities.

Student Health Services and Hospitalization Insurance

Student Health Services in 209 Ahlberg Hall provides ambulatory health care for students with health concerns, medical problems, illnesses and injuries. Clinic services and health education are provided by a staff of professional nurses and community physicians. The services of registered nurses and nurse
practitioners are available during office hours and physicians may be seen by appointment during their scheduled clinic hours. Physicians specializing in ear, nose and throat, dermatology, gynecology, internal medicine, orthopedics, surgery and family practice are available.

Special services of immunizations, tuberculin skin testing, family planning information, physical examinations required by academic programs, nutrition and diet counseling and health screening are offered.

The student body has chosen to participate in a group plan for accident and sickness insurance coverage. Opportunities to enroll in the program are offered at the beginning of each regular semester. Information is available at the Student Health Services and the Office of Student Life and Services.

Special Programs

Center for Economic Development and Business Research

The Center for Economic Development and Business Research is a service of the College of Business Administration, engages in business-economic research for a wide variety of clients in both private and public sectors. The center gathers, analyzes and publishes data describing economic conditions in Wichita and Kansas and is the sole source of comprehensive monthly economic data for the state. The center's staff of faculty and graduate and undergraduate students works together on policy-oriented research and publications, publishing the quarterly Business & Economic Reports alternately with the monthly Kansas Economic Indicators.

Center for Continuing Engineering Education

The Center for Continuing Engineering Education has as its objectives:
1. Providing noncredit engineering education for professional development or occupationally/professionally related purposes
2. Cooperating with the engineering professions and related professional associations to provide specialized courses and certificate programs
3. Sponsoring, developing and cooperating in programs and activities that extend the resources and knowledge of the University to industry, special audiences and the general public.

Center for Continuing Health Education

The Center for Continuing Health Education, a unit of the College of Health Professions, provides continuing educational opportunities for members of the nursing and allied health professions in Kansas. Through workshops, seminars and conferences, many offered in conjunction with local or state health and social agencies, the center and the college's educational programs provide current information on philosophy, practice and new developments in the health professions.

Center for Entrepreneurship and Small Business Management

The Center for Entrepreneurship and Small Business Management is housed within the College of Business Administration. The center is committed to promoting an environment that encourages private enterprise and that seeks to preserve and enhance entrepreneurial activities. The center offers a comprehensive curriculum in entrepreneurial studies and conducts seminars and workshops. The most popular workshop, "Entrepreneurship: Your Future in Business," has received international recognition.

Additional features include a visiting lecture series, a complete library of resource materials and the Association of Collegiate Entrepreneurs and the Young Entrepreneur's Organization, a resource and information base for innovative students and a network for young entrepreneurs.

The center is conducting a major research project to learn the effects of entrepreneurial education on new business start-ups and success rates, as well as a profile of individuals who start a business.

Center for Human Appraisal

The Center for Human Appraisal operates as a service of the College of Business Administration to extend research and interests in the behavioral sciences and apply that knowledge to governmental agencies and the business community. Projects undertaken by the center include management surveys, assessment programs, supervisory selection, selection for promotions, morale research, supervisory training and general research on people systems.

Center for Management Development

The Center for Management Development, through the College of Business Administration, offers noncredit management development seminars to the business community. The WSU management seminars and workshops have been acclaimed for their usefulness to practicing business people and other professionals in a wide variety of organizations. The center offers a broad range of management education and development opportunities to the growth-oriented supervisor, manager or professional specialist in business, industry, government and other public or private organizations.

Center for Women's Studies

The Center for Women's Studies serves to promote research and other activities related to women and their concerns, to foster closer ties between academic and community efforts with respect to women's needs, to act as an informational referral agent and to enhance the overall awareness of campus and community to the current needs of women in the areas of education, jobs and life choices. To help achieve these aims, the center maintains a small resource library of books and periodicals open to students, faculty and others; sponsors seminars, workshops and lectures; and provides community and campus speakers. The center is responsible for administering the BA in women's studies and supervises the work of students pursuing a concentration in women's studies in various graduate areas.

Cooperative Education Program

The Cooperative Education program is a University-wide, centrally administered academic program providing students the opportunity to integrate formal course work with periods of relevant off-campus employment. More information is available in the Special Academic Areas section of the Catalog.

French Student Exchange Program

WSU is among the 100 colleges and universities in the United States that participate in the annual student exchange organized by the French Ministry of Education. One individual from WSU spends the academic year in France as a salaried assistant in English, and a student from France is attached to the WSU Department of Modern and Classical Languages and Literatures as a salaried assistant in French. Majors and minors in French who have graduated within one year prior to departure date are eligible to apply.

Hugo Wall Center for Urban Studies

The Wichita State University role as a comprehensive urban institution was outlined by the Kansas Board of Regents in 1972: "As the Regents' urban institution, The Wichita State University's mission includes development of programs utilizing the unique resources of the urban area. . . ."

The Center for Urban Studies was formed in 1955 and has become a lead-
convergent contributor to the urban mission articulated by the Board of Regents. The center conducts instruction, research and service programs, integrating these three essential University functions in responding to the needs of students and the urban environment. The Master of Public Administration degree is administered through the center and its faculty in public administration and urban affairs. Service programs of the center include public affairs seminars, workshops for governmental personnel, professional development seminars for governmental managers and a variety of other programs designed to link the resources of the University to urban governments. The faculty and staff of the center are engaged in a wide range of research on state and local government in Kansas, including research and analysis of boards and commissions in Sedgwick County, a history of the property tax in Kansas, a labor market analysis to guide economic development policy in the City of Wichita, an assessment of productivity in the City of Wichita, a political history of Wichita and a study of service delivery of the Wichita-Sedgwick County Department of Community Health.

The Hugo Wall Center for Urban Studies coordinates the University's State Census Data Center as part of a five-member statewide consortium. The Data Center is the repository of 1970 and 1980 census data and responds to requests for census data.

Institute for Aviation Research

The Institute for Aviation Research was approved by the Kansas Board of Regents in fall 1985. It represents a focus for research with the University and a vital link with local and national aviation communities. The institute works through five centers:

1. Center for Basic and Applied Research which conducts research on topics related to aviation safety, with a focus on low speed aerodynamics, flight simulation, structures and advanced materials for airplane construction.

2. Center for Aviation Safety Research which conducts research on topics related to aviation safety, with a focus on crashworthiness of aircraft structures, cockpits, tail-spin prevention and aviation software reliability.

3. Center for Productivity Enhancement which supports research and technology transfer in computer-aided design, computer-aided manufacturing, robotics, artificial intelligence, use of composites materials and related manufacturing technologies.

4. Center for Management and Human Resource Development which conducts research on issues of quality control, analysis and forecasting and international marketing as applicable to the aviation industry.

5. Center for Aviation Education and Training which provides educational, training and publication programs to aid in the transfer and dissemination of knowledge developed with the other centers of the institute.

Marcus Center for Continuing Education

Many educational services are offered through the Marcus Center for Continuing Education, an adult education facility at 4201 East 21st Street. Specialized courses for business and industry, governmental agencies and the professions; special conferences for the general public; and a wide variety of personal enrichment programs are offered in the center. In addition to renting meeting areas, the Marcus Center for Continuing Education staff provides program development, brochure preparation, mailings, fee collection, material preparation and reproduction, registration and program evaluation.

Operation Success, Project Discovery, Upward Bound

Operation Success, Project Discovery and Upward Bound are special programs designed to help students prepare for University life and to complete successfully courses of study. Operation Success is a federally funded program providing comprehensive, one-on-one tutorial help, personal counseling, career guidance; and assistance in the development of study skills for disadvantaged students who are first generation university students and meet specific income guidelines. The program serves 250 students each year and has been in operation at WSU since 1970.

Project Discovery, a federally funded Talent Search Program, was established at The Wichita State University in July 1977. The project assists approximately 1,500 low-income students in gaining admission to postsecondary institutions throughout the nation. Specific help is provided with admission forms, financial forms and registration for ACT/SAT assessment examinations. The project's two offices at Wichita State and Coffeyville Community College serve high schools and community agencies in Wichita and 12 counties in southeast Kansas.

The Upward Bound program is a federally funded program that has been at WSU since 1966. The program, titled Wichita Prep, assists high school students from low-income backgrounds who have academic potential but adequate secondary school preparation. The high school sophomores, juniors and seniors participate in an intensive six- to eight-week summer and academic year schedule to improve academic and social skills. Assistance includes tutorial assistance, academic, career and personal counseling, post-secondary admission, and classes and workshops.

Research and Sponsored Programs

The Office of Research and Sponsored Programs assists the faculty in developing sponsored research, training and other service proposals. The office collects, maintains and provides information regarding programs, interests and needs of governments, private foundations and businesses; coordinates the preparation and submission of project proposals, and handles the general administration and reporting of sponsored grants and contracts.

Small Business Development Center

The Small Business Development Center, through the College of Business Administration, was established in October 1983. The SBDC provides free counseling and low-cost training to small businesses using consultants from the University as well as the community. Funding for the center is provided by the U.S. Small Business Administration, the State of Kansas, the Defense Logistics Agency and participating universities and colleges.

The center at WSU works with businesses located in the 17 counties of southcentral Kansas. The center here is also the headquarters of the state office for the Kansas Small Business Development Centers, which operate activities of the eight regional SBDCs and 11 associate centers in Kansas. These 19 centers are located primarily at academic institutions throughout the state.

Small Business Institute

The Small Business Institute is housed within the College of Business Administration. Its purpose is to bring together the student's knowledge and the small business experience on a consultation basis. Such interaction rounds out the senior student's education with practical experience while offering assistance to small businesses in the community.

University Gerontology Center

The University Gerontology Center develops and coordinates gerontology-related activities and programming at Wichita State, including instruction, re-
search, service and continuing education. The center develops and manages community research in the area of aging and serves as a resource center and information clearinghouse to assist community agencies and organizations in planning and developing services for older persons.

**University Press of Kansas**
The University Press is operated jointly by six state Kansas universities: The University of Kansas, Kansas State University, Emporia State University, Fort Hays State University and Pittsburg State University. Founded July 1, 1967, it was the first university Press in the United States to function on a statewide level under specific sponsorship of all of the state's universities. Offices are located on the campus of The University of Kansas in Room 303, Carruth-O'Leary Hall.

**WSU Center for Energy Studies**
The WSU Center for Energy Studies conducts energy research with particular emphasis to Kansas applications. Current areas of specialization are wind energy, electric utility and conservation research. Research in the engineering and technical use of microcomputers is also conducted. The center is directed by the College of Engineering.

### Special Facilities

**Instructional facilities** on the 320-acre Wichita State campus are used for educational purposes more hours per day than at any other Kansas college or university. Many of the University's special facilities are described on the following pages.

**Abiah Library**
Through a wide range of materials, services and facilities, Abiah Library supports WSU courses and research. Its growing collection of more than two million items includes not only books and periodicals, but microforms, corporate annual reports, college catalogs, phonograph records and audio tapes. The library also serves as a depository for selected official publications of the United States.

The library has open stacks, and reference librarians help students and faculty locate information and use the online catalog and reference collection. They also perform literature searches in the numerous computerized data bases to which the library has access. Materials not owned by the library may be borrowed from other institutions through interlibrary loan. The library also makes available study carrels, electronic carrels containing listening and viewing equipment, group-study rooms, microform reading equipment, copy machines and typewriters.

The Department of Special Collections houses a rapidly growing manuscript collection of more than 700,000 pieces, including papers of the abolitionist William Lloyd Garrison and many U.S. congressmen. Other collections include original editorial cartoons by Pulitzer prize-winning cartoonists, publications of U.S. radical organizations and maps and books.

A three-year expansion/renovation project of Abiah Library is scheduled to be finished by 1988. When completed, the library will have a new entrance and additional space for its collections.

### Cable Television

The Wichita State University operates Channel 13 on Wichita's cable television system. WSU 13 broadcasts 136 hours per week of adult-oriented educational, cultural and informational programming. This programming includes 10 to 15 television courses per semester offered for academic credit by the various colleges at WSU. Channel 13 also produces programs featuring distinguished guest speakers, fine arts performances and other campus events. WSU 13 is affiliated with The Discovery Channel, BizNet, Spanish International Network and Campus Network, nationally delivered program services. In addition to full-time staff, 15 students are involved in the operation of the channel and the production of programs. Facilities are located in the Media Resources Center.

**Campus Activities Center**
The Campus Activities Center (student union) is the community center for The Wichita State University. Through its facilities and services, the center serves students, faculty, staff, alumni and guests of the University.

The CAC has several dining areas to provide a variety of atmospheres and menus as well as a catering department to meet special needs, the University Bookstore which stocks textbooks, supplies and gifts; a recreation center for leisure use that includes bowling, billiards and a hair-styling shop; a theater; and a variety of rooms that can be scheduled for meetings, special events and conferences.

The reservations office schedules the use of all facilities in the center as well as most University facilities for out-of-classroom use. Through the Student Activity Council, students are provided an opportunity to learn and develop leadership skills while planning a variety of programs for the campus. The CAC is also home for the Student Government Association, Student Ombudsman,manical Christian Ministries and Informed Sources, a student-run campus information center.

The CAC is supported through student fees and revenues generated from within the operation.

### Computer Laboratory Facilities

The Department of Electrical Engineering within the College of Engineering has a Hewlett-Packard 2106 minicomputer system for its laboratories. This is a disc-based system with a real-time executive software operating system capable of operating in a foreground-background mode with a 16-terminal multiplexer. Every laboratory within the department has at least 10 coaxial data lines connected to this minicomputer for terminals and/or data collection.

The department also has an Apollo DN-520 Digital Workstation. This workstation has 1.5M byte main memory with a Winchester Disk Diskette system with 701.2M byte memory.

The department has several Zenith 150 microcomputers and a terminal to access the University mainframe computers. There are other microcomputers and terminals available in the College of Engineering computer laboratory.

### Computing Center

The Computing Center serves students, faculty and staff of the University by providing contemporary computing services for instruction, research and sponsored programs, administrative data processing and public service. These services include consultation, systems analysis and design, programming, interactive time-sharing, batch computer operations, on-line administrative data base and assistance to computer users in their preparation of requests for competitive bids for the acquisition and selection of computer-related equipment.

The central processing unit is an IBM 3081-D with 16 million characters of main storage and more than 26 billion characters of on-line disk storage. Magnetic tape drives, line printers and an off-line digital plotter are available for general use. A network of more than 550 terminals provides interactive computing for campus classrooms, laboratories and offices. These terminals may be used with the academic time-sharing system (CMS), interactive computer graphics, computer-assisted instruction and the administrative terminal system (CIGS). Interactive terminal facilities for students and faculty are located in Abiah Library, the College of Business Administration, the College of Engineering, the departments of chemistry, mathematics, physics, geology and anthropology and in the Social Science Laboratory, where
a line printer is located. More than 700 microcomputers are integrated into the instructional and research areas on campus. Facilities are available to permit transfer of information between the central computer and microcomputers equipped for communications.

The Computing Center terminal facility is located in Neff Hall. Color graphics terminals, a color graphics printer and several other CRT terminals are available in Room 114. CRT terminal facilities and hard copy terminals are located in Room 113. Both rooms are open and available 24 hours a day, seven days a week. Scientific programming and consulting services for faculty and staff instructional and research projects are located in Room 119. Student programming assistance and academic user services are located in Room 115. Batch and remote batch jobs may be submitted 24 hours a day. Printer and plotter output may be picked up from the dispatch window at Room 108 during scheduled hours.

Edwin A. Ulrich Museum of Art

The Edwin A. Ulrich Museum of Art is recognized nationally for the outstanding quality of its programs. In 1984, approximately 135,000 people visited its galleries. During its first 12 years of existence, the Ulrich Museum has presented more than 400 exhibitions, ranging in scope from the poetic paintings of Joan Miro to the hyper-realist sculptures of Duane Hanson.

The museum has shown one-person exhibitions of work by Joan Miro, David Hockney, Milton Avery, Kenneth Noland, Morris Louis, Isabel Bishop, Frederic Church, Childe Hassam, Alice Neel, Robert Motherwell, Alberto Giacometti, Gaston Lachaise, plus the work of many other famous artists.

Although the emphasis has been on contemporary art, there have been exhibitions as diverse as prehistoric American Indian pottery, treasures from Spanish galleons sunk in 1724, art from 16th and 17th century Antwerp, works from the Civil War ironclads U.S.S. Monitor, holography, electronic art, African art and the art of New Guinea. In addition, there have been numerous photographs, print and ceramic exhibitions.

The on-campus museum is named after Edwin A. Ulrich, a retired New York businessman, who gave the University more than 300 paintings and $500,000 to support the collection. The Ulrich gift, valued at $1.75 million, is one of the largest single donations ever made to the University.

The Wichita State University Endowment Association art collection numbers over 6,000 items. Twentieth century American art forms the core of the collection augmented by hundreds of other paintings, drawings, prints, sculptures, photographs and ceramics. Of special note, the Ulrich Museum contains the most complete collection of paintings by the world famous American marine artist, Frederick Judd Waugh (1861-1940). The museum also houses extensive groups of work by such artists as Kathe Kollwitz, Charles Grafly, Harry sternberg and Robert Goodnough.

Reaching beyond the traditional museum’s walls, the University has an outdoor sculpture collection which is one of the best in the nation. The collection is a cross-section of 20th century sculpture, featuring works by Auguste Rodin, Henry Moore, Louise Nevelson, Joan Miro, George Rickey, Fernando Botero, Barbara Hepworth, Chaim Gross, Theodore Roszak, William Zorach, Ernest Trova, Robert Indiana, Luis Jimenez, Lynn Chadwick and many others.

The largest and most significant outdoor work is the marble and glass mosaic, *Personnages Oiseaux* created especially for the facade of the Ulrich Museum by the late Spanish artist, Joan Miro. The mosaic, the largest in the world by Miro, is constructed of one million pieces of colored Venetian glass.

Another aspect of the museum is its visiting artist program. More than 50 artists have visited WSU, including Henry Moore, Louise Nevelson, Luis Jimenez, Isabel Bishop, Duane Hanson, Gordon Parks, W. Eugene Smith, Arnold Newman, Milton Glaser, Paul Rand, Alice Neel, Theodore Stamos and Will Barnet.

Harvey D. Grace Memorial Chapel

Harvey D. Grace Memorial Chapel, located in the heart of the campus near Morrison Hall and the Campus Activities Center, was built in 1963 and dedicated to serve all creeds and races. The chapel is available to students for group or individual worship and meditation.

Helpenr International Center

The Milton Helpenr International Center for the Forensic Sciences serves as a vital resource of the Department of Administration of Justice and as an important repository of information relating to major forensic cases in the United States and abroad. Under the direction of Dr. William Eckett, the center serves as an important information source for forensic scientists and law enforcement agencies working to solve major criminal cases. The center also serves the needs of students majoring in the department. Its resources include extensive library material, tapes and other documents pertaining to major forensic cases. The center is located in the Liberal Arts and Sciences building.

Heskett Center

The Heskett Center, located on the campus, contains instructional, research and recreational areas as well as the equipment necessary to support activities.

Activity areas consist of a weight room, combatives room, 25-meter indoor swimming pool with separate diving well, a 200-meter indoor jogging track which surrounds five basketball courts and eight handball-racquetball courts. The outdoor area contains a six-court lighted tennis complex and four large lighted fields.

These activity areas are designed to facilitate an extensive campus recreation program.

Institute of Logopedics

The Institute of Logopedics is a private, nonprofit, residential and outpatient rehabilitation center located on 40 acres near the Wichita State campus. The institute is a residential facility specializing in habilitation and rehabilitation of children with speech, language and hearing disorders. The institute is University-related through its affiliation with the College of Education’s Department of Communicative Disorders and Sciences, which offers academic preparation for Wichita State students desiring to work with communicatively disadvantaged children and adults. Observation and practicum opportunities are provided at the institute as part of the professional preparation of students in speech and language pathology and audiology.

KMUW-FM Radio Station

KMUW radio broadcasts at 89.1 FM. The 100,000-watt station is one of more than 300 public radio stations that make up the National Public Radio network. In addition to a full-time staff, about 50 students are involved in the total operation of the radio station. KMUW-FM programming includes classical and jazz music, news and public affairs, plus coverage of special events at Wichita State.

Media Resources Center

The Media Resources Center (MRC) is a comprehensive media and video communications organization serving the instructional, research and service aspects of Wichita State. The center is housed in a 20,000 square foot, state-
of-the-art facility with specialized audio recording studios located in Duetschke Fine Arts Center and Wiedemann Hall. The MRC also operates WSU Channel 13, the University’s cable television station.

Facilities and resources include two professional television studios, three satellite downlinks, the campus cable TV network, a fully equipped mobile television production facility, complete photographic darkroom laboratories and a graphic design studio. The MRC provides the University with video teleconference reception and transmission capabilities.

A wide array of media equipment systems is available for loan to students and faculty. These include VCRs, video recording systems, microcomputers, 35 mm cameras and projection equipment. A collection of 1,000 films and videotapes is available as well.

**Reading/Study Skills Center**

Wichita State offers a variety of services to students through the programs of the Reading/Study Skills Center. Credit and noncredit courses are offered to help students improve their reading and listening skills. Complete descriptions of the credit and noncredit courses offered at the center are included in the University College section of the Catalog.

In addition to formal course work, a math lab and other study skills workshops are available to students at Wichita State.

**Rehabilitation Engineering Center**

The Kansas Board of Regents formally established the Rehabilitation Engineering Center in the WSU College of Engineering during 1978. The objective of the center is to use technology to improve the vocational prospects of the severely disabled.

A qualified engineering staff, along with a rehabilitation laboratory, technicians and a well-equipped shop facility, provides the means to accomplish the center’s goals. A federally sponsored rehabilitation grant allows faculty and staff to participate actively in this research.

**Satellite Television Reception**

Three satellite television antennas are used to receive video and audio signals from communications satellites serving North America. Satellite television resources provide students studying foreign languages with television programs produced for French and Spanish speaking audiences, furnish programming for WSU’s cable television station and enable the University to participate in national video teleconferences. Receiving antennas are located to the southeast of Media Resources Center.

**Social Science Research Laboratory**

The Social Science Research Laboratory supports both instruction in research methods and student and faculty research in the social sciences. In addition, with the use of an optical scanner, examinations for classes across campus are graded and item analyzed. The Student Perception of Teaching Effectiveness (STPE) questionnaire is administered, graded and managed by the laboratory.

The laboratory is located in the Liberal Arts and Sciences building. Equipment includes several CRTs, Decwriters and a high-speed printer, all connected to the WSU mainframe. The laboratory is open to students, faculty and social science classes.

**Speech-Language-Hearing Clinic**

The Wichita State University Speech-Language-Hearing Clinic, Room 104 of R. Dee Hubbard Hall, provides diagnosis and treatment of speech, language and hearing problems, including hearing aid fittings. Services are available on a cost-shared basis to University students, staff and faculty, as well as residents of surrounding communities.

The clinic is open 8 a.m. to 5 p.m. Monday through Friday for scheduled appointments and also on arranged evenings for stuttering and other support group meetings. Senior and graduate students in the communicative disorders and sciences department provide services. All work is supervised by departmental faculty who hold appropriate national certification.

**Sports and Recreation**

Sports and recreation facilities for students at Wichita State include a regulation 18-hole golf course and an outdoor swimming pool. The 10,566-seat Henry Lovett Arena is used for intercollegiate basketball games and major entertainment events. Cessna Stadium, a 30,000-seat stadium, is used for football games and track meets. Under the west side of the stadium is the 114-foot slope of Shocker Mountain Ski School, the first synthetic ski slope ever built on a university campus. The slope has its own rope tow and a chair-lift; ski equipment is also available. Eck Stadium for Shocker football has an artificial surface infield and grass outfield.

Wichita State is a member of the Missouri Valley and Gateway Athletic Conferences and consistently ranks nationally in basketball, baseball, tennis and bowling.

The campus recreation program, featuring the multipurpose complex, the Heskett Center, is designed to provide activities for all students, faculty and staff. In addition to intramurals and open recreation time, offerings include sport clubs, special events, excursions for children of WSU students, faculty and staff, a family program, mini-classes and workshops, outdoor recreation and aquatics.

**Walter H. Beech and Supersonic Wind Tunnels**

Various wind tunnels are available at Wichita State for faculty and student use in aerodynamic studies. The Walter H. Beech Wind Tunnel is a 200 mph closed-return tunnel with a 7 x 10’ test section. A digital data logging system and an on-line microprocessor with plotting capability are employed as part of the readout system. Two supersonic wind tunnels, capable of producing wind velocities from two to four times the speed of sound, are available.

A new 1 x 1.3 meter subsonic wind tunnel has recently been completed. This facility features a laser velocimetry system for flow measurement. Two smoke tunnels, a boundary layer tunnel and a water table are also available for flow visualization studies.

**Wichita Radio Reading Service**

A sub-carrier of KMUW, the Wichita Radio Reading Service programs readings of printed material to more than 2,000 print-handicapped individuals. WRRS, a 24-hour daily service, also offers programming from the In-Touch Network and National Public Radio and locally produces such creative programming as poetry and radio drama.

**Wiedemann Hall**

Wiedemann Hall houses the first organ built in North America by the world-renowned firm of Marcussen and Son, Denmark. Of neoclassic design, the hall which was built in 1896 is the ideal acoustical setting for the organ. In addition to the hall’s main auditorium, the building has four faculty offices, an organ studio and rooms to accommodate announcing, recording and televising.

The firm of E. W. Johnson and Son constructed the building, which was designed by the local architectural firm of Schaefer, Johnson, Cox and Frey Associates and Marcussen and Son. The building is named for community philanthropist and music-lover Gladys H. G. Wiedemann who in 1883, as president of the K. T. Wiedemann Foundation, Inc., pledged $500,000 for the purchase, installation and maintenance of the Great Marcussen Organ.
The Graduate School

Office: 107 Jardine Hall
Averett S. Tombes, Vice President
for Research and Dean of Graduate Studies
Michael Tilford, Associate Dean
Gerald Loper, Interim Assistant Dean
Kimberly Hamilton, Office Manager

The Graduate School at The Wichita State University supervises graduate study at the University, establishes standards for admission to graduate work, and recommends students who have completed requirements for graduation to the Kansas Board of Regents. Academic graduate programs at Wichita State include master's, specialist, and doctoral programs. The PhD is granted in applied mathematics, chemistry, communicative disorders and sciences (speech pathology), and in engineering. A doctoral transfer arrangement with The University of Kansas is available in educational administration.

The graduate faculty consists of the University president, the executive vice president for academic affairs, the dean of the Graduate School and all other colleges at Wichita State and regular faculty members. Regular faculty are recommended for appointment to the graduate faculty by the chairpersons of their departments and approved by the Graduate Council. Recommendations for graduate faculty status are based on rank (above instructor); degree in the field, or training or experience; scholarly or professional work; and the need for the faculty member to hold graduate faculty status.

The Graduate Council consists of the deans of the Graduate School, ten members of the graduate faculty elected by that faculty, one member appointed by the graduate dean and one graduate student. The council determines and recommends general policies for the Graduate School. The council also advises with the dean on matters submitted by him and serves as a committee on exceptions.

In addition, a Doctoral Program Subcouncil exists for the general advocacy of doctoral programs throughout the University community and to review, determine and recommend policies for doctoral programs. Membership consists of the graduate dean, one representative from each doctoral program and one member elected from the Graduate Council.

The primary goals of the Graduate School are to encourage independent scholarship and to develop competence in research or other creative activity. Students are expected to master special fields as well as to develop appropriate methods of inquiry for future professional growth.

Graduate School Policies

General Information

In order to receive graduate credit at The Wichita State University, students must be admitted to some category of study in the Graduate School. A number of admission categories are available in the Graduate School to accommodate qualified students simply desiring to earn graduate credit for personal and professional reasons as well as those desiring to pursue graduate degrees. Courses numbered 500 and above carry graduate credit for students admitted to the Graduate School and enrolling in a Graduate School major code. Classes numbered 600 and above are restricted to graduate students only. Certain Graduate School admission categories restrict students in these categories to below 600-level classes as described in later sections.

The Graduate School does not deal with teacher certification matters as these are handled by the College of Education and Teacher Certification Service Office, 1512 Cessna Education Center.

Graduation Requirements

Several steps are required before a student receives a graduate degree from WSU. Although they are explained in more detail in other sections of the Bulletin, the following list summarizes the requirements:

1. Formal admission to the appropriate degree program.
2. An approved Plan of Study on file in the Graduate School office.
3. Satisfactory completion of core or language requirements.
4. An Application for Degree submitted before the deadline.
5. Removal of all incomplete grades by the deadline specified.
6. Completion of terminal program requirements such as thesis, comprehensive examination, etc.
7. Submission of the bound thesis (when required) or a binding receipt by the deadline specified.
8. A cumulative graduate grade point average of at least 3.000 for all courses on the Plan of Study and for all graduate work taken at The Wichita State University.

Admission to Graduate Study

Records required for admission evaluation should reach the Graduate School at least three weeks before registration for the term when admission is desired. Materials received after this date will be processed as the time of staff and faculty permits, but the Graduate School cannot guarantee that final action can be taken in time to allow enrollments for graduate credit.

Because of faculty and facility limitations, there are restrictions on the number of students admitted to some graduate programs (e.g., art, computer science, psychology, administration of justice, engineering, nursing, and communicative disorders and sciences), and these limits may prevent some students from being admitted although they may otherwise qualify. Since departments have different enrollment limits, generally take action on new applicants in March. Early application is recommended. Preference usually is given to degree program applicants.

To be considered for degree or non-degree graduate status, students must submit a completed Application for Admission and appropriate transcripts (as described below) to the Graduate School, 107 Jardine Hall, The Wichita State University, Wichita, Kansas 67208-1505.

An admission to the Graduate School is valid only if students enroll and complete at least one class as graduate students within one calendar year of their admission date.

Graduate Degree Program Admission

General Information

Admission to a graduate degree program is based primarily upon an applicant's previous academic record; therefore, two official transcripts of all previous academic work must be submitted along with the Application for Admission. Some departments/programs require higher grade point averages than the minimum Graduate School re-
requirements listed below, and other admission credentials (reference letters, Graduate Record Examination(s), etc.). This is particularly true for the PhD programs. Individual departments should be consulted about such requirements.

Full Standing
Minimum Graduate School admission requirements for full standing are:

1. A baccalaureate degree from a regionally accredited institution.*
2. A grade point average of at least 2.750 based upon the last 60 hours of course work (or nearest semester or term break to this), including any post-baccalaureate graduate work.
3. No more than nine hours of background deficiencies in the major field of graduate study desired.

Conditional Status
Students who may have background deficiencies in excess of nine hours or who have not submitted required references, examinations, etc., but who otherwise have met the full-standing degree requirements may be granted admission on a conditional basis. Students are allowed one semester to submit the remaining credentials and one year to remove background deficiencies. Transfer to an appropriate nondegree category or to the Division of Continuing Education will result if the necessary conditions are not satisfactorily met.

Probationary Status
Students who do not meet the minimum academic requirements for full-standing degree program admission may be admitted on probation when reasonable evidence exists to indicate their ability to do satisfactory degree program work.

Graduate Nondegree Admission
Students originally admitted to a nondegree category may later reapply for admission to degree program status. A maximum of 12 hours of graduate credit taken while in a nondegree category may be counted in a degree program, provided students have obtained the approval of their major departments and the graduate dean.

Category A
Students who already possess a graduate degree or who do not wish to seek a graduate degree at The Wichita State University should apply for admission in this category, if they meet the following requirements:

1. A baccalaureate degree from a regionally accredited institution.*
2. A grade point average of at least 2.750 based upon the last 60 hours of course work (or nearest semester or term break to this), including any post-baccalaureate graduate work.
3. Some departments require higher grade point averages and other admission credentials. Individual departments or the Graduate School should be consulted about such requirements.

Applications for category A must submit to the Graduate School a completed Application for Admission and two official transcripts of the work for either a previous graduate degree or for a baccalaureate degree.

Admission to this category provides students the opportunity to take courses at Wichita State for which they have the prerequisites. Upon satisfactory completion of a course, credit is placed on a Wichita State graduate transcript. However, only credit earned in courses numbered 500 and above is counted as graduate credit work.

Students who do not meet the 2.750 grade point average requirements may be admitted to this category on probation if reasonable evidence exists to indicate their ability to perform satisfactorily in 800-level or above course work.

Category B
Students not seeking a graduate degree at Wichita State but who want to continue personal and professional development beyond the bachelor's level through enrollment in certain graduate-level courses may be admitted in this category. Admission requires submission to the Graduate School of a completed Application for Admission and a signed letter from the graduate dean certifying that the student meets the requirements of the Graduate School.

Students who do not meet the 2.750 grade point average requirements may be granted admission on probation when reasonable evidence exists to indicate their ability to perform satisfactorily in course work.

Graduate Credit for Seniors (Senior Rule)
Seniors at Wichita State or neighboring institutions may take work for graduate credit under the Senior Rule. This opportunity applies to students who have an overall grade point average of 3.000 or above in their major field and in upper-division courses and who are within ten hours of completing the bachelor's degree. Work must go beyond the requirements for the bachelor's degree, and the degree must be completed within the semester in which a student takes the graduate courses.

Students who wish to earn graduate credit under the Senior Rule must apply to the Graduate School for regular graduate status and also complete a Senior Rule application form. Approval of the Senior Rule course work is needed from the student's major advisor, the department chairperson or graduate coordinator for the department in which the work is to be taken, the undergraduate dean of the student's college, and the dean of the Graduate School. Any courses can be taken for graduate credit. In addition, students from neighboring institutions must be admitted as undergraduates (possibly as guest students).
International Students
A $25 nonrefundable application fee is required of international students, except those entering the Graduate School directly after attending Wichita State as undergraduates.

In addition to Graduate School and departmental admission requirements, international students must present a completed official Wichita State Graduate School Statement of Financial Support before necessary visa forms can be issued. International students must also attain a minimum score of 550 on the Test of English as a Foreign Language (TOEFL), unless they have attended another United States university for a minimum of one year.

International students who qualify for admission to the Graduate School may apply to their department chairperson or the dean of their college for information on graduate fellowships and assistantships. Enrollment in nine hours at the graduate level each semester is mandatory.

International students presently in the United States on a student visa obtained by admission to another U.S. university will not be considered for admission to Wichita State until they have attended the institution issuing their original I-20 for at least one year. Exceptions to this policy require the concurrence, in writing, of the institution issuing the original I-20.

International students requiring student visas are not eligible for nondegree admission categories.

Former WSU Graduate Students
Students who have completed graduate course work at The Wichita State University but who do not enroll for more than 12 months are placed in an inactive status on the registrar's computer data base. To enroll again, such students need to write or call the Graduate School office and ask to have their records reactivated. Such notification needs to be done at least one month in advance of any planned enrollment. Extended periods of nonenrollment may result in the need to complete a file reactivation form to reestablish current records. Degree-seeking graduate students are expected to make progress toward their degree in a timely manner (six year time limit). Some departments take action to dismiss students who absent themselves for periods of a year or more.

Students who complete graduate degrees at The Wichita State University are transferred to nondegree, category A, status in the academic field of their graduate degree which allows continued enrollment for graduate credit at WSU. Should such students desire to undertake a new academic program or switch advising areas, a new application for admission to the correct area of work in the Graduate School must be filed with the Graduate School office. New transcripts are not needed in this case.

General Graduate School Regulations
Courses
Courses carrying graduate credit are listed in the Graduate School Bulletin. Other courses may be taken as supporting courses but are not counted toward an advanced degree and are not computed in a student's graduate grade point average. Only courses numbered 500 and above can carry graduate credit. In some cases courses numbered 500 through 699 are not allowed for graduate credit in a student's major field and students should become aware of such restrictions before enrolling.

Courses numbered 500 through 799 may be taken by both undergraduate and graduate students. In such mixed classes a discernibly higher level of performance by graduate students is expected with the nature of this differential performance set by the professor. Graduate students enrolling in such classes automatically earn graduate credit unless the professor and adviser request the Graduate School to have the given enrollment designated on the transcript as "Undergraduate Credit Only."

In special cases, courses in areas where advanced degree programs are not currently available may carry graduate credit and apply toward an advanced degree in a related field or simply count as graduate credit for some nondegree purpose. Any of these courses applied toward an advanced degree program must have the approval of the student's adviser and the chairperson of the department involved in advance of enrollment.

Independent/Directed Study Courses
A primary goal of the Graduate School is to encourage independent scholarship. Thus, graduate students have many opportunities to engage in self-initiated independent study under the supervision of an individual member of the graduate faculty. In addition to traditional titles, such as thesis, research project, internship, and practicum, various departments use independent study, special problems, directed readings, individual projects, directed study, etc., to identify opportunities for individual study. The following requirements govern enrollment in independent study offerings:

1. Consent of the instructor must be obtained before enrollment.

2. The content of the study should not be the same as that covered in a regular course (exceptions to this requirement must have the approval of the Graduate School before enrollment).

3. Although scheduled on an arranged basis, there must be a sufficient number of contact hours between the student and supervising instructor during the duration of the independent study to ensure consistency with the amount of graduate credit earned in regular course offerings.

4. No more than six hours of independent study course work (excluding thesis and other independent study activities that are terminal requirements for a degree) can be used in a degree program.

5. Each student enrolled in an independent study offering is required to submit an abstract of the project to the supervising instructor at the time the product of the independent study is submitted for evaluation (excluding thesis, research projects, and other term projects required for a degree).

Some departments have specific requirements that must be met before enrolling in independent study courses. Students should consult their department before enrolling.

Cooperative Education Program
Cooperative Education is an academic program for undergraduate and graduate students who wish to combine classroom studies with academically related employment by being placed in paid internships closely related to their academic majors. Cooperative Education places students both locally and nationally.

By utilizing off-campus resources and expertise, cooperative education places students in business, government, industry, health and social agencies. Programs are individually designed enabling students to work directly with professionals in their field while expanding upon knowledge learned in the classroom. Opportunities may occur for students to refine research methods, apply theories in actual field settings, work with advanced technology and design original projects and research. Students planning to participate in cooperative programs must enroll in specially designated co-op courses and work with a faculty adviser from within their appropriate departments. Each placement is
assessed by the faculty adviser for its potential to provide learning experience relevant to the student's professional and educational goals.

Academic credit may be earned through co-op placements as determined by the student's faculty adviser. During the internship, students are expected to meet project requirements assigned by their adviser. Academic credit generally counts toward University degree requirements.

Cooperative Education offers both full-time and part-time placements. Students who select the full-time internship option must alternate a semester of full-time enrollment in course work before entering a second full-time position. Full-time interns also carry the status of full-time students and enjoy the accompanying privileges.

Students selecting the part-time option are required to carry a minimum of six hours of course work in addition to their co-op course. Students may enroll in part-time co-op positions during consecutive semesters so long as faculty sponsors determine that meaningful learning experiences exist.

Requirements for co-op participation vary within the different colleges and departments. Requirements for admission to the co-op program generally include completion of 24 credit hours and satisfactory academic standing. Interested students should contact the Cooperative Education Office in 125 McKinley Hall or phone (316) 689-3688. Students are required to complete an application for admission and schedule an interview with the appropriate co-op coordinator.

Advisers

Graduate students admitted in a degree program category are assigned faculty advisers when admitted to the Graduate School. Course work taken without the adviser's expressed approval is not automatically applicable toward a degree.

Students in nondegree status in designated departments are also assigned faculty advisers for consultation purposes. Students should consult their advisers for information on course prerequisites, content and similar matters.

Students admitted to nondegree status are not assigned faculty advisers and should be aware of this limitation when enrolling.

Enrollment, Drops and Adds

Procedures and times for enrollment are established by the registrar. Graduate students must enroll according to the times (determined alphabetically) published in the Schedule of Courses for any given term. Adherence to the enrollment schedules will minimize problems of unavailable records and other delays.

Students who have not enrolled for two or more semesters prior to a planned new enrollment should call the Graduate School to request preparation of enrollment materials and to clear any problems relating to their planned enrollment.

Once a student has enrolled, classes can be changed only by filing a Drop and/or Add Form with the necessary signatures. Changes of sections also require such action. If these forms are not submitted, an "F" grade could be recorded for failure to attend the class shown on the original enrollment record.

Fees are charged for late enrollments and drops. Only partial refunds are made after certain cutoff dates. Enrollment or adds normally will not be approved after the twentieth day of class. Drops of classes with a "W" grade are also subject to a time limit established by the registrar.

The Graduate School, (316) 689-3095, has more information about deadlines of these items.

A/Pass-Fail; S-U; and Audit Enrollments

Graduate students taking courses numbered below 500 may do so on an "A/Pass-Fail" grading system by declaring their intent to do so at the time of enrollment. Courses numbered 500 through 699 that are certified as carrying undergraduate credit for a given graduate student may also be taken on the "A/Pass-Fail" basis if the student declares intent at the time of enrollment. Credit earned in such courses may not later be changed to graduate credit.

Courses carrying graduate credit for a student may not be taken on the "A/Pass-Fail" basis. Certain approved courses numbered 500 and above that carry graduate credit for a student are graded "S" (satisfactory) or "U" (unsatisfactory) for all students enrolled. Such courses are identified in the Schedule of Courses, or students enrolling in special offerings for graduate credit will be informed of "S-U" grading by the instructor if this system is to be used. No more than six hours of work graded "S" may be used toward the requirements for a graduate degree. Students wishing to transfer graduate course work graded "S" or "U" to a degree program at another institution should inquire of that institution's willingness to accept credit graded in this manner before enrolling.

Graduate students may take any course for which they have the prerequisites and which is open to them on the basis of their admission category on an audit (no credit) basis. The tuition and fees are no different for auditing courses than for taking them for credit, but a student's load (total credit hours) does not include audit enrollments. Courses taken on the audit basis may not be repeated for credit. Use of the audit basis for a course must be declared at the time of enrollment.

Administrative Withdrawal

Administrative withdrawal may be initiated by the graduate dean for the following reasons:

1. The student's class attendance is so irregular that in the instructor's opinion full benefit cannot be derived from the course.
2. The student fails to withdraw from one or more classes by the official procedure given in the Wichita State University Schedule of Courses.
3. The student does not meet the conditions for enrollment in courses numbered 500 and above.
4. The student's behavior is prejudicial to Wichita State.

Grades, Probation and Dismissal

Course work for graduate credit is normally graded "A," "B," "C," "D" or "F" (see exceptions above). Faculty have the option of assigning an "I" (incomplete) if they feel that sufficient justification exists for the student's failure to complete the course.

Incompletes for regular courses (excluding research, thesis, etc.) must be removed within one semester of actual enrollment, excluding Summer Session, or the grade of "I" will remain. If the preceding time limit is not met and students desire credit, they must reenroll in the course. If students reenroll in a course for which they received the grade of "I," the grade is changed to a "W" for the original enrollment when the grade earned during the repeat enrollment is assigned. The grade earned during the repeat enrollment becomes the grade of record. Faculty members may define other conditions for the removal of incomplete grades within the general framework indicated here.

Graduate credit courses in which grades of "C" or above are earned cannot be repeated. Grades below "C" may not (no credit) to satisfy degree requirements, but such courses may be repeated. The grades of all repeated courses that are started six years or less before the end of the semester within which the degree work is completed are averaged with the original grades to determine a student's grade point average.


The graduate grade point average includes only those courses taken at WSU for which graduate credit is earned and for which a regular letter grade ("A," "B," "C," etc.) is assigned. Courses transferred from another institution and graduate credit courses graded "S" (satisfactory) do not affect the graduate grade point average.

Students admitted to full standing in a degree program, or nondegree category A, will be placed on academic probation if their graduate grade point average falls below 3.00. Students admitted on probation are automatically placed in full standing if they attain a cumulative grade point average of at least 3.00 after the completion of nine hours of graduate credit course work. Students enrolled on probation after admission are automatically returned to full standing if they attain a cumulative grade point average of at least 3.00 within nine additional hours of graduate credit course work.

Students may be dismissed from their degree program or nondegree category A and placed in nondegree category B if they fail to attain a cumulative grade point average of at least 3.00 upon the completion of nine graduate credits after admission on probation or placement on probation after admission. Students in any category may be dismissed from the Graduate School if they fail to maintain a grade point average of at least 2.00 in all work taken (including undergraduate courses) after admission.

Students also may be dismissed from a graduate degree program if, in the opinion of the graduate faculty offering the program, they are unable to carry on advanced work or make satisfactory progress toward the degree. Students dismissed for this reason may be transferred to a nondegree category.

Exceptions
Departures from the rules and regulations stated in the Graduate School Bulletin require the filing and approval of a Request for Exception. Such requests must have the approvals indicated on the form and must state in a logical and coherent manner a rational basis for the requested exception. Forms for such requests are available from the Graduate School.

Unusual and/or substantial deviations from stated rules and regulations require action by the Graduate Council and may involve delays of several weeks.

Load Definitions
At least nine hours of graduate credit course work is defined as full-time graduate enrollment during the fall or spring semester. During the Summer Session, a minimum of six hours is considered full-time graduate enrollment. For graduate assistants working 20 hours per week, six hours constitute a minimum full-time enrollment.

Enrollment in undergraduate credit courses only, or a mixture of graduate and undergraduate credit courses, can affect these definitions. The dean of the Graduate School should be consulted for interpretation of specific cases.

The normal load for graduate students is 12 hours of graduate credit during the fall or spring semester. More hours may be taken with the advisor's approval, but graduate students may not enroll for more than 16 hours per semester (doctoral dissertation credit excluded), or nine hours during an eight-week Summer Session.

Students may petition the Graduate School before enrollment for exceptions to this policy.

The course loads of students with teaching or research assistantships are normally reduced in recognition of the work they perform. While the Graduate School sets no official maximum number of hours, other than the 16-hour limit, students holding assistantships should work with their advisors to arrive at a load appropriate to their situations.

Special consideration for thesis and research enrollments may be obtained by petitioning the Graduate School.

Faculty Restrictions
Faculty members of The Wichita State University who hold the rank of assistant professor or higher cannot earn graduate degrees from Wichita State except for ROTC faculty, unassigned faculty (not attached to a particular college) or faculty members granted specific approval by the Graduate Council. Full-time faculty members may not pursue more than six hours of graduate credit per semester.

Degree Program Regulations
To pursue a graduate degree at Wichita State, students must be admitted to the specific program for which they are seeking a degree. Students may not be admitted to more than one graduate degree program at a time.

Upon the advice and consent of the major department, a maximum of six semester hours of work in one earned master's degree program may be applied to a second master's degree.

Credits Required
All master's degrees require a minimum of 36 credit hours of graduate credit work, including 18 hours in courses numbered 700 and above, excluding workshops (numbered 750). Some programs require more than 30 credit hours of work and more than 18 hours of work in courses numbered 700 and above.

Specific program requirements are listed in the individual department's section of the Graduate School Bulletin. Requirements for specialist and doctoral programs are listed also in the individual department's section of the Graduate School Bulletin.

Plan of Study
In order to define officially a program of study for a graduate degree, students must submit in triplicate the Plan of Study form leading to admission to candidacy for the degree no later than one month following the completion of 12 semester hours of graduate credit at the semester prior to the semester of graduation, whichever comes first. The process of filing an acceptable Plan of Study is not completed until the student and advisor have received approved copies of the plan from the Graduate School. If these copies have not been received approximately three weeks following submission, students should check with the Graduate School office.

Students are candidates for a degree once the Plan of Study has been approved. A Plan of Study is developed in conjunction with the advisor and the candidate, the chairperson of the major department and the dean of the Graduate School. All academic work completed and planned for the degree must be included in the Plan of Study at the time of submission.

Students may make changes of up to three courses in the Plan of Study that are necessary because of enrollment problems or other circumstances by submitting a written request, providing the request has been endorsed by the advisor and program graduate coordinator. More extensive changes may be accomplished by filing a new Plan of Study marked "revised plan."

Failure to meet the deadline for filing an acceptable Plan of Study may result in a delay in graduation or loss of credit planned for use in the program.

Language or Tool Requirements
The Graduate School has no overall language or tool requirements, although such requirements have been established by some departments. Students should consult an individual department's section of the Graduate School Bulletin for information regarding such requirements.

Any text used (e.g., foreign lan-
Transfer of Credit from Another University

Graduate credit work at another university is not transferred and entered on a Wichita State transcript except in degree programs and only then after completion of all work for the degree, as defined on an approved Plan of Study. Students may transfer, with departmental approval, graduate credit from an accredited graduate school under the following conditions:

1. (a) The credit offering institution is accredited by the cognizant regional accrediting association to offer graduate degree programs and has an appropriate level of credit to be transferred. (b) The credit is fully acceptable to that institution in satisfaction of its advanced degree requirement and (c) the credit is applicable in terms of content to the student’s program of study.

2. Master’s programs requiring fewer than 40 hours include no more than one-third of the total hours or 12 hours, whichever is greater, of graduate work completed at another accredited graduate school. Departments may require lower limits on transfer credit and therefore students should consult individual program descriptions. Doctoral, Master of Fine Arts (MFA), Master of Business Administration (MBA) and other more lengthy programs have special transfer credit allowances, as indicated in their program descriptions.

3. Students assume responsibility for initiating the request for transfer of graduate credit on a Plan of Study. An official transcript containing the requested transfer work must be on file in the Graduate School. If such work is shown on the transcripts provided in support of the original admission to the Graduate School, no new record need be provided. Approval by the major department is necessary to ensure that the course work has been accepted as an integral part of the candidate’s program.

4. Courses considered for transfer must have been completed at an accredited graduate school and must carry a minimum grade of “B”.

5. Graduate credit earned through correspondence courses cannot be used to meet degree requirements.

6. Transfer credit that is accepted must have been in courses started six years or less before the semester in which the degree work is completed.

Extension, Workshop and Correspondence Credit and Credit by Examination

Workshops and extension graduate credit courses may be accepted for graduate credit as a part of a graduate degree program under the following conditions:

1. The work is approved by the major department.
2. The work is approved by the dean of the Graduate School.
3. The work is an integral part of a program planned by the candidate and the adviser and listed on an approved Plan of Study. Graduate credit cannot be earned under a credit by examination program.

Degree Card Filing

An Application for Degree card must be filed with the Graduate School within three weeks (15 class days) after the beginning of any fall or spring semester in which students plan to finish all requirements for the degree. Students planning to graduate at the end of the Summer Session must file an Application for Degree within one week (five class days) after the beginning of the regular eight-week session even if they plan to enroll for the second four weeks only. In the latter case the degree card must be filed within the first week with an indication of intent to enroll for the second four weeks. If, after a student files a degree card, the degree is not completed, a new card must be filed within the time frame just described for the semester in which requirements for the degree are again expected to be completed.

Failure to meet these deadlines will result in a delay in graduation and in the awarding of the diploma. In these cases, if all work is completed, students need not enroll for the following semester.

Time Limits

Courses started more than six years before the semester in which the degree work is completed may not be used as part of a degree program. However, in some cases courses taken before this time may be validated. To have courses validated, students must petition the Dean of the Graduate School and pass a special written examination with a grade of “B” or better. Transfer courses and work that originally received a grade of “C” may not be validated. Courses completed ten or more years before the degree is granted, even if previously validated, may not be used to meet degree requirements.

Thesis or Research Credit

Students’ graduate transcripts must show thesis or research project credit when a thesis is part of the degree program. The transcript will normally carry the grade of “I” until the thesis is completed and students have met the thesis and research project requirements of the thesis committee and the Graduate School. A grade of “B” or better is required for an acceptable thesis.

Students writing a thesis or engaged in research must be enrolled in courses entitled “Thesis” or “Research” each semester in which they receive advice, counseling or research direction from their advisors. Enrollment is for the number of hours that accurately reflects demands of the students on University faculty and facilities.

Two bound copies of the thesis in approved form must be filed with the Graduate School. (See the Graduate School calendar on the inside of the back cover of the Graduate School Bulletin for the due date.)

Thesis Preparation

The thesis must be typed and submitted on 16- or 20-pound bond paper with a minimum of 25 percent rag content. The thesis must include an abstract not more than one page in length which is to be placed directly after the title page. Theses may be photocopied if copies are made on the required paper. Title pages on all copies must contain original signatures. The Modern Language Association (MLA) Style Sheet, available at The Wichita State University Bookstore, or other style manuals approved by the major department should be followed in the thesis preparation.

Examinations

Qualifying examinations are administered by several departments to determine students’ qualifications for further graduate study. Most departments also require written or oral comprehensive examinations. Committees for these examinations are recommended by the major department and approved by the Dean of the Graduate School. Each committee must include at least three members chosen from the graduate faculty.

Final oral examinations are required of all students presenting theses or research projects. Thesis committees include a minimum of three and a maximum of five voting members. Voting members are full or associate graduate faculty or persons from outside the faculty judged to have exceptional competence in the field of research covered in the thesis and who have been approved by the Dean of the Graduate School. The chairperson of the examination committee must be a full graduate faculty member or an associate member with
temporary authorization to chair the committee. A majority of the voting members must be from the major department. One voting member must be from an academic department outside the major department who is recommended by the student's advisor and approved by the dean of the Graduate School. The candidate passes if no more than one negative vote is cast.

**Commencement**

One commencement is held each year in May at Wichita State. Students completing degree requirements during the Summer Session or the fall semester preceding Commencement may obtain their diplomas from the registrar's office or request that their diplomas be mailed. These students may attend Commencement exercises the following May, but attendance is not required. Each graduate's name appears in the Commencement program, with the completion date of the award of the degree.

**Financial Information**

**Basic Fees**

The current fees, listed below for 1967-68, are subject to change by the action of the Kansas Board of Regents or the state legislature.

<table>
<thead>
<tr>
<th>Each Semester and Summer Session</th>
<th>Resident Nonresident</th>
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<tbody>
<tr>
<td><strong>Tuition</strong></td>
<td></td>
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<tr>
<td>1 through 14 hours-per-credit</td>
<td></td>
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<tr>
<td>hour</td>
<td>$39.00</td>
</tr>
<tr>
<td>15 hours and above-flat fee</td>
<td>$59.00</td>
</tr>
<tr>
<td>$95.00</td>
<td>$160.00</td>
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<tr>
<td><strong>Student Fee</strong></td>
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<tr>
<td>1 through 14 hours-per-credit</td>
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<tr>
<td>hour</td>
<td>$10.35</td>
</tr>
<tr>
<td>10 hours and above-flat fee</td>
<td>$156.25</td>
</tr>
<tr>
<td>Student Service Fee-per-semester</td>
<td>$156.25</td>
</tr>
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<td>5.00</td>
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</tbody>
</table>

The student fee is required of every student enrolled for work on the Wichita State campus during the regular semesters and Summer Session. The fee is distributed to pay revenue bonds for parking, the Campus Activities Center, the Cessna Stadium addition, academic and service buildings, Haskell Center, Abil Library and for certain services and organizations, including student health services, athletic admissions, forensics, Student Government Association, University Forum Board, student publications, concerts and drama and opera productions.

**Special Fees and Refunds**

Prior to each semester, the registrar establishes enrollment dates. Late registration is a special service resulting in extra costs for special staff and facilities. Students who register late are assessed late registration fees as published in the Schedule of Courses.

Students who drop courses are assessed one transaction fee for all courses dropped at the same time. This fee recognizes that in many instances students have occupied space in class which was not available to other students and for the extra cost of staff and facilities to handle the transaction. The amount of the fee is published in the Schedule of Courses.

Refunds of tuition fees will be granted for withdrawals in accordance with dates and regulations established in the Schedule of Courses for the semester.

**Fee Waiver Policy**

The dean of the student's college, the dean's designee or the dean of admissions and records may authorize a waiver of special fees and/or nonrefundable tuition fees in cases where a schedule change or withdrawal is required because of University regulations, clerical errors, misadvising, class schedule change by the University or other exceptional circumstances beyond the control of the student and determined valid by the college dean or designee. To petition for a waiver, students should request a petition form from the dean's office of their college and return the completed petition to the dean's office for consideration. Graded students should petition the Graduate School dean's office. The student is notified of the action taken on the petition. If approved, the student should submit the petition to the controller's office with enrollment, schedule change or withdrawal forms. If the petition is denied, the student may get information from the appropriate college dean on how to file an appeal.

**Graduate Assistantships, Fellowships and Scholarships and Loans**

**Assistantships**

Each year Wichita State awards a number of assistantships for advanced study. Grants are made in most departments offering advanced degrees. Graduate assistantships provide for cash stipends up to approximately $6,500. A graduate teaching assistantship may carry the recipient for up to a 75 percent waiver of tuition. The department chairperson or graduate coordinator should be contacted for further information.

**Fellowships and Scholarships**

Wichita State awards fellowships and scholarships to graduate students, as described below.

**Doctoral Fellowship Awards**

Graduate fellowships are awarded to a limited number of graduate students who are admitted to a program of graduate study leading to a doctoral degree and who show an exceptional record. Fellowships are awarded primarily on the basis of the student's academic potential and achievement. Awards are made through the following fellowships:

- **Carl Fahrbach Memorial Graduate Assistantship**
- **Chubb Memorial Fellowship**
- **James H. Hibbard Memorial Scholar-**
Loans
Wichita State grants loans to graduate students as described below.

Delano Maggard, Jr., Graduate Student Loan Fund. Funds have been provided through the Wichita State Endowment Association for loans to encourage graduate student research. The loans are "forgivable" if certain criteria governing the research effort are met. Application deadlines are October 1 (fall semester) and March 1 (spring). Interested students should contact the Graduate School office for details.

Key to Course Descriptions
Symbols
When two course numbers are joined by a hyphen (-), the first semester is prerequisite to the second; when the numbers have an ampersand (&) between them, the two semesters may be taken in either order. Unless specifically noted otherwise, the first course listed is offered in the fall semester and the second in the spring.

The number of hours of credit for each course is indicated in parentheses following the course title. The number of class meetings per week is normally the same as the number of credit hours. Two hours of laboratory work are usually required for one hour of credit. In courses involving meetings other than lectures, the following symbols are used: R, lecture; L, laboratory; C, conference; D, demonstration; and P, practicum, with the hours of practicum per week given in front of the letter (6-8P means six to eight hours of practicum per week).

Abbreviations
The following abbreviations of academic departments are used in references to courses offered by these departments.

Chem. Chemistry
Comm. Communications
CDS Communicative disorders and sciences
CS Computer science
CSP Counseling and School Psychology
DPI Dental hygiene
EAS Educational administration and supervision
Econ. Economics
EE Electrical engineering
Eng. English language and literature
Engl. General engineering
Fr. French
GD Graphic design
Geog. Geography
Geol. Geology
Ger. German
Geron. Gerontology
HAE Health administration and education
Hist. History
Hon. Honors Program
HS Health sciences
IE Industrial engineering
IS Instructional services (education)
IT Industrial technology
Ital. Italian
Journ. Journalism
LS Library science
Ling. Linguistics
Math. Mathematics
ME Mechanical engineering
Min. Stud. Minority studies
Mus. Comp. Musicology-composition
Mus. Ed. Music education
Mus. Perf. Music performance
MT Medical technology
Nurs. Nursing
PA Physician assistant
PE Physical education, health and recreation
Phil. Philosophy
Phys. Physics
Poli. Sci. Political science
Psych. Psychology
PT Physical therapy
Rel. Religion
RT Respiratory therapy
SA Studio arts
Soc. Sociology
SW Social work
Sp. Comm. Speech Communication
Span. Spanish
Stat. Mathematics (statistics)
Thea. Theater
UA Urban affairs
WS Women's studies
College of Business Administration

Offices: 100 Clinton Hall
Douglas Sharp, Dean
Dennis C. Duell, Associate Dean
W. Dean Vickery, Assistant Dean
Robert H. Ross, Director of MBA program

School of Accountancy—Linda C. Mitchusson, chairperson

Departments
Economics—Gerald S. McDougall, chairperson
Finance, Real Estate and Decision Sciences—John D. McBride, chairperson
Management—Kae H. Chung, chairperson
Marketing and Small Business—Frederic B. Kraft, chairperson

Graduate Faculty
School of Accountancy
Professors: Ralph W. Estes, Michael F. Foran
Associate Professors: Linda C. Mitchusson, Douglas Sharp (dean, College of Business Administration)
Assistant Professors: Sidney L. Brinkman, Tsi-Yen Chung, Nancy J. Foren, Katherine S. Moffet, Loren A. Wenzel
Visiting Professor: James Deskins

Economics
Professors: Dong W. Cho, Randall B. Haydon, Martin M. Perline, Jimmy M. Skaggs, Samuel C. Webb
Associate Professors: Dennis C. Duell (associate dean, College of Business Administration), Gerald S. McDougall (chairperson), Maurice Pannestiel, William T. Terrell, I. N. Yoon
Assistant Professors: Steven R. Beckman, James E. Clark, Philip H. Herch, David M. Kermke

Finance, Real Estate and Decision Sciences
Endowed Professor: Donald H. Lev
Professors: James M. Murphy, Curtis D. Tartrengai
Associate Professors: Monte M. Bateman, John D. McBride (chairperson), Dwight D. Murphey, Carl C. Nielsen, M. Hossein Sabeti
Assistant Professors: Carlos Alcerrera-Joarquin, Jimno H. Hosseni, Pochara Thantthorn

Management
Endowed Professor: Gerald H. Graham
Professors: Kae H. Chung (chairperson), Arthur B. Swayne
Associate Professors: John A. Aoki, Dharma deSilva, Kamal Fatehi-Sadok
Assistant Professors: Ivan Brown, Nancy A. Mason, W. Dean Vickery (assistant dean, College of Business Administration)

Marketing and Small Business
Endowed Professor: Billy M. Jones
Associate Professors: Donald W. Hackett, Frederic B. Kraft (chairperson), Robert H. Ross (director, MBA program)

The mission of The Wichita State University College of Business Administration is to offer learning opportunities which contribute to the development of professionally competent and socially responsible men and women for careers in business, government and other organizations requiring the organizational, managerial and analytical skills necessary in today's rapidly changing environment.

This mission is influenced by the location of the college in the largest economic and cultural center in the state of Kansas. As an integral part of the state's designated urban university, the faculty of the College of Business Administration is committed to programs and activities that will help sustain the contribution that this urban center makes to the economic, professional and cultural health of the state and nation.

Graduate degree programs in the college lead to the Master of Business Administration (MBA), Master of Professional Accountancy (MPA), Master of Science (MS) in administration and the Master of Arts (MA) in economics.

Master of Professional Accountancy
The Master of Professional Accountancy program at The Wichita State University is designed to prepare qualified candidates for careers as professional accountants in public practice, industry, government and nonprofit organizations. The program is based on strong preparation in general education courses with special emphases on communication skills, mathematics and economics, and includes a broad exposure to the different aspects of business and management. It normally requires five years of full-time study.

The overall MPA curriculum is divided into two components—the preprofessional curriculum, requiring approximately three-years (96 semester hours of work), and the professional curriculum, requiring two years (55 semester hours). Candidates in the professional curriculum are accorded graduate student status even though they have not received baccalaureate degrees.

Admission Requirements
Full admission to the MPA professional curriculum requires:
1. Completion of the 95-hour preprofessional program, including all specified course requirements, described below. The normal Graduate School requirement that candidates for full graduate standing hold a baccalaureate degree does not apply to candidates for admission to the School of Accountancy and the MPA professional curriculum.
2. A minimum grade point average of 2.750 on all courses identified as College of Business Administration core courses.
3. A minimum grade point average of 3.000 on the 12 hours of accounting courses required beyond the introductory level (Accr. 310, 320, 410 and 430).
4. A total of 1,100 points based on the formula of 200 times the overall grade point average on the last 60 hours plus the GMAT score.

Conditional Admission
Students who have completed 96 semester hours and lack no more than nine hours of specific preprofessional course requirements may be admitted on a conditional basis. These nine hours must be completed in the first semester following conditional admission or as soon thereafter as course scheduling permits.

Probationary Admission
Students who do not meet the minimum GMAT and/or grade point requirements may be admitted to probationary status by the director on the basis of sufficient evidence that they can satisfactorily complete the MPA program requirements and have the potential for a successful career in professional accounting.

Students From Other Educational Institutions
Students who hold a baccalaureate degree from an accredited institution may be admitted to the School of Accountancy if they meet the minimum scholastic requirements. They will be required to make up any specific preprofessional course deficiencies, as soon as course scheduling permits and to complete all School of Accountancy requirements for which they have not had an equivalency, including a minimum of 30 semester
Degree Requirements

Preprofessional Curriculum

Students pursuing the Master of Professional Accountancy (MPA) are required to meet specified requirements for admission to the School of Accountancy. During the candidate's undergraduate work, the following requirements must be met:

1. The candidate must complete the general education requirements for the Wichita State University, plus additional nonbusiness course work, for 56 semester hours. The following courses are specifically required by the School of Accountancy and may be counted within this 56 hours:

Courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accctg. 300. Accounting Systems and the Microcomputer</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 2010 and 2020, Principles of Economics I and II</td>
<td>6</td>
</tr>
<tr>
<td>Eng. 210, Composition Business, Professional and Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>Eng. 6850, Advanced Composition</td>
<td>3</td>
</tr>
<tr>
<td>Math. 111, College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Math. 144, Business Calculus</td>
<td>3</td>
</tr>
<tr>
<td>Phil. 144, Moral Issues</td>
<td>3</td>
</tr>
</tbody>
</table>

2. The candidate must complete the following College of Business Administration core requirements:

Courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accctg. 210, Financial Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>Accctg. 220, Managerial Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>DS 350, Introduction to Production Management*</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 231, Introductory Business Statistics*</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 340, Money and Banking</td>
<td>3</td>
</tr>
<tr>
<td>Fin. 340, Finance*</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 360, Concepts of Administration*</td>
<td>3</td>
</tr>
<tr>
<td>Mkt. 300, Marketing*</td>
<td>3</td>
</tr>
</tbody>
</table>

3. The candidate must complete the following courses required by the School of Accountancy:

Courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accctg. 310 and 410, Financial Accounting II and III</td>
<td>6</td>
</tr>
<tr>
<td>Accctg. 320, Managerial Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>Accctg. 430, Taxation I</td>
<td>3</td>
</tr>
<tr>
<td>B. Law 435, Law of Commercial Transactions</td>
<td>3</td>
</tr>
</tbody>
</table>

* If these courses are not taken prior to admission to the MPA program, they must be completed at the graduate level.

During the semester in which the preprofessional curriculum will be completed, the candidate for the MPA must apply for admission to the Graduate School. No bachelor's degree will be awarded; however, the student desiring such a degree may be granted the degree with a minimum of additional course work as specified in the Bachelor of Business Administration—Accounting Major section of The Wichita State University Catalog.

Professional Curriculum

Candidates in the professional curriculum must complete 55 credit hours in the following courses while maintaining an overall grade point average of 3.00 or better based on all courses taken while in professional status.

Courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accctg. 710 and 715, Financial Accounting IV and V</td>
<td>6</td>
</tr>
<tr>
<td>Accctg. 720, Managerial Accounting III</td>
<td>3</td>
</tr>
<tr>
<td>Accctg. 730, Taxation II</td>
<td>3</td>
</tr>
<tr>
<td>Accctg. 760 and 860, Accounting Information Systems I and II</td>
<td>6</td>
</tr>
<tr>
<td>Accctg. 740, Auditing I</td>
<td>3</td>
</tr>
<tr>
<td>Accctg. 890, Professional Seminar*</td>
<td>1</td>
</tr>
<tr>
<td>B. Law 436, Law of Associations</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 830, Business and Society</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 862, Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 885, Administrative Policy            (to be taken during the last semester of the program)</td>
<td>3</td>
</tr>
<tr>
<td>Fin. 841, Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>DS 871, Multivariable Statistical Methods, or Econ. 631, Intermediate Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Accounting electives (courses numbered 500 or above)</td>
<td>6</td>
</tr>
<tr>
<td>Other College of Business Administration courses, excluding accounting (courses numbered 500 or above)</td>
<td>9</td>
</tr>
</tbody>
</table>

* Must be repeated for four full semesters, one credit hour will be awarded in total.

Policies

Probation and Dismissal

The School of Accountancy MPA program follows the guidelines on probation and dismissal outlined in the Graduate School section of the Bulletin. Candidates may also be dismissed from the School of Accountancy and the MPA program if, in the judgment of the School of Accountancy faculty, they are unable to maintain satisfactory progress toward the degree.

Baccalaureate Degree Holders and Transfer Students

Previous academic work will be evaluated individually for holders of baccalaureate degrees and for transfer students. A program of study will be developed that will ensure coverage of the content of the preprofessional and professional curriculums. Any candidates who are allowed MPA credit for more than six semester hours of the required 700-level courses for work done in undergraduate status at WSU or another institution will be required to complete Accctg. 895, Research Seminar in Accounting, as an additional MPA professional curriculum requirement, thus increasing their requirements by three credit hours. Accounting 895 will not be counted as one of the required accounting electives for such candidates.

Master of Business Administration

The College of Business Administration offers the Master of Business Administration (MBA) through faculty in the accounting, economics, finance, real estate and decision sciences, management, and marketing and small business departments, as well as in other colleges of the University. The MBA program is designed to prepare men and women for responsible positions of professional leadership in business, government, health-related organizations and other institutions. The program concentrates on general management, with particular attention given to developing within the student an understanding of the organization as an integrated system. Areas of emphasis may be developed in a variety of subjects as explained later.

The total hours required of students and the level at which they begin participation in the MBA program depend on their academic preparation. The total number of hours required for completion of an MBA ranges from 30 to 63 including six hours of prerequisite algebra and calculus, excluding any courses required to correct deficiencies in background fundamentals that students have at the time of admission.

Most of the courses that can be taken for graduate credit and almost all of those on the 800 level are offered in the evening.

Admission Requirements

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold baccalaureate degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is
Degree Requirements

**Advanced Standing:** Students with strong backgrounds in mathematics and business administration may be granted advanced standing in the MBA program through equivalent credit for background fundamental courses for which a minimum grade of "C" was received in an undergraduate program. Most students entitled to such credit hold baccalaureate degrees in business administration from accredited institutions. Students may be granted equivalent credit for any or all of the background fundamental courses, depending on the depth of their undergraduate or previous graduate preparation. Course work that is over six years old will not be utilized in the granting of equivalency credit on the background fundamental courses. Students who present course work over six years old, and who feel that they still have an adequate grasp of the subject matter, will be allowed to take and achieve a passing score on an equivalency exam. This exam will either be the CLEP exam, if appropriate, or another exam developed by the department and approved by the MBA director. The MBA program may consist of as few as 30 hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

**Students Not Receiving Advanced Standing:** Students with baccalaureate degrees in nonbusiness fields will usually not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough work in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made by the Program Director following admission to the program.

### MBA Course Requirements

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 109, 111 or 112 College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Math 144</td>
<td>3</td>
</tr>
<tr>
<td><strong>Background Fundamental Courses</strong></td>
<td></td>
</tr>
<tr>
<td>Acctg. 800, Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Mkt. 800, Marketing Systems</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 830, Business and Society</td>
<td>3</td>
</tr>
<tr>
<td>Fin. 840, Financial Systems</td>
<td>3</td>
</tr>
<tr>
<td>DS 850, Production and Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 860, Management of Organizations</td>
<td>3</td>
</tr>
<tr>
<td>DS 874, Management Information Systems for Business</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 830, Statistical Methods for Business</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 800, Analysis of Economic Theory</td>
<td>3</td>
</tr>
<tr>
<td><strong>Required Courses</strong></td>
<td></td>
</tr>
<tr>
<td>Acctg. 801, Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 862, Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 885, Business Policy</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 603, Analysis of Business Conditions</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 804, Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td>9</td>
</tr>
<tr>
<td>Directed Electives</td>
<td>6</td>
</tr>
<tr>
<td>Free Electives</td>
<td>15</td>
</tr>
</tbody>
</table>

*These courses are to be taken only if a specific need exists. If with approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate program. See Advanced Standing section above.

**Option A:** All candidates must complete 27 hours of 800 level courses including Acctg. 801; Econ. 803; Econ. 804; Mgmt. 862; Mgmt. 885; six hours of directed electives; and six hours of free electives. The additional three hours of free electives may be at either the 800 level or the 600 level.

**Option B:**
1. A baccalaureate degree in business administration, or the equivalent, from an accredited institution.
2. A total of 1,050 points based on the formula: 200 times the student's overall grade point average plus the GMAT score; or 1,100 points based on 200 times the grade point average on the last 60 hours of graduate and undergraduate work completed, plus the GMAT score.

### Policies

1. A candidate's individual plan of study must be approved by the director or associate director. This plan must be finalized within a month of the completion of 12 hours of graduate work.
2. All candidates must complete 27 hours of 800 level courses including Acctg. 801; Econ. 803; Econ. 804; Mgmt. 862; Mgmt. 885; six hours of directed electives; and six hours of free electives. The additional three hours of free electives may be at either the 800 level or the 600 level.
3. General topic interest areas offered in the College of Business Administration are: accounting, business environment (including international management, business law, labor relations, environmental protection, urban economics, business economics and economic development), finance, managerial economics, marketing, operations analysis and production management, organizational behavior and personnel administration.

### Master of Science in Administration

The Master of Science in Administration is oriented toward developing students' specializations in business administration, as well as refining their research capabilities. Students must plan their programs, with the approval of their advisors, to include specialization in one of six areas: finance and bank management, marketing, organizational behavior and personnel administration, operations analysis and production management, statistics and research methods, and business environment. Two options are available under the MS program in administration; option A requires the presentation of a thesis, option B does not.

### Admission Requirements

Admission is determined by a number of factors, including the applicant's grade point average at the undergraduate level and score on the Graduate Management Admission Test. General minimum requirements for admission are:

1. A baccalaureate degree in business administration, or the equivalent, from an accredited institution.
2. Foreign students are also required to have a minimum score of 550 on the Test of English as a Foreign Language.

### Degree Requirements

All course work taken for the degree must be approved by a student's advisor. Courses identified under background fundamentals of the MBA program, explained earlier, may not be included in the hours required for the degree.

Students obtaining the MS in administration (under either option) are required to complete the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS 871, Multivariate Statistical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 860, Analysis of Behavioral Systems</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt. 886, Seminar in Research Methodology</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional requirements under each option area are as follows:

**Option A (Thesis):** Option A requires the completion of a minimum of 30 credit hours of work, including at least 17 hours in 800-level courses. In addition to the
three required courses specified earlier, candidates must present a thesis, in their area of specialization, for a total of four semester credit hours. They must also take at least nine hours in this area of specialization.

A preliminary oral examination over the thesis proposal is required. Candidates must also present an oral defense of their thesis conducted according to the requirements of The Wichita State University Graduate School.

Option B (Nonthesis): Option B requires the completion of a minimum of 33 credit hours of work, including at least 17 hours in 800-level courses. In addition, at least 15 hours must be in the area of specialization.

Two alternatives are available in the area of specialization:
1. The entire 15 hours may be taken in regular graduate-level courses, with a written comprehensive examination given over the area of specialization. The examination is administered and evaluated by a faculty committee from the area of specialization and is usually taken at the end of a student's last semester of work.
2. Of the 15 hours of specialization, up to four credit hours may be taken as a special project in the student's area of specialization. The special project may involve original case research, internships or field research. This project must be approved by the MS committee and ordinarily is directed by a group of graduate faculty members.

For both of the alternatives under Option B, a final oral examination, conducted according to requirements of the MS Committee, is held over a student's entire degree program.

Master of Arts in Economics

The Department of Economics offers courses of study leading to the Master of Arts (MA). A subspecialty in business economics is available. Students admitted to the MA program in economics are required to select a thesis or nonthesis option. The thesis option is recommended for students planning graduate work beyond the master's level, and the nonthesis option permits students to specialize in a chosen area of study. The department seeks to offer as much flexibility as is compatible with an individual student's background and interest.

Admission Requirements

Admission to the MA program in economics requires an undergraduate major in economics, or the equivalent, from an accredited university or the completion of this requirement during the graduate course of study. If students have not taken calculus in an undergraduate program, they must take a course in calculus, or equivalent mathematics, during the first semester of graduate work.

Admission to the program is based in large part—but not exclusively—on the student's grade point average and score on the Graduate Record Examination. For admission to full standing candidates must have a grade point average of at least 2.750 for the last half of their undergraduate work and for courses in economics.

The Graduate Record Examination (aptitude test only) is required, but under exceptional circumstances and on written petition to the graduate coordinator, students may take the examination prior to the second semester of their residence to retain their standing in the program.

Degree Requirements

Three courses are required of all students:
- Econ. 631, Intermediate Business Statistics
- Econ. 801, Macroeconomic Analysis
- Econ. 802, Microeconomic Analysis

The candidate's program of courses must be approved by the graduate coordinator and the chairperson of the Department of Economics. Courses identified as background fundamentals of the MBA program and other courses designated by the Department of Economics may not be included in the hours required for this degree.

Thesis: If students elect to write a thesis, they must complete 30 semester hours (including thesis hours) of economics and related courses, 18 of which must be in courses numbered 800 or above. They must also present and successfully defend their thesis before their thesis committee. Candidates for the MA who write a thesis are required to pass an oral examination based primarily on the defense of the thesis.

Nonthesis: If students elect not to write a thesis, they must complete 34 semester hours, 18 of which must be in courses numbered 800 or above. Candidates who do not write a thesis must pass a written comprehensive examination of their course of study.

Accounting

School of Accountancy

Courses for Graduate/Undergraduate Credit

Dual course numbers are used for courses that will be taken simultaneously by baccalaureate candidates and candidates in the School of Accountancy. Additional work will be required of the latter.


560/760. Accounting Information Systems I. (3). A study of the design, implementation, and controls of accounting systems, with emphasis on the use of computers for processing financial data. Prerequisites: Acctg. 220, Math 109 or 111, CS 200 and 205 of Acctg. 300, senior standing. Acctg. 760 requires admission to the MPA program or School of Accountancy. B 11 560 0 0502, B 11 760 0 0502.

615/715. Financial Accounting III. (3). An examination of accounting concepts and techniques related to consolidated statements subsequent to date of acquisition. A systematic treatment of the basic concepts and methodology of accounting theory. Prerequisites: Acctg. 510/710, Math 109 or 111; senior standing. Acctg. 715 requires admission to the MPA program or School of Accountancy. B 11 615 0 0502, B 11 715 0 0502.

620/720. Managerial Accounting II. (3). Advanced study of the use of accounting information in financial policy decisions, profit planning and control, quantitative analysis of financial data and capital budgeting. The application of selected quantitative methods of accounting is included. Prerequisites: Acctg. 320, Math 144, Econ 231, senior standing. Acctg. 720 requires admission to the MPA program or School of Accountancy. B 11 620 0 0502, B 11 720 0 0502.

630/730. Taxation II. (3). A study of the federal tax law as it applies to corporations, partnerships, estates, trusts and gifts. Prerequisites: Acctg. 210 and 430, Math 109 or 111; senior standing. Acctg. 730 requires admission to the MPA program or School of Accountancy. B 11 630 0 0502, B 11 730 0 0502.

640/740. Auditing I. (3). A study of the auditor's attest function, with emphasis on auditing standards and procedures, independence, legal responsibilities, codes of ethical conduct, and evaluation of accounting systems and internal control. Prerequisites: Acctg. 510/710, Acctg. 560/760, CS 200 and 205 of Acctg. 300, Math 109 or 111, senior standing. Acctg. 740 requires admission to the MPA program or School of Accountancy. B 11 640 0 0502, B 11 740 0 0502.

690/790. Seminar in Selected Topics. (1-3). Repeatable for credit with School of Accountancy consent. B 11 690 0 0502, B 11 790 0 0502.

Courses for Graduate Students Only

The interpretation and analysis of financial statements are included. May not be taken for credit in the School of Accountancy. Prerequisite: no previous credit in accounting or School of Accountancy consent. B 11 800 0 0502

801. Managerial Accounting. (3). An examination of the use of accounting data to analyze and control management problems. Concepts of cost analysis, return on investment analysis, and operations and capital budgeting are covered. May not be taken for credit in the School of Accountancy. Prerequisite: Acctg. 800 or equivalent. B 11 801 0 0502

803. Federal Taxes and Management Decisions. (3). An examination of how substantially different tax liabilities sometimes attach to nearly identical economic events. Emphasizes practical results, giving little or no consideration to political considerations inherent to a manager or businessman who has little accounting background. This course is not open to accounting majors or those who have had previous income tax courses. May not be taken for credit in the School of Accountancy. Prerequisite. B 11 803 0 0502

810. Accounting Evolution and Social Environment. (3). Study and discussion of accounting concepts from an evolutionary point of view. Emphasis is given to the interrelationship between accounting and socioeconomic factors. Prerequisite: undergraduate emphasis in accounting, admission to the MPA program or School of Accountancy consent. B 11 810 9 0502

812. Theoretical Foundations of Accounting. (3). A systematic treatment of the basic concepts and methodology of accounting theory and their application to problems of income determination and asset/liability valuation. Prerequisite: undergraduate emphasis in accounting, admission to the MPA program or School of Accountancy consent. B 11 812 9 0502

820. Managerial Accounting IV. (3). An advanced study of theoretical concepts underlying cost accounting, with emphasis on the nature of business decisions, establishing a conceptual framework for cost and managerial accounting and selected problem areas in cost management. Prerequisite: undergraduate emphasis in accounting, admission to the MPA program. B 11 820 9 0502

825. Analytical Methods in Accounting. (3). An examination of applied mathematical models in accounting. Emphasis is placed on the mathematical representation of cost and management accounting models. Prerequisites: Math 600, undergraduate emphasis in accounting, admission to the MPA program or School of Accountancy consent. B 11 825 0 0502

830. Taxation III. (3). The application of research and planning techniques to federal tax law and federal income tax problems. Prerequisite: Tax 630 or Math 105 or 111. B 11 830 9 0502

840. Auditing II. (3). An advanced study of auditing with emphasis on EDP auditing, statistical sampling and ethics. Prerequisites: Acctg. 640/740; Acctg. 660/760; Math 510 or 610; C 3210 and 205 or Acctg. 300, Math 109 or 111. B 11 840 0 0502

660. Accounting Information Systems II. (3). A study of the concepts of information systems, their design and operation and the relationship of these concepts to the economic information requirements, information flows, decision criteria and control mechanisms in the business environment. Prerequisites: Acctg. 560/760, Acctg. 220 or 201; Math 109 or 111, C 3 200 and 205 or Acctg. 300. B 11 860 0 0502

880. Contemporary Issues in Accounting. (3). An examination of current issues in accounting, with emphasis on the releases of professional organizations and governmental agencies. Prerequisites: Acctg. 510/710; Math 109 or 111. B 11 880 0 0502

690. Professional Seminar. (1). An orientation to the accounting profession. Continuous enrollment and satisfactory completion of designated segments required of all students in the School of Accountancy. Prerequisite. Acctg. 800 or equivalent. B 11 890 0 0502

891. Directed Study in Accounting. (1-3). Prerequisite: School of Accountancy consent. B 11 891 3 0502

895. Research Seminar in Accounting. (3). An advanced seminar offering an opportunity for oral discussion and written reports on matters of current interest in diverse areas of accounting. A major course objective is to develop research skills for independent research and the presentation and defense of findings. Prerequisite: undergraduate emphasis in accounting including a course in statistics, admission to the MPA program or School of Accountancy consent. B 11 895 9 0502

689. Thesis Research. (1-3). B 11 889 4 0502

Aviation Management

Department of Marketing and Small Business

Courses for Graduate/Undergraduate Credit

696. Seminar in Selected Topics. (1-3). Repeatable with departmental consent. B 11 696 9 0502

706. Seminar in Special Topics. (1-3). May not be taken for credit in the School of Accountancy. Prerequisite: School of Accountancy consent. B 11 696 3 0501

Decision Sciences

Department of Finance, Real Estate and Decision Sciences

Courses for Graduate/Undergraduate Credit

575. Decision-Making Techniques. (3). An introduction to the quantitative techniques commonly used for managerial decision making and their application to problems in such areas as production, distribution and finance. Topics include linear, integer, goal programming, transportation models, network models, queuing theory and simulation. Prerequisite: DS 350. B 15 575 0 0507

651. Design of Operations Systems. (3). A course structured to give an in-depth view of the long-term design aspects of operations systems. Topics include process analysis and design, production control information systems, facilities planning, materials handling systems, job design, personnel planning and scheduling and current issues. Prerequisite: DS 350. B 15 651 0 0506

652. Operations Planning Systems. (3). A course structured to give an in-depth analysis of the short-term or operational aspects of goods- or service-producing systems. Topics include forecasting methods, inventory control models, material requirements planning, aggregate planning and scheduling and current issues. Prerequisite: DS 350. B 15 652 0 0506

690. Seminar in Selected Topics. (1-3). Repeatable with departmental consent. Prerequisite: junior standing. B 15 690 9 0501

Business Law

Department of Finance, Real Estate and Decision Sciences

Courses for Graduate/Undergraduate Credit

690. Seminar in Selected Topics. (1-5). Repeatable with departmental consent. Prerequisite: junior standing. B 15 690 9 0506

750. Workshop in Business Law. (1-4). Prerequisite: junior standing. B 15 750 2 0501

Courses for Graduate Students Only

831. Legal Environment of Business. (3). An introduction to the legal environment of business with emphasis on the legal framework for business organization and operation. The course considers the functions of law in relation to the business system, the institutions and processes involved in the interaction between business, society and government and the major frameworks of private and public law. Emphasis is placed on the role of public law from a managerial perspective, including the ethical and social responsibility aspects of business behavior. B 15 831 0 0501

880. Seminar in Special Topics. (1-3). Repeatable with departmental consent. B 15 880 9 0501

891. Directed Studies. (1-5). Prerequisite: departmental consent. B 15 891 3 0501
Courses for Graduate/Undergraduate Credit

602. Mathematical Methods in Economics. (3). An introduction to mathematical tools that are especially useful in economics, econometrics, decision sciences, and related statistical applications. Topics include: differential and integral calculus, linear algebra, matrix theory, an introduction to matrix algebra and vector analysis.
Prerequisites: Econ. 2020 and Math 144 or equivalent and junior standing. B 15 602 0 2204

605. History of Economic Thought. (3). A critical analysis of economic thought, the factors that influence this thought and its impact upon the economic development of the modern world. Prerequisites: Econ. 2020 and junior standing. B 15 605 0 2204

614. Industrial Organization. (3). A study of both competitive and noncompetitive market structures, conduct and performance, with special emphasis on related public policy, such as antitrust. Prerequisites: Econ. 202 and junior standing. B 15 614 0 2204

615. Economics of Transportation. (3). A study of economic characteristics of transportation: problems and policies. Prerequisites: Econ. 2020 and junior standing. B 15 615 0 0510

616. Economics of Air Transportation. (3). A study of economic characteristics of air transportation. Prerequisites: Econ. 2020 and junior standing. B 15 616 0 0510

617. Economics of Regulation. (3). A study of the theory and practice of regulation. Included are both the traditional regulation of public utilities and communications and the modern approach of regulation such as safety and environmental regulations. Prerequisites: Econ. 2020 and junior standing. B 15 617 0 0510


625. Economic History of Europe. (3). Cross-listed as Hist. 614. An analysis of the development of economic institutions, the history of capitalism and its influence on economic expansion, technology, precious metals, politics and war, changes in economic ideologies and cultur al effects of economic change. Prerequisites: Econ. 2010 and junior standing. B 15 625 0 2204


627. Economic History of the United States. (3). Cross-listed as Hist. 515. An analytical study of the basic factors of economic growth in the United States, including agriculture, trade and commerce, industrial development and the changing role of the government in economic activity are explored. Prerequisites: Econ. 2010 and junior standing. B 15 627 0 2204

531. Intermediate Business Statistics. (3). A study of the regression model with extensions, analysis of variance models and other related statistical methods, with emphasis on application to business and economic data. Prerequisites: Econ. 2020 and junior standing. B 15 631 0 0503

640. Monetary Problems and Policy. (3). An analysis of monetary problems and policies. Prerequisites: Econ. 2020 and junior standing. B 15 640 0 0503

553. Public Finance. (3). An analysis of fiscal institutions and decision making in the public sector of the American economy, budget planning and execution, taxation, debt and fiscal policy. Prerequisites: Econ. 2020 and junior standing. B 15 653 0 2204


560. Labor Economics. (3). An introduction to labor economics, surveying both theoretical and empirical research in this field. Topics include labor market, wage determination, human capital, labor unions and government policies. Prerequisites: Econ. 2020 and junior standing. B 15 660 0 0516

561. Collective Bargaining and Wage Determination. (3). An examination of economic and legal aspect of collective bargaining, emphasizing the techniques and procedures used, and the major issues and problems inherent in the bargaining process. The manner in which wages are determined under various institutional relationships is explored. Prerequisites: Econ. 2020 and junior standing. B 15 661 0 0516

562. Work and Pay. (3). The orientation of this course is the work environment and workplace, its scope and how the economics of the labor force is defined. Emphasis is placed on the wages in labor market and the role of government in the labor force. Prerequisites: Econ. 2020 and junior standing. B 15 662 0 0516

563. Economic Insecurity. (3). Cross-listed as Ger. 663. Personal economic insecurity, such as unemployment, old age, health care, disability and erratic economic fluctuations. Costs and benefits of government action to aid in meeting such insecurity are discussed. Prerequisites: Econ. 2020 or instructor's consent. Junior standing. B 15 663 0 2204

565. Health Economics. (3). Cross-listed as Hist. 554. An analysis of health care systems in the United States, including the demand for and supply of health care services, the quality, price and cost of health services, the regulation of health care services, insurance, and the role of government in the health sector. Prerequisites: Econ. 2020 and junior standing. B 15 665 0 0516

571. Economic Growth and Development. (3). Survey of leading growth theories, with an emphasis on the role of government in economic growth. Agriculture, trade and commerce, industrial development and the role of government in economic activity are explored. Prerequisites: Econ. 2010 and junior standing. B 15 671 0 2204

575. Business Strategy. (3). An analysis of the role of the government in economic activity are explored. Prerequisites: Econ. 2010 and junior standing. B 15 675 0 2204

580. Seminar in Special Topics. (1-3). Repeatable with departmental consent. B 15 690 0 0506

851. Intermediate Production Management. (3). Theory of production systems; decision making under uncertainty and advanced technological forecasting methods for business and industry. Application of forecasting methods and some operations research models to real-world productive systems. Prerequisite: DS 350 or B 15 851 0 0506

871. Multivariate Statistical Methods. (3). A study of selected multivariate statistical methods used in support of modern decision making. Topics include: multiple regression, factor analysis, discriminant and cluster analysis. Prerequisites: Econ. 870 or Econ. 231. B 15 871 0 0503

872. Advanced Statistical Analysis. (3). Topics such as sample design, chi-square, variance analysis and correlation and regression analysis are examined from conceptual and decision-making points of view. Prerequisites: Econ. 871. B 15 872 0 0503

874. Management Information Systems for Business. (3). A study of business information systems for management decision making and control. Includes coverage of system components, control and application. Includes an introduction to programming language. B 15 874 0 0705

875. Management Science. (3). A course providing qualitative bases from which the student may develop analytical abilities to use as a decision maker. Areas of study include mathematical programming, game theory, forecasting, queuing theory and simulation. Prerequisite: B 15 875 0 0907

876. Advanced Management Science. (3). An in-depth examination of selected management science models. To be offered are advanced inventory and quality control topics, goal programming and other current decision-making techniques. Prerequisite: DS 875 or departmental consent. B 15 876 0 0507

980. Seminar in Special Topics. (1-3). Repeatable with departmental consent. B 15 890 0 0506

981. Directed Studies. (1-5). Prerequisite: departmental consent. B 15 891 0 0506

983. Special Project in Decision Sciences. (1-4). A special project including original case research, supervised internships or field research. Prerequisite: approval of the MS Committee. Open only to MS in administration candidates. B 15 893 0 0506

986-996. Thesis. (2-2). B 15 896 0 0501; B 15 899 0 0503

The following abbreviations are used in the course descriptions: B stands for lecture and L for laboratory. For example, 2P, 2L means 2 hours of lecture and 2 hours of lab.
Courses for Graduate Students Only

800. Analysis of Economic Theory. (3) An intensive analysis of micro- and macroeconomic principles. Not for graduate credit in the MA program in economics. Prerequisite: Econ. 200Q and junior standing. B 13 671 0 2204

801. Macroeconomic Analysis. (3) An intensive analysis of contemporary core macroeconomic theory and problem solving. Prerequisites: Econ. 301 and one course in calculus. B 13 801 0 2204

802. Microeconomic Analysis. (3) An intensive analysis of contemporary core microeconomic theory and problem solving. Prerequisites: Econ. 302 or 804 and one course in calculus. B 13 802 0 2204

803. Analysis of Business Conditions. (3) A study of economic forecasting and its relationship to macroeconomic analysis. Not for graduate credit in the MA program in economics. Prerequisites: Econ. 800 or equivalent and consent of instructor. B 13 803 0 2204

804. Managerial Economics. (3) A survey of theoretical and analytical tools of economic decision making by managers. Not for graduate credit in the MA program in economics. Prerequisites: Econ. 200Q or 800 and one course in calculus. B 13 804 0 0617

810. Business and Public Policy. (3) The study of the roles of government and the public sector in the economy, with emphasis on the impact of various public policies on the use of energy and natural resources. Prerequisite: Econ. 260 or instructor's consent. B 13 680 0 2204

811. Seminar in Urban Economics. (3) An intensive analysis of the effects of government regulation, monetary and fiscal policy, with emphasis on the roles of government and the public sector in the economy, with emphasis on the impact of various public policies on the use of energy and natural resources. Prerequisite: Econ. 260 or instructor's consent. B 13 680 0 2204

814. Seminar in Industrial Organization and Public Policy. (3) A study of economic and public policy issues related to the U.S. economy. Repeatable for credit with departmental consent. Prerequisites: Econ. 302, 614 or 804. B 13 814 0 2204

815. Seminar in the Regulated Industries. (3) An intensive analysis of the economic characteristics of the regulated industries (e.g., transportation and utility services), with emphasis on problems in the public and private sectors of these industries. Prerequisite: Econ. 302, 615, 616, 617 or 804. B 13 815 0 0510

830. Statistical Methods for Business. (3) An examination of statistical tools and methods applicable to business decision making. Included are probability theory, point and interval estimation, hypothesis testing, regression analysis, analysis of variance and selected nonparametric techniques. Prerequisite: Econ. 615 or 804. B 13 830 0 0503

831. Introduction to Econometrics. (3) Analysis of time series, multiple regression, and cointegration, analysis of variance and introduction to econometric techniques. Prerequisite: Econ. 631 and one course in calculus. B 13 831 0 9003

835. Methodology of Economics. (3) A study of the basis of statistical methodology. The course covers the principles of abstract reasoning, deduction and induction and the use of appropriate methods in statistical work.

840. Seminar in Monetary Theory. (3) An examination of the theory and methods of modern monetary theory. An analysis and evaluation of current monetary problems is included. Prerequisite: Econ. 200Q and 340. B 13 840 0 9004

853. Seminar in Public Finance. (3) An analysis of the role of public finance in the American and federal governments. Selected topics of current importance are explored. Repeatable for credit with departmental consent. Prerequisite: Econ. 653. B 13 853 0 9204

861. Seminar in Contemporary Labor Issues. (3) An intensive analysis of contemporary labor problems in the economy. The specific nature of the problems is determined by the interest of the participants. Repeatable for credit with departmental consent. Prerequisite: Econ. 674. B 13 861 0 9516

870. Seminar in International Trade and Finance. (3) An intensive analysis of international trade and finance. The specific nature of the problems is determined by the interest of the participants. Repeatable for credit with departmental consent. Prerequisite: Econ. 670. B 13 870 0 9516

885. Seminar in Environmental Quality Control. (3) An intensive analysis of environmental quality control. A critical look at current environmental quality is taken. Prerequisite: Econ. 885. B 13 885 0 9204

888. Seminar in Urban Economics. (3) An analysis of the determinants of city structure, the location of economic activity and changes in city structure. Specific current urban problems such as crime, pollution, housing and other current issues are included. Prerequisite: Econ. 302 or 868. B 13 888 0 9004

891. Directed Study. (1-3) Individual study of various aspects and problems of economics. Repeatable for credit with departmental consent. B 13 891 0 3204

892. Group Studies in Economics. (1-3) Repeatable for credit. Prerequisite: Departmental consent. B 13 892 0 9204
Finance

Department of Finance, Real Estate and Decision Sciences

Courses for Graduate/Undergraduate Credit

640. Financial Management. (3). An exploration of the problems and operations for which the financial officer is responsible, emphasizing controversial aspects of financial analysis. Prerequisites: Fin. 340, six hours of accounting or departmental consent and junior standing. B 15 640 0 050

641. Investments. (3). An analysis of investment risks, financial information and industry characteristics. Corporate, government, municipal and financial institution securities and other investment types are examined. Personal portfolio construction, supervision and management are presented. Prerequisites: Fin. 340 and junior standing. B 15 641 0 050

643. Capital Markets and Financial Institutions. (3). An introduction to the capital markets system. The management and operation of financial institutions are studied. Each major type of financial institution is viewed in the context of its competitive environment with respect to both asset and liability management. Prerequisites: Fin 340 and junior standing. Credit in Econ 643 is strongly recommended. B 15 643 0 050

644. Commercial Bank Management. (3). A study of bank asset and liability management. The internal organization of commercial banks, current problems and recent innovations in commercial banking are also explored. Prerequisites: Fin 643 and junior standing. B 15 644 0 050

645. Security Analysis and Valuation. (3). Comprehensive study of methods of analyzing major types of securities. Market behavior analysis is also made. The formulation of investment objectives, the design of portfolios for classes of institutional and individual investors and portfolio theory are explored. Prerequisites: Fin 641 and junior standing. B 15 645 0 050

648. International Finance. (3). Cross-listed as Econ. 674. The study of foreign exchange, balance of payments, the international monetary system and the world's money and capital markets and their relationships with the financial operations of multinational firms. Also, relevant aspects of international financial management are explored through a series of case studies. Prerequisites: Fin 340, Econ. 2020 and junior standing. B 15 648 0 0513

690. Seminar in Selected Topics. (1-5). Repeatable with departmental consent. Prerequisite: junior standing. B 15 690 0 0504

750. Workshop in Finance. (1-4). Prerequisite: junior standing. B 15 750 2 0504

Courses for Graduate Students Only

820. Seminar in International Trade and Finance. (3). Cross-listed as Econ. 870. A seminar in theoretical concepts and contemporary selected issues of international economics and finance. Selected issues would include such topics as exchange rates, the Eurodollar market, Arab oil dollars in the international monetary system, transfer of savings between countries, developments in the common markets, etc. Prerequisite: Fin 648 or Econ. 674 or instructor's consent. B 15 820 9 0513

840. Financial Systems. (3). An intensive analytical introduction to finance from the management viewpoint, including the theory of financial management, the financial institutional structure and an analysis of a variety of practical problems of business finance. Prerequisite: Acctg. 800 or equivalent. B 15 840 0 0504

841. Financial Administration. (3). An integrated treatment of basic business finance, financial management, financial statement analysis and financial institutions. Prerequisites: Fin. 840 or equivalent. B 15 841 0 0504

842. Structure and Policies of Financial Institutions. (3). The development, management, and impact of policies of financial institutions, including planning, measuring and achieving financial goals. Prerequisite: Fin. 840 or equivalent. B 15 842 0 0504

843. Investment Analysis and Portfolio Management. (3). Study of the basic theory and practice of security valuation and investment management. Includes security and portfolio analysis, selection of investment media and measurement of performance. Not available to students with credit in Fin. 641 or equivalent. Prerequisites: Fin. 340 or 840 and Econ. 800. B 15 843 0 0505


845. Security Analysis. (3). An analysis and valuation of investment securities issued by corporations and governmental agencies. Prerequisites: Fin 641 or departmental consent. B 15 845 0 0505

846. Capital Budgeting. (3). A study of the organization and operation of the capital budgeting system. Problems in partial decentralization and in comparability of estimates of funds available are explored. Contemporary methods of treating uncertainties and constraints and the application of programming techniques are included. The determination of appropriate discount rates is also explained. Prerequisite: Fin. 840 or equivalent. B 15 846 0 0504

895-896. Thesis. (2-2). B 15 895 4 0504; B 15 896 4 0504

Management

Department of Management

Courses for Graduate/Undergraduate Credit

561. Introduction to International Economics and Business. (3). Cross-listed as Econ. 672. A survey of the economic foundations of international trade and investment. After a study of international trade, theory and policy (the international economy), it explores the operations of the multinational firm within that environment. Prerequisites: Econ 2020 and junior standing. B 16 561 0 0513

563. Organizational Interactions. (3). A study of interpersonal, intraorganizational and interorganizational interactions. Prerequisites: Mgmt. 380 or concurrent enrollment and junior standing. B 16 663 0 0506

565. Organizational Development. (3). An introduction to organizational change management is upon the foundation of an organizational interaction, group and structural developments are included. Prerequisites: Mgmt. 380 or concurrent enrollment and junior standing. B 16 665 0 0506

667. Organizational Structure and Design. (3). An introduction and exploration of the theories pertinent to the study of organizational subsystem and structure design. The interrelationships of organizational goals, decision making, environment, technology, climate and structure are also explored. Prerequisites: Mgmt. 380 or concurrent enrollment and junior standing. B 16 667 0 0506

680. Decision Making. (3). Cross-listed as UA 750. A study of the theories of decision making with attention directed to the factors of creativity, the quest for subjective certainty, rationality, cognitive inhibitors, problem identification, evaluation, selection and implementation of quantitative methods to decision processes and decision implementation. Prerequisites: Mgmt. 380 or concurrent enrollment and junior standing. B 16 680 0 0506

681. Administrative Policy. (3). An integration of all aspects of business administration in the analysis of and making decisions for policy development. Prerequisites: DS 350, Fin. 340, Mkt. 300, Mgmt. 380 or departmental consent and senior standing. B 16 681 0 0506

683. Comparative and International Management. (3). The study of contemporary management concepts and practices applicable to private and public sector organizations in an international setting and their impact on organizational structure, process and functions of multinational corporations. The student is introduced to the dynamic growth of business and government interaction on a global basis. The course includes an examination of nationalism and international development, labor and industrial relations, host country activities to promote or restrict international business; development of technological and managerial skills and marketing expertise. Prerequisites: Mgmt. 380 or concurrent enrollment and junior standing. B 16 683 0 0506
684. Health Administration Policy. (3). An integration of all aspects of health administrative and organizational theory with emphasis on health policy development. Prerequisites: a basic course in economics, accounting, finance and management of health administration and junior standing. B 16 860 0 0506

690. Seminar in Selected Topics. (1-5). Repeatable with departmental consent. Prerequisite: health administration 330. B 16 860 0 0506

700. Workshop in Management. (1-4). Prerequisite: junior standing. B 16 750 2 0506

Courses for Graduate Students Only

830. Socio-Legal Environment of Business. (3). An examination of the economic, political, social and legal environment in which business operates. Consideration is given to the theoretical framework of capitalism and how business interacts with government at all levels. Emphasis is placed on the role of business in dealing with various societal problems. Current issues, such as the social responsibility of business, affirmative action, occupational safety and health, environmental protection and the challenge to the legitimacy of the firm are dealt with from the perspective of the decision making manager. B 16 830 0 0506

835. International Business Administration. (3). An introduction to international business administration with particular attention to the analysis of multinational business strategies in the context of the diverse economic, political, social and cultural dimensions of the environments that exist in both developed and developing areas of the world. B 16 835 0 0513

860. Management of Organizations. (3). An introduction to management and organizational theory. Includes such topics as classical and contemporary management theory, human relations, group dynamics, motivation, communication, organizational structure and design and behavioral control. B 16 860 0 0506

862. Organizational Behavior. (3). A study in individual behavior in an organizational setting. Human variables in business are analyzed from the standpoint of job placement, performance and individual development. Topics covered include behavioral development and learning in human relations. Prerequisite: mgmt. 860 or departmental consent. B 16 862 0 0506

865. Communication. (3). An analysis of communication models with emphasis on their applications to communication problems in organizations. Social psychological processes underlying persuasion in interpersonal relations and through the mass media are explored in communication systems and techniques within formal organizations are analyzed critically. Prerequisite: mgmt. 860 or departmental consent. B 16 865 0 0506

866. Organizational Conflict and Stress. (3). An analysis of the effects of stress and conflict in the workplace. A study is made of research and thinking in the areas of innovation, conflict, resolution, stress and anxiety as relevant to organizational structures and behaviors. Prerequisite: mgmt. 860 or departmental consent. B 16 866 0 0506

869. Research in Behavioral Science. (3). An analysis of some of the concepts and tools in behavioral science that are relevant to research in organizations. One or two areas such as motivation, cognitive processes, attitudes and values, etc., may be analyzed in depth. Prerequisite: mgmt. 860 or departmental consent. B 16 869 0 0506

880. Analysis of Behavioral Systems. (3). Concentration on theoretical and methodological contributions to the understanding of behavioral systems. Models and research methodology in individual behavior, small group processes and organizations are critically analyzed. Prerequisite: mgmt. 860 or departmental consent. B 16 880 0 0506

881. The Philosophy of Management. (3). Concentrated readings and research to define the relationship of management leadership in our society. Prerequisite: departmental consent. B 16 881 0 0506

885. Business Policies. (3). An analysis of business policies from the perspective of management. Prerequisite: departmental consent. B 16 885 0 0506

886. Seminar in Research Methodology. (3). A survey of concepts and procedures in the design and performance of research. B 16 886 0 0506

890. Seminar in Special Topics. (1-3). Repeatable with departmental consent. B 16 890 0 0506

891. Directed Studies. (1-5). Prerequisite departmental consent. B 16 891 0 0506

893. Special Project in Management. (1-4). A special project including original case research, supervised internships or field research. Prerequisite: approval of the MS Committee. Open only to MS in administration degree candidates. B 16 893 0 0506

895-898. Thesis. (2-2). B 16 895 4 0501; B 16 896 4 0506

Marketing

Department of Marketing and Small Business

Courses for Graduate/Undergraduate Credit

601. International Marketing. (3). Problems and procedures of marketing in foreign countries. The effects of foreign cultures and marketing systems on the design of marketing programs are included. Prerequisites: Mkt. 300 and junior standing. B 17 601 0 0509

604. Distribution Management. (3). A study of all areas involved with the distribution of a firm's products or services. These areas focus on such issues as the development of a firm's marketing channels and its relationships with wholesalers and retailers, as well as the management of the firm's storage facilities, inventory control, procedures and shipping facilities. Prerequisites: Mkt. 300 and junior standing. B 17 604 0 0509

605. New Product Marketing. (3). This course addresses the issues of identifying, evaluating, and implementing new products or services within both smaller and larger firms. It explores the role of the product/brand manager, a person who often acts as an internal entrepreneur. Prerequisites: Mkt. 300, 403 and 405. B 17 605 0 0509

607. Promotion Management. (3). An analysis of all issues involved with the promotion of an organization and its products or services. These promotion issues deal with the development of advertising campaigns, management of the personal sales force, development of special promotional activities and management of public relations. Prerequisites: Mkt. 300 and junior standing. B 17 607 0 0509

608. Selling and Sales Force Management. (3). An analysis of current behavioral concepts of personal selling and the functions and policies involved in managing a sales force. Prerequisites: Mkt. 300 and junior standing. B 17 608 0 0509

609. Marketing Programs. (3). A study of all the aspects of the marketing mix that are integrated to make an effective and coordinated marketing program. Prerequisites: Mkt. 300, three additional hours of marketing and junior standing. B 17 609 0 0509

610. Seminar in Selected Topics. (1-5). Repeatable with departmental consent. Prerequisite: junior standing. B 17 610 9 0501

700. Workshop in Marketing. (1-4). Prerequisite: junior standing. B 17 750 2 0509

Courses for Graduate Students Only

800. Marketing Systems. (3). An intensive analytical introduction to the combination of institutions that comprise the overall marketing system. The marketing function as a major subsystem within the individual business firm is also presented. B 17 800 0 0509

801. Contemporary Issues in Marketing Management. (3). A broadening of the concept of marketing by examining the impact of contemporary macroenvironmental conditions upon micromarketing decisions. Analysis includes identification and study of environmental issues, issue participation, new managerial decisions required and limitations to marketing decision making. Prerequisite: Mkt. 300 or equivalent. B 17 801 0 0509

802. Marketing Strategy. (3). Integration of long-term marketing strategies and policies, including product, price, promotion and distribution decision-making. Prerequisites: Mkt. 800 or equivalent and B 17 802 0 0509

803. Marketing Analysis. (3). The application of the scientific method to the solution of marketing problems. Prerequisite: Mkt. 800 or equivalent. B 17 803 0 0509

805. Consumer Decision Processes. (3). An examination of different aspects of the behavior of consumers and of the factors that help explain their behavior. An analysis of current concepts and models is included. Prerequisites: Mkt. 800 or departmental consent. B 17 805 0 0509

809. Marketing Theory. (3). A utilization of marketing research findings to analyze current marketing theory. Conceptual and theoretical frameworks for marketing analysis are developed. Prerequisite: six hours of marketing, including Mkt. 801, B 17 809 0 0509

890. Seminar in Special Topics. (1-3). Repeatable with departmental consent. B 17 890 9 0501
891. Directed Studies. (1-5). Prerequisite: departmental consent. B 17 891 3 0501

893. Special Project in Marketing. (1-4). A special project including original case research, supervised internships or field research. Prerequisite: approval of the MS Committee. Open only to MS in administration degree candidates. B 17 893 3 0509

895-896. Thesis. (2-2). B 17 895 4 0501; B 17 896 4 0501

Personnel

Department of Management

Courses for Graduate

Students Only

867. Seminar in Personnel Administration. (3). An in-depth study and analysis of several critical and/or major current problems in personnel and a review of significant literature. The direction of the course could be determined by the interests of the class. Prerequisite: Per 456 or 465 and 466. B 16 866 0 0515

869. Seminar in Special Topics. (1-3). Repeatable with departmental consent. B 16 890 9 0501

890. Directed Studies. (1-5). Prerequisite: departmental consent. B 16 891 3 0501

893. Special Project in Personnel. (1-4). A special project including original case research, supervised internships or field research. Prerequisite: approval of the MS Committee. Open only to MS is administration degree candidates. B 16 893 3 0501

895-896. Thesis. (2-2). B 16 895 4 0501; B 16 896 4 0501

Real Estate

Department of Finance, Real Estate and Decision Sciences

Courses for

Graduate/Undergraduate Credit

611. Real Estate Finance. (3). Real estate financing instruments, institutions, traditional and creative financing techniques. Risk analysis, mortgage financing and underwriting, primary and secondary mortgage markets. Prerequisite Fin 340. RE majors should have completed RE 310. B 15 611 0 0511

614. Real Estate Appraisal. (3). Impact of socioeconomic conditions on real estate values. Cost, sales comparison and capitalized income approaches to market value. Demonstration appraisal. Prerequisite: RE 310. B 15 614 0 0511

618. Real Estate Investment Analysis. (3). Equity investor decision criteria, institutional and ownership entity investment constraints, financial leverage opportunities, cash flow analysis and creative income tax strategies. Prerequisite: Fin 340. RE majors should have completed RE 310. B 15 619 0 0511

619. Residential Marketing, Management and Development. (3). Theory and practice. Includes supply and demand, urban and neighborhood market analyses, location theory and land-use succession, forecasting activities, brokerage administration, closing procedures, property management and public policy devices relative to land-use decisions. Case study or problems. Prerequisite: RE 310. B 15 619 0 0511

690. Seminar in Selected Topics. (1-5). Repeatable with departmental consent. Prerequisite junior standing. B 15 690 9 0511

750. Workshop in Real Estate. (1-4). Prerequisite: junior standing. B 15 750 9 0511

Courses for Graduate

Students Only

810. Real Estate Feasibility Analysis. (3). Theory and practice of analyzing the feasibility of both new construction and redevelopment of income-producing projects. Detailed comprehensive case studies are approached with contemporary analytical techniques. Prerequisite: RE 310, 614 and 618. B 15 810 0 0511

890. Seminar in Special Topics. (1-3). Repeatable with departmental consent. B 15 890 9 0511

891. Directed Studies. (1-5). Prerequisite: departmental consent. B 15 891 3 0511

893. Special Project in Real Estate. (1-4). A special project including original case research, supervised internships or field research. Prerequisite: approval of the MS Committee. Open only to MS in administration degree candidates. B 15 893 2 0511

895-896. Thesis. (2-2). B 15 895 4 0511; B 15 896 4 0511

Small Business/Entrepreneurship

Department of Marketing and Small Business

Courses for

Graduate/Undergraduate Credit

560. Consulting with Small Business. (3). This course will give hands-on experience consulting with an existing small business. Students will work with the owner in teams under the guidance of the instructor to identify the problem, gather information relevant to the problem, propose solutions to the problem and help the owner implement these solutions. The student will gain a personal knowledge of the lifestyle of an entrepreneur, both pro and con, as well as experienced-based knowledge about various aspects of managing a smaller business. Prerequisite: Mkt. 300, 340, Mgmt 360, senior standing. Preferred: Sm. Bus. 415 also be taken. B 15 560 2 0506

668. Advanced Entrepreneurship. (3). This course will explore advanced subjects such as leveraged buyouts. R&D limited partnerships, private placements of stock, role of entrepreneur in economic development, marketing strategy for smaller businesses and strategic planning during early growth stages. The student will prepare a business plan and be required to present the plan for evaluation by a panel of academics from various business disciplines. Prerequisite: Sm. Bus. 361 or consent of instructor. B 15 668 0 0506

750. Workshop in Entrepreneurship. (1-4). Prerequisite: junior standing. B 15 750 2 0501

Courses for Graduate

Students Only

868. New Venture Feasibility Seminar. (3). The focus of this course is on directing students in the appropriate methods of selecting financial sources and in raising seed capital through the preparation of a comprehensive feasibility study. Topics to be covered are (1) sources of capital, such as venture capitalists, Investment bankers, banks and creative forms of financing, (2) marketing opportunity analyses, (3) financing development, (4) feasibility and financial models, and (5) actual preparation of the loan package. Prerequisites: Sm. Bus. 668, Mkt. 800, Fin. 840, DS 850, Mgmt. 860 or equivalent and approval of the Instructor. B 15 868 9 0506.

890. Seminar in Special Topics. (1-3). Repeatable with departmental consent. B 15 890 9 0506

891. Directed Studies. (1-5). Prerequisite: departmental consent. B 15 891 3 0506

893. Special Project in Entrepreneurship. (1-4). A special project including original case research, supervised internships or field research. Prerequisite: approval of the MS Committee. Open only to MS in administration degree candidates. B 15 893 3 0506
College of Education

Offices: 102 Corbin Education Center
Leonard M. Chaffee, Dean
Ronald G. Davison, Associate Dean, graduate affairs
Robert D. Alley, Associate Dean, undergraduate affairs

Departments
Communicative Disorders and Sciences—J. Keith Graham, chairperson; Kenneth W. Burk, graduate coordinator
Industrial Technology—Keith Kirby, chairperson
Instructional Services—Dennis J. Kear, chairperson; Marcus Bollenger, assistant chairperson; Michael A. James, graduate coordinator
Personnel Services—Glenn R. Day, chairperson; M. Claradine Johnson, EAS graduate coordinator; Timothy S. Hartshorne, CSP graduate coordinator
Physical Education, Health and Recreation—John Hanson, chairperson and acting graduate coordinator

The College of Education offers programs leading to the Master of Arts (MA) and the Master of Education (MEd) in several fields: the Master of Science Education (MSE) for secondary teachers in biological sciences, chemistry, geology and physics; the Specialist in Education (EdS) in the fields of educational administration, school psychology and counseling; and the Doctor of Philosophy (PhD) in communicative disorders and sciences. A transfer program in educational administration leading to the ED) is available in cooperation with The University of Kansas.

Graduate offerings include programs which help students meet requirements for state certification as elementary principals, secondary principals, supervisory personnel, district school administrators, school counselors, early childhood teachers, special education teachers, reading specialists, school psychologists, speech and language pathologists and audiologists, and other specialists. Other programs are available to help teachers function better in their present roles.

Programs in the College of Education testify to the need for both continuity and change in elementary, secondary and higher education. Offerings range from workshops, which are offered only once and devoted to the examination of a relevant topic, to course sequences that lead to advanced degrees.

Master of Education and Areas of Specialization

Master of Education (MEd) programs provide for specialization in educational administration, educational psychology, elementary education, early childhood education, early childhood/handicapped, physical education, secondary education, special education, counseling and school psychology. Within the areas of elementary education, secondary education and educational psychology, students may choose to emphasize women's studies or other options as a program focus.

Admission Requirements

Admission to some MEd programs may require candidates to qualify for a teaching certificate. Many graduate programs in the college, however, provide appropriate preparation for students functioning in a variety of nonschool settings. These students may request exemption from state certification requirements.

Degree Requirements

The MEd requires the completion of 30 semester hours and a thesis, or 36 semester hours without a thesis. In both programs, at least one half of the required hours must be taken in courses numbered 800 or above. IS (E.P.) 801 or IS (E.P.) 704 may be required in these hours of credit, depending on the program selected.

Thesis: A thesis option in the MA or MEd programs may be selected. Appropriate topics range from basic to applied to action research, and approaches vary from historical to descriptive to experimental. The program requires 30 semester hours, approval of the thesis proposal by the student's graduate advisor and thesis committee, and an oral examination over the thesis topic. The committee is appointed by the graduate dean from nominees submitted by the student's adviser.

Examinations. During the final semester of enrollment, candidates are usually required to pass a written comprehensive examination in their major area. Within the first three weeks of the semester in which students take the exam, they should file an Application for Comprehensive Examination with the Office of the Associate Dean for Graduate Affairs, College of Education. Applications will not be accepted if submitted less than two weeks prior to the scheduled examination date. Thesis students must pass an oral examination over their research area. In most cases, nonthesis MEd candidates must sit for a written comprehensive examination. The written comprehensive examination is waived for MEd students undertaking a thesis project. Specific examination requirements are described under the appropriate department's section of the Graduate School Bulletin. The written comprehensive examination is scheduled the first Saturday in November for the fall semester; the second Saturday in April for the spring semester, and the first or second Saturday in July for the Summer Session.

Communicative Disorders and Sciences

Graduate Faculty

Professors: Kenneth W. Burk (graduate coordinator). J. Keith Graham (chairperson), Roger N. Kasten, Frank Kleffner (adjunct), Robert L. Mccroskey
Associate Professors: Jere L. Crabtree, Harold T. Edwards, Wesley L. Fairies
Assistant Professors: Ronald D. Chambers, William J. Gavin (adjunct), Thomas R. Knell, Christopher A. Moore, Rosalind R. Soudier

Degrees and Areas of Specialization

The Department of Communicative Disorders and Sciences offers courses of study leading to the Master of Arts (MA) and the Doctor of Philosophy (PhD). Academic and clinical training is provided for students at Wichita State who wish to become professionally qualified to work with communicatively handicapped children and adults. Instructional areas include communication sciences, speech and language pathology, clinical and rehabilitative audiology and some beginning course work in deaf education. A graduate program culminating in a master's degree is required for professional certification as a speech and language clinician or audiologist in the public schools and for work in hospital clinics.
rehabilitation centers or private practice. With an undergraduate preprofessional major, students can normally complete the master's program in one calendar year and be eligible for certificiation by the American Speech-Language-Hearing Association.

**Admission Requirements**

Admission to the master's degree program is granted to students who have completed an undergraduate major of at least 30 semester hours in the area of speech, language and hearing disorders and closely allied courses. Admission also requires an overall grade point average of 2.750 and at least 3.000 for the last 60 hours of the undergraduate degree program and in the undergraduate major field of study and acceptable scores on the general aptitude section of the Graduate Record Examination.

Admission to the doctoral degree program requires a master's degree and completion of at least one year of master's graduate work with a grade point average of 3.000 or better. Credentials must be demonstrated that students have a background of knowledge appropriate for entry into an integrated program of advanced study and research and provide evidence of personal qualities and traits indicative of further scholarly contributions to the selected area of study. To be admitted, students also must submit results of the general aptitude portion of the Graduate Record Examination.

**Master of Arts Requirements**

The Master of Arts (MA) in communicative disorders and sciences may be earned under a thesis option or a non-thesis option.

The thesis option requires the presentation and oral defense of an acceptable thesis and the successful completion of a minimum of 30 semester hours. Four hours may be earned in thesis preparation courses, CDS 895 and 899.

The nonthesis option requires the successful completion of a minimum of 32 semester hours. Written and oral comprehensive examinations must also be taken. Students may not take these examinations during any semester in which they are on academic probation. Candidates in either option must demonstrate competence in statistics, either by completing a beginning course with a grade of "C" or better or by passing an examination in this subject area. CDS 800, Introduction to Graduate Study and Research, and CDS 828, Advanced Speech and Hearing Science, or their equivalents, also are required of every graduate student. All students must enroll in a clinical practicum course in their major area of emphasis during each semester of full-time enrollment. No more than four semester hours of credit in clinical practicums—CDS 785, 834, 835 and 850—may be counted toward the minimum semester hour requirements for an MA. For all students, a minimum of 12 semester hours in courses numbered 700 or above is required. Evidence of successful clinical competence also must be demonstrated before the completion of the graduate program.

Participation in many of the department's clinical practicum courses requires that students obtain medical clearance prior to the start of the course. This requirement is indicated in the individual course descriptions. Procedures to be followed may be obtained from the department office. Also, graduate students who participate in active clinical practice during the year must purchase professional liability insurance in an amount of not less than $200,000—$500,000. This must be done on a yearly basis, when appropriate. Each entering graduate student, new to Wichita State, is required to take a speech and hearing proficiency test during the first semester of enrollment.

**Doctor of Philosophy Requirements**

Doctoral students, in conjunction with their advisory committee, formulate an integrated program of individual study. After taking into consideration previous academic and professional experiences, the students and their committee devise a program, which normally consists of at least 90 hours, 60 hours of which must be in didactic course work, including that taken during the master's degree program. Students may petition to take qualifying examinations after they have completed a major portion of their study program and satisfied the requirements of specified tool subjects. Students also enroll in CDS 835, Advanced Practicum in Communicative Disorders and Sciences, or its equivalent, each semester of full-time study through the semester in which their dissertation prospectus is approved. The independent conduct and oral defense of a program of original research is the final requirement in the PhD program.

**Financial Aid**

Some financial aid to support graduate study is available and includes federal trainships, assistantships and Wichita State fellowships.

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**Communication Sciences**

**Courses for Graduate/Undergraduate Credit**

710. The Neurology of Speech and Language. (4). A consideration of basic neuroanatomy and neurophysiology necessary for obtaining an understanding of the representation of speech and language in the human central nervous system and of conditions resulting from neurological impairment. Prerequisite: at least junior standing. D 12 710 1 1220

735. Anatomy, Physiology and Pathology of the Auditory System. (3). Detailed anatomy and function of the auditory system. Normal and pathological conditions are studied, with emphasis on clinical manifestations. Prerequisite: CDS 231. D 12 735 1 1220

780. Laboratory Instrumentation. (3). 2R; 21. Essential principles of laboratory instrumentation important in the fields of communicative disorders and sciences. Experimental work is integrated with theoretical instruction. Prerequisite: Instructor's permission. CDS 316 or equivalent or departmental consent. D 12 828 1 1220

828. Advanced Speech and Hearing Science. (3). 3R; 21. An introduction to clinical and research investigation in clinical settings and in the fields of communicative disorders and sciences. Equipment used in laboratories is gained through practical projects and applications within the field. Prerequisite: CDS 828. D 12 828 1 1220

867. Introduction to Psychoacoustics. (3). 3R; 21. The basic principles underlying the perceptual processes of auditory perception and the interdependencies between sound stimuli and subjective auditory experience as related to communicative behavior. Prerequisite: CDS 828. D 12 828 1 1220

900. Communicative Sciences; Physiological Phonetics. (3). 3R; 21. A critical review of pertinent research concerning the physiological bases of speech, respiratory, laryngeal, resonatory and articulatory functions. Prerequisite: CDS 828. D 12 900 1 1220

910. Communicative Sciences; Acoustic Phonetics. (3). 3R; 21. A critical review of research dealing with the acoustical characteristics of speech. Also included are speech perception and techniques of speech synthesis and analysis. Prerequisite: CDS 828. D 12 910 1 1220


Admission to courses is possible with a minimum grade of "C" in each stated prerequisite or its judged equivalent, or with departmental consent, unless otherwise specified in the course description.
Speech and Language Pathology

Courses for Graduate/Undergraduate Credit

520. Language Disabilities in Children. (3). Evaluation and modification of articulation and resonance in children. The role of the speech clinician within an interdisciplinary team is explored. Consideration is given to other organic anomalies. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 810 0 1220

810. Cerebral Palsy: Evaluation and Clinical Management. (3). The study of cerebral palsy and related neurological disorders. An evaluation of modification of speech and speech-related functions and the study of the cerebral palled individual in society are included. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 810 0 1220

815. Interviewing and Parent Counseling. Presentation of current techniques of case history taking and interviewing as they apply to speech, language, hearing, learning, and behavior disorders in handicapped children and adults. Procedures employed in ongoing and terminal counseling are considered. D 12 815 0 1220

820. Examination Methods in Speech and Language Pathology. (3). Appraisal and differential diagnostic techniques in speech and language pathology. A weekly diagnostic practicum in communicative disorders is held, with experiences in report writing and follow-up procedures provided. Prerequisite: medical, anatomic, and terminological knowledge of the normal speech, language, and hearing processes for children and adults. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 820 1 1220

825. Seminar in Communicative Disorders. (3). Review of recent developments, and the study of a variety of techniques for the assessment and diagnosis of communicative disorders in children and adults. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 825 9 1220

833. Clinical Process in Speech-Language Pathology. (2). A clinical process approach to working with children and adults with speech, language, hearing, learning, and behavior disorders. Introduction to supervised practicum at the graduate level. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 833 0 1220

835. Graduate Practicum in Communicative Disorders. (1). Supervised application of diagnostic and/or clinical management techniques with children and adults presenting communicative disorders. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 835 2 1220

836. Audiology Courses for Graduate/Undergraduate Credit

747. Rehabilitative Audiology. (3). Educational and psychological impact of hearing loss. Methods of improving the educational and family environment for the benefit of the hearing impaired are covered. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 875 1 1220

750. Speech and Language Pathology. (3). The study of speech, language, hearing, learning, and behavior disorders in handicapped children and adults. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 875 1 1220

Courses for Graduate Students Only

850. Supervised Practicum in Audiology. (1-3). Application of audiometric techniques in clinical situations. Experience in gain, complete patient management, counseling and rehabilitation follow-up, when appropriate. Prerequisite: 8 hours of practicum per week are required for each hour of credit. Repeatable. Prerequisites: medical clearance, departmental consent and CDS 540 and 710. D 12 850 2 1220

855. Auditory Evaluation of Infants and Children. (3). Prerequisite: prior or concurrent enrollment in CDS 710. Departmental consent required. Credit for CDS 540 and medical clearance. D 12 855 1 1220

860. Hearing Aids. (3). The history of hearing aid orientation and counseling related to major age categories are covered. Prerequisites: CDS 540. D 12 860 1 1220

865. Advanced Clinical Audiology. (3). Prerequisite: CDS 540. D 12 865 1 1220

870. Seminar in Audiology. (2-3). Prerequisite: CDS 540. D 12 870 9 1220

875. Physiological Measures of the Auditory and Vestibular Systems. (3). Prerequisites: CDS 540. D 12 875 1 1220

880. Cerebral Palsy: Evaluation and Clinical Management. (3). The study of cerebral palsy and related neurological disorders. An evaluation of modification of speech and speech-related functions and the study of the cerebral palled individual in society are included. Prerequisite: prior or concurrent enrollment in CDS 710. D 12 880 0 1220

Courses for Graduate Students Only

885. Auditory Evaluation of Infants and Children. (3). Prerequisite: prior or concurrent enrollment in CDS 710. Departmental consent required. Credit for CDS 540 and medical clearance. D 12 885 1 1220
Deaf Education

Courses for Graduate/Undergraduate Credit

590. Signing Exact English I. (1). 2R. Introduction to the theory and use of Signing Exact English (SEE) as a means of communication with the hearing impaired. Independent outside practice is necessary to facilitate skill. Prerequisites: Junior standing or departmental consent. D 12 560 0 1220

561. Signing Exact English II. (1). 2R. An advanced class in the theory and use of Signing Exact English (SEE) as a means of communication with the hearing impaired. Vocabulary and interpreting skills will be emphasized. Prerequisite: CDS 560. D 12 561 0 1220

760. Introduction to Deaf Education. (3). Evolution of educational programs and methods used with the deaf. Contributions of related disciplines to educational methodology and special aspects of curriculum development in schools and classes for the deaf are considered. Also included is a review of common communication systems and social and vocational considerations. Prerequisite: CDS 231. D 12 760 0 1220

Courses for Graduate Students Only

880. Introduction to Graduate Study and Research. (3). A general introduction to graduate study. A survey is made of research procedures utilized in the fields of communicative sciences and communication pathology. Presentation of principles for scientific writing and critical reading of professional research journals is included. Final project involves the formulation of a possible research methodology in the area of communicative sciences or communication pathology. D 12 880 0 1220

885. Presentation of Research. (1-3). A directed research project culminating in a manuscript appropriate for publication. Repeatable, but total credit hours may not exceed three. Prerequisites: CDS 800 and instructor's consent prior to enrollment. D 12 885 4 1220

890. Independent Study in Speech and Language Pathology or Audiology. (1-3). Arranged individual, directed study in specialized content areas in speech and language pathology or audiology. Repeatable. Prerequisite: instructor's consent prior to enrollment. D 12 890 3 1220

995. Thesis Research. (1-2). Repeatable, but total credit hours counted toward degree requirements shall not exceed two. D 12 995 4 1220

915. Advanced Selected Topics in Communicative Disorders and Sciences. (1-4). Advanced individual or group study in specialized areas of communicative sciences and disorders. Intended for doctoral students or advanced master's-level students. Repeatable. D 12 915 0 1220

925. Clinic and Program Administration. (2). Approaches to administrative and rehabilitation program planning and development. Attention is given to community analysis and utilization, personnel management, evaluation of program effectiveness, standards for accountability and fiscal procedures. D 12 925 0 1220

930. Seminar in Clinical Research. (3). Presentation of advanced models in research design applicable to the investigation of communicative disorders in a clinical setting. Prerequisites: CDS 800 and competency in statistics. D 12 930 4 1220

935. Advanced Practicum in Communicative Disorders and Sciences. (1-4). 1R. 1-12L. Supervised internship in one or more of the following sections: Advanced Practicum in Client Management, Advanced Practicum in Clinical Supervision, Advanced Practicum in Clinical Research, Advanced Practicum in Academic Instruction, Advanced Practicum in Research and Advanced Practicum in Clinical and Program Administration. This course is intended for doctoral students or advanced masters-level students. Repeatable, more than one section may be taken concurrently. D 12 935 2 1220

940. Advanced Independent Study in Speech and Language Pathology or Audiology or Speech Science. (1-3). Arranged individual, directed study in specialized content areas in speech and language pathology, audiology or speech sciences. Repeatable. Prerequisites: advanced standing and instructor's consent. D 12 940 3 1220


Industrial Technology

Graduate Faculty
Associate Professor: Sterling G. Lewallen
Assistant Professors: Alan A. Aagaard, Edgar L. Webb

The Master of Education (MEd) provides for specialization in secondary education with an emphasis in the field of industrial education. Graduate courses provide the opportunity for study in selected areas of professional interest and may be used to satisfy specific requirements for certification.

Courses for Graduate/Undergraduate Credit

500. Industrial Field Studies. (1-4). An in-depth analysis of industrial concepts from the perspective of an industrial employee. A comprehensive analysis of conceptualizing research and development, finance, marketing, production and industrial relations is a course requirement. The paper involves a comparison of the theoretical to the state-of-the-art in a local industrial firm. A one-hour group conference is held on campus each week for purpose of directing student's project. This course may be repeated by selecting specific areas from the industrial principles listed above. D 11 500 2 0839

501. Preparation of Instructional Materials. (3). The selection, development and organization of instructional materials for effective teaching of industrial technology. D 11 501 0 0839

510. Shop Planning and Organization. (3). Selection, purchase and organization of shop equipment and supplies. Developing and maintaining necessary records and reports and the planning of shop facilities are also included. D 11 510 0 0839

570. Directed Studies in Materials and Processes. (3). This course will provide an opportunity for the advanced student to pursue an area of emphasis within the realm of materials and processes on a synthesis level. The method of study will be research, basic and applied, or a combination thereof, in consultation with the professor, culminating in a research project and/or report. Prerequisite: departmental consent. D 11 570 4 0039

580. Directed Studies in Power and Energy. (3). Provides an opportunity for the advanced student to pursue an area of emphasis within the realm of power and energy on a synthesis level. The method of study will be research, basic and applied, or a combination thereof, in consultation with the professor, culminating in a research project and/or report. Prerequisite: departmental consent. D 11 580 4 0039

590. Directed Studies in Visual Communication. (3). Provides an opportunity for the advanced student to pursue an area of emphasis within the realm of visual communications on a synthesis level. The method of study will be research, basic and applied, or a combination thereof, in consultation with the professor, culminating in a research project and/or report. Prerequisite: departmental consent. D 11 590 4 0039

750. Workshop in Industrial Technology. (1-4). Offered in various areas of aspects of industrial education. D 11 750 2 0039

751. Institute in Industrial Technology. (1-4). A course designed to develop knowledge and competence in selected areas, and methodological innovations in industrial education. The content is designed to satisfy those competencies that are identified as essential for teaching a defined subject area. Prerequisite: departmental consent. D 11 751 0 0039

790. Special Problems in Industrial Technology. (1-4). Directed reading and research under the supervision of a graduate instructor. Prerequisite: departmental consent. D 11 790 4 0039

Courses for Graduate Students Only

820. Foundations for Curriculum Development in Industrial Technology. (3). A study of the theory and process to aid in curriculum development as determined by social, cultural and industrial changes, including current industrial technology curriculum design, problems and trends. D 11 820 0 0039
821. Curriculum Construction in Industrial Technology. (3). Selection and construction of curriculum content for general and specialization areas of study in industrial technology. Prerequisite: IT 620. D 11 821 0 0639

840. Instructional Technology in Industrial Technology. (3). A course designed to acquaint graduate students with the emerging technology of instruction. The course includes a study of programmed instruction, systems approach to instruction, instructional television, projected media, and a minimum of 18 hours completed in science teaching fields. A maximum of six hours of upper-division undergraduate content courses may be allowed.

Instructional Services

The Department of Instructional Services offers programs with emphases in early childhood education, early childhood handicapped, educational psychology, elementary education, foundations of education, library science, secondary education, middle-level education and special education. Certification requirements in learning disabilities, library science, mental retardation, gifted, personal and social adjustment and reading may be included as part of a degree.

Master of Education

The Department of Instructional Services offers programs leading to the Master of Education (MEd). With approval from the department, a graduate student may choose the master's thesis program (60 hours) or the nonthesis program (36 hours). Final evaluation on a thesis program is by oral examination on the thesis. Evaluation on a nonthesis program is by written comprehensive examination. Specific degree requirements are listed on program sheets available from the student's adviser or graduate coordinator.

Master of Education in Educational Psychology

Graduate students in educational psychology may choose from the following emphases:

1. General educational psychology
   a. The student's teaching area
   b. Research and evaluation
   c. Reading
   d. Special education
   e. Early childhood
2. Special education
   a. Mental retardation
   b. Learning disabilities
   c. Gifted education
   d. Personal and social adjustment
   e. Early childhood handicapped

Students who are working toward a degree or who hold a master's degree may pursue course work leading to certification in all special education areas listed in item 2 above.

Master of Education in Elementary Education

Degree requirements in elementary education have been developed to assist graduate students personalize a program to meet their professional goals. Students may choose from the following emphases:

1. Improvement of instruction
2. Reading—remedial or classroom
3. Early childhood education
4. Study in a curriculum and instructional area
5. Special education
6. Library science—media
7. Middle school education

Students who are working toward a degree or who hold a master's degree may pursue course work leading to certification in reading, early childhood education or library science.

Master of Education in Secondary Education

The program in secondary education offers graduate students an opportunity to increase their knowledge in their major fields as well as competencies in secondary teaching. Courses are selected with the approval of an adviser in one or more of the following:

1. Curriculum
2. Instruction
3. Communications
4. Middle school
5. Technology/program evaluation
6. Subject Areas
   a. Educational psychology
   b. English
   c. Foundations of education
   d. Gerontology
   e. Health care administration
   f. Library science
   g. Mathematics
   h. Nursing
   i. Reading
   j. Sciences
   k. Social sciences
   l. Special education
   m. Women's studies
   n. Others approved by secondary education faculty

Students who are working toward a degree or who hold a master's degree may pursue course work leading to certification in reading and library science.

Master of Science Education

The Master of Science Education (MSE) is available to secondary teachers who qualify for teaching assignments in biology, chemistry, geology or physics. The MSE is a 36-hour program, with 12 hours of approved courses in professional education and a minimum of 18 hours completed in science teaching fields. A maximum of six hours of upper-division undergraduate content courses may be allowed.

Students' final evaluation is by written comprehensive examination or a videotape demonstration of science teaching ability, with a two-hour oral examination exclusive of tape replay.

Courses for Graduate/Undergraduate Credit

620. Introduction to Middle-Level Education. (3). An overview of the historical, philosophical, social and psychological factors affecting the movement toward better educational opportunities for learners from ages 10 to 14. D 21 620 0 0629

821. Curriculum/Instruction Alternatives for Middle-Level Education. (3). An exploration into the development of alternative curricular organizations and instructional strategies for better meeting the needs of students in grades 5 through 9. D 21 821 0 0629

703. Research and Implementation of Learning Centers. (3). This course will consider a variety of alternative approaches to teaching students at grade levels and subject matter areas via learning centers. D 21 703 0 0601

714. Activities for Human Relations I. (3). Topics covered are values, communications and creativity. Activities in the above areas can be used by individuals and groups in instructional settings. They are used to explain, teach and enhance human relationships. D 21 714 0 0629

715. Activities for Human Relations II. (3). Topics covered are introductory activities, cooperation and self-awareness. Activities in the above areas can be used by individuals and groups in instructional settings. They are used to explain, teach and enhance human relationships. D 21 715 0 0629

718. Group Dynamics for Educators. (3). A laboratory course in human relations and group dynamics based on involvement in various group activities. D 21 718 0 0629

745. Utilizing the Print Media in Classrooms. (3). Explores various prints the print media may be utilized to teach critical thinking skills, propaganda, social and political skills through word study, and writing practice and improved reading through speed and comprehension practice. Special stress is placed upon the utilization of the daily newspaper as a supplement to other materials in teaching the various school subjects. Preparation of teaching materials for the
school classroom is also emphasized. D 21 745 0 0629

746. Introduction to Career Education. (3). An introduction to the philosophical consideration of career education. Participants examine the concepts of career education and explain means whereby the concepts can be infused into the existing curriculum. Experience-based activities related to career opportunities in the local business and industrial sector and postsecondary educational programs are offered in addition to the preparation of curricular materials. D 21 746 0 0629

747. Curriculum Development in Career Education. (3). Designed to assist school personnel in the development of a K-12 scope and sequence for a curricular design that considers the principles of career education as a unifying theme. Following the scope and sequence development, participants are assisted in the writing of curricular units for their individual teaching assignments. Prerequisite: IS 746 or instructor's consent. D 21 747 0 0821

750. Workshops in Education. (1-4). D 21 750 0 0828

751, 752, 753 or 754. Special Studies in Education. (1-4). D 21 751 0 0829

755. Instructional Media. (3). Includes instructional design, media planning skills, visual literacy, slide show production, development of transparencies, basic photography, audio recording and mixing, video tape recording, and the operation of instructional audio-visual equipment. Prerequisite: IS 755 or instructor's consent. D 21 755 0 0826

758. Values Clarification Education. (3). An introduction to one approach to values education. Students develop competence in using techniques and the essential skills for valuing. Dealing with value-laden issues in the school curriculum is emphasized. D 21 758 0 0829

Courses for Graduate/Undergraduate Credit

800. Principles and Applications of Educational Psychology. (3). A critical examination of the major topics and principles traditionally defined as educational psychology. After examination of basic paradigms and strategies of the discipline, students apply them to such areas as instructional practices and design, classroom management and discipline, etc. Prerequisite: IS 233 or 333 or instructor's consent. D 21 800 0 0829

801. Introduction to Educational Research. (3). An introduction to research in education. Included in the course content are: (1) a survey of current educational research, (2) the nature of research methodology, (3) the preparation of research proposals and (4) criticism of current research. D 21 801 0 0824
811. Educational Measurement and Evaluation. (3). Issues and techniques for measurement and evaluation in the cognitive, affective, and psychomotor domains. D 21 811 0 0825

819. Social Psychology of Education. (3). A critical study of the individual in social interaction in a variety of educational settings. Application of theory and research to school-related issues and problems. D 21 819 0 0822

820. Learning Theory for Teachers. (3). Applications of major learning theories and learning principles. Prerequisite: IS 601 or departmental consent. D 21 820 0 0822

823. Experimental Design in Educational Research. (3). A consideration of sampling theory, design for testing hypotheses about populations from samples, testing correlation coefficients, means and differences between means, simple factorial designs, designs involving matched groups, designs involving repeated measure of the same group, and analysis of covariance. Prerequisite: IS 704. D 21 823 0 0824

Instructional Services—Elementary Education

Graduate Faculty

Professor: John H. Wilson

Associate Professors: Marcus T. Ballanger (acting chairperson), D. R. Bazil, Jose A. Carroll, Alice Hosticka, Michael A. James (graduate coordinator), Dennis J. Kear (chairperson), Joe D. Payne (elementary education unit coordinator)

Assistant Professors: Kent Layton, Twyla G. Sherman

Courses for Graduate/Undergraduate Credit

518. Methods for the Kindergarten Teacher. (3). To acquaint students with all aspects of the kindergarten program and introduce the wide variety of materials available and in use. Prerequisites: IS 232 and 233. D 21 518 0 0823

705. Introduction to the Reading Process. (3). Designed to acquaint students and teachers with all the aspects of current reading theory and pertinent reading research to point out the possibilities of applying this theory and research to the actual teaching of children. D 21 705 2 0829

734. Affective Approaches to Teaching Reading. (3). The course develops specific methods for developing a literature program and in use. Prerequisites: IS 232 and 233. D 21 734 0 0802

801. Classroom Reading Diagnosis. (4). Designed to emphasize the understanding and use of reading survey tests, group diagnostic reading tests, criterion referenced assessment programs and appropriate teacher constructed tests. Will include the selection, administration, scoring and interpretation of group reading tests. Contains a diagnostic practicum. Prerequisite: IS 705 or IS 706 2 0830

804. Research in Reading. (3). Designed to allow students to explore areas of interest and concern via reading through the examination, review and sharing of pertinent reading research. Prerequisites: IS 705 and any other graduate reading course. D 21 804 0 0830

805. Introduction to Graduate Study in Elementary Education. (3). The field of elementary education is explored, its history and trends, reasons for teaching, criteria of professionalism, program orientation and requirements and options for the student pursuing a degree are delineated. D 21 805 0 0832

821. Elementary Reading Practicum. (3). Designed to provide practical experience in delivering developmental and corrective reading instruction in the classroom setting. Prerequisites: IS 705 and 846 or 802. or equivalent. D 21 821 2 0830

842. Remedial Reading Practicum. (3). Emphasis upon individual corrective teaching of reading difficulties. A laboratory practicum in remedial reading instruction is required. Prerequisites: IS 705 and 846 or equivalent. D 21 842 2 0830

845. Elementary School Curriculum. (3). Study of the elementary school curriculum including the relationships of children for which the school will assume responsibility. The potential of this broad concept of the curriculum is explored as a means of developing desired elementary learner characteristics. Prerequisite: ISEE 780. D 21 845 0 0829

848. Remedial Reading Diagnosis. (3). Emphasis upon individual diagnosis. The use of standardized and teacher-made instructional materials, corrective treatment of reading difficulties: a diagnostic practicum is included. Prerequisite: IS 705 or equivalent. D 21 848 2 0830

849. Seminar in Reading. (3). Designed to examine the organization and administration of reading programs. Additional time is spent investigating pertinent research in the area of reading instruction. Prerequisite: IS 705 or 845. D 21 849 9 0830

852. Improvement of Instruction in Language Arts. (3). Recent developments in the teaching of language arts in elementary and middle school grades: problems, concerns, materials, methods, and research related to written, oral, and visual communication. Prerequisite: IS 705 or equivalent. D 21 852 0 0829

854. Improvement of Instruction in Social Studies. (3). A study of recent changes in social studies curriculum and instruction designed to investigate strengths and limitations of various approaches. Competency in teaching for concept development, dealing with values, human issues, and teaching for inquiry are stressed. An inquiry-centered learning environment emphasizes personalizing the instruction for children. Alternative teaching strategies and complementary evaluative techniques are reviewed and practiced. Prerequisite: ISEE 406 or equivalent. D 21 854 0 0829

856. Improvement of Instruction in Mathematics. (3). For teachers in service. Consideration of recent trends in subject matter concepts and teaching guides to improve understanding of meaning, vocabulary, and mathematical concepts. Instructional methods and materials are included. Prerequisite: IS 444 or equivalent. D 21 856 0 0833

858. Improvement of Instruction in Science. (3). For teachers in service. Designed to identify and explore the principles of science that teachers should recognize, understand and consider from kindergarten through grade eight. Prerequisite: IS 261 or equivalent. D 21 858 2 0834

659. Seminar in Elementary Education. (3). Prerequisite: ISEE 780. D 21 859 9 0802

663. Trends in Theories of Instruction. (3). Instructional theory is considered through models of teaching. Study of each model covers theoretical orientation, instructional procedures and effects. Practice of models in classroom settings is required. Prerequisite: ISEE 780. D 21 863 0 0829

Instructional Services—Foundations of Education

Graduate Faculty

Associate Professor: Louis Goldman

Assistant Professor: Betty E. Wool

Courses for Graduate/Undergraduate Credit

701. Foundations of Education. (3). A survey of the various foundations areas, including philosophical, historical, social and comparative. This course is prerequisite to subsequent foundations courses D 21 701 0 0821

777. Selected Topics in Foundations. (3). Explorations into current problems and also less familiar areas of foundations. (A) cultural pluralism. (B) religion and morality, (C) film and fiction, (D) economics and politics, (E) classics in education. (F) other. Enrollment may be repeated for several offerings. Prerequisite: IS 701 or instructor's consent. D 21 777 0 0821

Courses for Graduate Students Only

807. Philosophy of Education. (3). An introduction to the analysis of concepts such as mind, experience and knowledge in their relationship to educational problems and practices and to philosophical systems. Prerequisite: IS 701 or instructor's consent. D 21 807 0 0821

808. Sociology of Education. (3). An exploration of the relationship between education and society. Prerequisite: IS 701 or instructor's consent. D 21 808 0 0821

817. Comparative Education. (3). Educational systems of different cultures and their unique structures and pervasive problems. Prerequisite: IS 701 or instructor's consent. D 21 817 0 0821

819. Anthropology of Education. (3). A cross-cultural examination of the educational process utilizing some of the basic concepts and perspectives of anthropology. Prerequisite: IS 701 or instructor's consent. D 21 819 0 0821
824. History of Education in the United States. (3). A study of education’s relation­ship to other institutions (political, religious, etc.) in promoting and inhibiting social change in American history. Prerequisite: IS 701 or instructor’s consent. D 21 824 0 0821

825. History of World Education. (3). A study of educational practices and problems. Prerequisite: IS 701 or instructor’s consent. D 21 825 0 0821

895. Advanced Studies in Foundations. (3). A course designed for the predoctoral student in any foundational specialty. Prerequisite: 9 graduate hours of foundations of education. D 21 895 0 0821

Instructional Services—Library Science

Students wishing to become school librarians in Kansas must have valid teaching certificates plus specific courses in library science. Courses may be taken either at the upper-division or graduate level and must include ISLS 713. Requirements for librarians in the various types of schools are described below.

Elementary Schools. Librarians must have a valid certificate for teaching in the elementary school and a minimum of 15 semester hours of library science and audiovisual courses.

Junior and Senior High Schools. Librarians must have a valid certificate for teaching in the secondary schools and a minimum of 15 semester hours of library science and audiovisual courses.

Courses for Graduate/Undergraduate Credit

707. School Library Media Center Cataloging and Classification. (3). The principles of cataloging and classification are studied, and students will learn how to apply the Dewey Decimal classification system and Sears subject headings. Descriptive cataloging, types of entry, and filing rules are also covered. D 21 707 0 1601

708. School Library Media Center Book Collection. (3). Basic resources for the development and evaluation of a school library media center collection are considered. Emphasis is placed on selection policies and procedures, the school library media specialist’s responsibilities in the selection process, and the development of a selection resource file. D 21 708 0 1601

710. School Library Media Center Reference Work. (3). Resources and techniques of providing reference service in a school setting are investigated. D 21 710 0 1601

712. Current Trends in Librarianship. (3). The course covers the history and development of libraries and their functions, aspects of professional leadership, the study of library materials, and current societal and educational changes that have an impact on the school library media center. D 21 712 0 1601

713. Administering The School Library Media Program. (3). The course provides a study of national and state standards, as well as an investigation of the school library media center role and the leadership role of the school library media specialist. Specific topics include program development and budgeting, administrative styles and personnel policies, evaluations, design and implementation of policies and procedures and strategies for an integrated program. Course is required for school library media certification majors and is not open to students who have taken ISLS 709 and 711. D 21 713 0 1601

778. Advanced Cataloging. (3). A continuation of ISLS 707, the course will stress the organization of non-book materials, introduce the Library of Congress classification system, and survey comprehensive cataloging. Prerequisite: ISLS 707. D 21 778 2 1601

779. Practicum/Internship. (3). A elementary school, middle school, high school, or college practicum is pursued. Emphasis will be on an experienced practitioner in the field. Prerequisite: departmental consent. D 21 779 2 1601

790. Special Problems in the School Library Media Center. (1-3). Directed reading and research. Prerequisite: departmental consent. D 21 790 0 1601

Instructional Services—Secondary Education

Graduate Faculty

Professors: Robert D. Alley (associate dean, College of Education), Nancy C. Millett (associate professor), Bruce D. Ingmire (secondary education unit coordinator), Michael C. McKenna (director of Reading Center), Michael Tiltford (associate dean, Graduate School), Louis Goldman (associate professor), James E. Fisher, Candace B. Wells, Betsy E. West, Catherine Yeots

Courses for Graduate/Undergraduate Credit

616. Literature for Adolescents. (3). Extensive reading of literature in all genres consistent with studies of adolescents’ reading interests, abilities and responses to literature. Prerequisite: junior standing. D 21 616 0 0829

771. Teaching Reading in the Content Areas. (3). Emphasis is placed on the teaching of reading in the content areas. Prerequisite: secondary teaching experience or departmental consent. D 21 771 2 0630

Courses for Graduate Students Only

803. Secondary Reading Practicum. (3). Designed to offer reading practicum experience to reading teachers in a secondary school setting. Prerequisites: IS 705 or 770, and 802 or equivalent. D 21 803 2 0800

804. Research in Reading. (3). Designed to allow graduate students to conduct an in­depth study of reading in the classroom, through the examination, review and sharing of pertinent reading re­search. Prerequisites: IS 705 and any other graduate reading course. D 21 804 9 0830

831. Creating an Effective Classroom. (3). Designed to create an awareness of classroom management systems which include a variety of management tools and formats. Prerequisite: ISFE 701. D 21 831 0 0829

832. Secondary School Curriculum. (3). Develops the student’s ability to de­scribe, analyze and evaluate curriculum models and programs. Particular attention is paid to the social, psychological and philo­sophical foundations of curriculum as well as to current trends. Prerequisite: ISFE 701. D 21 832 0 0829

834. The Teaching of English. (3). Recent developments in the teaching of English: problems, concerns, methods and research. Excellent for teachers who want an extensive review of developments during the past five years. D 21 834 0 0829

835. The Instructional Process. (3). Focuses on the process of instruction in order to develop skill in systematic instructional plan­ning. Includes instructional theory, systems approach and other recent approaches to instruction. Prerequisite: ISFE 701. D 21 835 0 0829

836. The Teaching of Social Studies. (3). Recent developments in the teaching of social studies: problems, concerns, methods, materials, research. Excellent for teachers who want an extensive review of developments during the past five years. D 21 836 0 0829

837. The Teaching of Science. (3). Recent developments in the teaching of science: problems, concerns, methods and research. Excellent for teachers who want an extensive review of developments during the past five years. D 21 837 0 0834

850. Seminar in Secondary Education. (3). D 21 850 9 8063

Instructional Services—Special Education

Graduate Faculty

Associate Professors: Mylan E. Boomer (Director of Special Education), Theodore S. Fremont, Myrtis A. Hershberg

Courses for Graduate/Undergraduate Credit

601. Introduction to Exceptional Children. (3). This course is designed as a survey of the characteristics of exceptional learners including the handicapped and the gifted. Service delivery models and current practices are presented. This course fulfills recertification requirements for teachers and serves as an introductory course in exceptionality for special education majors, administrators and school psychologists. Prerequisite: IS 233 or 333. D 21 601 0 0811

602. Introduction to the Gifted. (3). Emphasis on recognition and education of the gifted child. Prerequisite: IS 233 or 333. D 21 602 0 0811

604. Understanding of the Mentally Retarded. (3). Current research and historical approaches to the education of the mentally retarded. Prerequisite: IS 705 or any other graduate reading course. D 21 804 9 0830

Recent
702. Reading for Teachers of Exceptional Children. (3). Designed to survey the development of reading skill needs, diagnostic techniques and teaching approaches pertinent to students in special education settings, particularly LD, EMR, and ELD. Prerequisite: IS 601, 604 or departmental consent. D 21 680 9 0800

740. Introduction to Early Childhood Special Education: Infantcy and Preschool. (3). A basic introduction to the emerging field of early intervention for handicapped children and their families. Prerequisites: IS 728, 840, or IS 740, 761, or permission of instructor. D 21 740 9 0800

742. Learning and Behavior Disorders. (3). A study of the incidence, classification, etiology, intellectual, personal, social and developmental characteristics of the learning disordered child. Current research, parental concerns and historical development of the educational approaches in learning and behavior disorders are examined. Prerequisite: instructor's consent. D 21 742 0 0810

744. Curriculum/Methods for the Mentally Retarded. (3). Adoptions of the standard curriculum and innovations that have proven to be beneficial for the teaching of the mentally retarded child. D 21 744 9 0810

749. The Emotionally Disturbed. (3). A study of the incidence, classification, etiology, personal, social and developmental characteristics of the emotionally disturbed child. Current research, parental concerns and development of educational approaches are examined. Prerequisite: instructor's consent. D 21 749 0 0810

Courses for Graduate Students Only

805. Seminar for Reading and LD Teachers. (3). Designed to provide a forum for practicing reading and LD teachers in which to explore common interests, concerns, research and instructional approaches related to teaching. Prerequisite: certification in reading or LD. D 21 805 9 0830

840. Psychology of Exceptional Children. (3). A study of the theoretical and conceptual formulations, empirical evidence and research concerning behavioral characteristics of exceptional children. D 21 840 0 0800

841. Program Development in Special Education. (3). Examination of factors in classroom organization and management that affect the establishment and operation of programs for exceptional children. Prerequisite: IS 601 or 640. D 21 841 0 0810

844. Occupational Aspects in Mental Retardation. (3). Designed to study in-depth occupational, curriculum and methods employed by teachers of the mentally retarded in secondary schools. Prerequisite: IS 604 or departmental consent. D 21 844 9 0810

847E and F. Practicum and Internship in Education: Learning Disabilities. (3-6). Enroll reading skill needs, diagnostic techniques and teaching approaches pertinent to students in special education settings, particularly LD, EMR, and ELD. Prerequisites: instructors consent. D 21 847E and F 2 0800

847J and L. Practicum and Internship in Education: Emotional Disturbance. (3-6). Full-time participation in a class for emotionally disturbed students under the supervision of a master teacher and university professor. Emphasis is on applying teaching methods for the mildly and severely disturbed, formal-informal psycho-educational assessment, classroom strategies, behavior management, and prescriptive remediation for academic deficits. Prerequisites: instructor's consent, IS 749, and prerequisite or instructor's consent. D 21 847J and L 2 0800

847M. Practicum and Internship in Education: Gifted. (3). Supervised teaching experiences with gifted learners. Applied teaching approaches will be stressed. The course will provide opportunities to apply various theoretical, structural, and technological methodologies related to the education of the gifted learner. Repeatability for a total of 6 hours. Prerequisites: instructor's consent and IS 603. D 21 847M 2 0800

847R, S and T. Practicum I, II & III: Supervised Clinical Experience and Seminar in Early Childhood Special Education. (2). The three practica in early childhood special education are designed to provide opportunities for the student to develop clinical competencies with handicapped infants, young children, and their parents under the supervision of trained professionals in the field. Prior to each practicum experience, each student will be asked to complete a Competency Assessment based for developing individualized goals for that particular practicum experience. Students will be expected to meet all such competencies for pre-specified criteria by the conclusion of the practicum. Prerequisites: for Practicum I: IS 728, 732, 740, 761, 762, 840 (or 601), 891, or permission of instructor. D 21 847R 2 0800

864. Practicum Seminar: Learning Disabilities. (1). A seminar designed to examine trends and issues related to the learning disabled individual, adaptation of materials for specific needs and critical examination of interventions related to the practicum experience. D 21 864 2 0800

893. Advanced Seminar in Early Intervention: Policy Issues, Research Problems, and Future Directions. (3). Topics presented for study will include ethical issues associated with biomedical and related scientific advances, clinical research needs, potential and needed legislation, public policy issues, cross-disciplinary and cross-cultural studies, recent developments and future directions, and the relationship of early childhood special education to the larger field of special education. D 21 893 0 0820

894. Advanced Topics in Early Childhood Special Education. (1-4). Special topical offerings in early intervention will be periodically offered to facilitate opportunities for the
Personnel Services

The Department of Personnel Services offers programs in the areas of counseling and school psychology, educational administration and supervision.

Counseling and School Psychology

Graduate Faculty
Professor Glenn R. Dey (Chairperson)
Associate Professor Brooke B. Collison
David Meabon
Assistant Professors: Timothy S. Hartshorne (CSP graduate coordinator), Ruth A. Hillbrooke, Nancy A. McKellar, Stephen Rohner, Charles A. Romig (CSP graduate coordinator)

The counseling and school psychology unit offers several professional preparation programs which emphasize working with individuals, groups and work or family systems. Program offerings are designed to provide students with knowledge and counseling skills sufficient to work with children and adults in educational and noneducational settings. Specific programs are available for persons wishing to meet requirements for educational certification as counselors at the elementary or secondary level or as school psychologists.

Persons interested in school psychology certification programs are encouraged to contact the counseling and school psychology staff for program information and career advisement.

The various areas afford students from a variety of undergraduate majors the opportunity to develop a specialized program of study leading to the Master of Education (MEd) or Specialist in Education (EdS).

Master of Education

The Department of Personnel Services offers programs leading to the Master of Education (MEd) in counseling and school psychology.

Admission Requirements

Admission to the MEd program is granted when applicants meet the grade point admission requirement of the Graduate School and have a 15-hour undergraduate background in the behavioral sciences (psychology, sociology, anthropology, etc.). Entry into MEd programs in counseling and school psychology do not require the teaching certificate as an admission requirement. However, students whose career goals include Kansas school counseling certification must be eligible for a teaching certificate prior to recommendation for counselor certification.

Specialist in Education

The Specialist in Education (EdS) in counseling and school psychology is an advanced degree program with an emphasis in either counseling or school psychology. The plan of study may incorporate related specialties. The program normally involves 30 hours of post-master's degree course work for students having master's level training in counseling or its equivalent. The program content is appropriate for helping professionals in a variety of educational and community settings.

The program is oriented toward assisting candidates to incorporate counseling theory into procedures to assist clients and client systems in various aspects of communication skill development and problem solving. Emphasis is placed on consultation processes and change strategies as they relate to a candidate's career interests in school counseling, post-secondary personnel, adult and family counseling or school psychology.

The specialist program is designed to place increased emphasis on student involvement in laboratory and field-based experiences. Students are involved in initiating, planning and conducting experiences with groups and/or organizations.

Admission Requirements

Candidates who have completed a master's degree in counseling or a related helping service degree may apply for admission to the Graduate School in nondegree status to begin course work in an exploration of theory, techniques and materials useful to persons providing helping services. No practicum experiences are required. Specialized application blanks may be secured from the counseling and school psychology graduate coordinator.

Upon completion of the application procedures and formal acceptance, a three-person committee is appointed to assist in the design and supervision of the candidate's Plan of Study.

Applicants considered for admission must have:

1. A master's degree with appropriate course work from an accredited institution with a major in counseling or related field of education/helping services. Persons from related fields (e.g., nursing, ministry, social work) may be admitted with appropriate prerequisites.

2. A graduate grade point average of 3.250 or higher on a 4.000 scale.

3. Submitted a Miller Analogy score

4. Submitted evidence of present knowledge and skills (previous graduate work, practicum, field experience and placements)

5. Provided indications of personal attributes and experience (vocational experiences in the field of helping services; recommendations from instructors, employers, practicum supervisors, and on-campus interviews with at least one member of the counseling and school psychology faculty).

Courses for Graduate Undergraduate Credit

652. Student Development. (3). Training for students involved as small group leaders. Prerequisites: DARE student leader. D 18 652 0 0826

653. Studies in Student Development. (1-2). Designed as a supervised experience for students participating as peer advisers and assisting in developing procedures for students entering or assigned to University College. Prerequisites: CSP 652 (formerly 752H) and DARE student leader. D 18 653 0 0826

732. Counseling: Child Abuse and Neglect. (2). The etiology, symptoms and indicators, treatment, and prevention issues of physical abuse and neglect, emotional abuse and neglect, and sexual abuse. D 18 732 2 0826

750. Workshop in Education. (1-4). D 18 750 2 0826

752. Special Studies in Education. (1-5). The course is designed for students with personal and guidance interests. Different preselected areas may be emphasized during a semester. Repeatable with advisor's consent. Prerequisites: instructor's consent. D 18 752 2 0826

756. Guidance Services for the Preschool Child. (3). A study of the social and emotional needs of the preschool child, including an exploration of theory, techniques and materials useful to persons providing guidance services for preschool children and their significant adults. D 18 756 0 0826

Courses for Graduate Students Only

801. Principles and Philosophy of Guidance. (3). The development of a guidance philosophy, including a study of the helping relationship and the services that are part of school, agency, and other institutional settings. D 18 801 0 0826

802. Introduction to Interaction Process. (1). S/U grade only. A laboratory approach to an examination of the counselor's role in the counseling process. Designed to help the prospective counselor increase...
personal understanding of self as a variable in the counseling process. Prerequisite: CSP majors and instructor's consent. To be taken concurrently with CSP 861. This course may not be taken concurrently with CSP 803. D 18 802 2 0826

803. Counseling Theory. (3). A study of selected theories of counseling. Prerequisite: CSP majors or concurrent enrollment. D 18 803 0 0826

805. Educating the Poorly Adjusted Individual. (3). Perceptual approach to the problem of emotionally disturbed or delinquent youth. Study of the basic concepts and secondary schools. D 18 805 0 0810

806. Children of Poverty. (3). A perceptual approach to children and youth whose adjustment problems appear to be related to poverty in the affluent society. D 18 806 0 0813

810. Elementary School Counseling. (3). The role of the elementary counselor in providing individual and group counseling, group guidance, and consultation in the schools. Prerequisite: CSP 824. D 18 810 0 0826

820. Occupational Information. (2). The collection, evaluation, and use of information materials in a guidance program. Also studied are current occupational trends and developments and theories of occupational choice. Prerequisite: CSP 801 or concurrent enrollment. D 18 820 0 0826

823. Psychometric Procedures in Counseling. (3). Through simulated counseling situations and experiences, examination of counseling case study, techniques of counseling are examined and practiced. Prerequisite: CSP 803. D 18 823 0 0826

825. Group Techniques in Guidance. (2). A survey course on marriage and family counseling. Prerequisite: CSP 801 or concurrent enrollment. D 18 825 0 0826

830. Introduction to Marriage and Family Counseling. (3). A survey course on marriage and family counseling, including theory, techniques and research in the field. Prerequisite: CSP 803 or departmental consent. D 18 830 0 0826

833. Administration of Guidance Services. (3). A study of the functions and practices of the guidance director in a modern guidance program. This course is the major emphasis for the CSP major on relating theory to the problem of administration of guidance services. Concurrent enrollment: 15 hours of CSP courses. D 18 833 0 0826

855. Individual Intelligence Assessment. (2). Use of individual tests for appraisal of intelligence, adaptive behavior and learning styles. Research and clinical theory are considered in a lecture-discussion format, which includes some case simulation activities. Concurrent enrollment in CSP 870 is recommended. Prerequisite: CSP 823, or concurrent enrollment, and instructor's consent. D 18 855 0 0826

866. Practicum in Individual Counseling. (3). Supervised practice in individual counseling. Course requirements include a minimum of 60 hours applied experience. Repeatable for credit. Prerequisite: CSP 824, admission to the program and instructor's consent. D 18 866 0 0826

857. Seminar in Guidance. (2). Prerequisite: 15 hours in CSP sequence. D 18 857 0 0826

858. Diagnostic Testing. (2). Use of individual tests, rating procedures and behavioral techniques for the appraisal of perceptual development, linguistic development, classroom behavior and academic skills. Testing and interpretation of tests relevant to these areas are considered in a lecture-discussion format, which includes some case simulation activities. Prerequisite: CSP 870 is recommended. Prerequisite: CSP 823 and instructor's consent. D 18 859 0 0826

862. Presentation of Research. (1-2). A project presented in thesis manuscript form. Repeatable for a maximum of 2 hours of credit. Prerequisite: 15 hours of English. D 18 862 0 0826

866. Practicum in Guidance Services. (2-3). Supervised practice in administration, test interpretation, group counseling and other activities of the guidance department. Prerequisite: CSP 853 and instructor's consent. D 18 866 0 0826

867. Practicum in Group Guidance and Counseling Methods. (3). Supervised practice in group group guidance and group counseling. Repeatable for 3 hours of additional credit. The second practicum must be in a different area and have a different focus than that of the first. Prerequisites: CSP 825, 856 and instructor's consent. D 18 867 0 0826

903. Counselling Theory II. (3). An in-depth critical review of research and applicability of major theories to the evaluation and design of interpersonal intervention strategy. D 18 903 0 0826

914. Consultation Techniques. (3). Intensive study of the literature in counseling, social psychology, and administration that provides a basis for applying counseling techniques in the interpersonal context of school and work settings. D 18 914 0 0826

915. Intervention Design. (2). Designed to give the student further experience and skill in utilizing theories of interpersonal relations in creating macro- and micro-learning experience designs for individuals or groups experiencing dysfunctional situations. Individual and organizational intervention skills are stressed. D 18 915 0 0826

926. Seminar: Selected Topics. (2). Intensive study of current issues, theories, techniques and research in the field. Prerequisite: CSP 823, CSP 870, 30 graduate hours, or permission of instructor. D 18 926 0 0826

928. Seminar: Postsecondary Student Services. (2). Intensive study of current issues, theories, techniques, observation and research in topics related to postsecondary student services. Repeatable for different topics for a maximum of 8 hours. Prerequisite: 15 hours of related graduate coursework. D 18 928 0 0826

930. Marriage and Family Counseling I. (3). An advanced course in marriage and family counseling, including theory, techniques, research and applications in the field. Prerequisite: CSP 823, 15 hours of related coursework, or permission of instructor. D 18 930 0 0826

934. Personality Assessment. (2). Focus is on theory and interpretation of instruments representing three major approaches to personality assessment: projective techniques, behavioral techniques and personality inventories. Alternative personality assessment approaches and reviews of personality theory and psychotherapy are included. Prerequisites: CSP 823, post-master's standing or last six hours of master's program. D 18 934 0 0826

937. Practicum in School Psychology. (3 or 6). Supervised practicum in school counseling. Prerequisite: CSP 825 or concurrent enrollment. D 18 937 0 0826

946. Practicum in School Psychology. (3 or 6). Supervised practicum in school counseling. Prerequisite: CSP 825 or concurrent enrollment. D 18 946 0 0826
a maximum of six hours credit. Prerequisites: CSP 623 and concurrent enrollment in an appropriate lecture-discussion, assessment course at the post-master's level. D 18 977 2 0825

977. Internship in School Psychology. (2). Supervised experience as a school psychologist at a school or agency setting. Requires at least 500 hours of applied experience. Repeatable for a maximum of 4 hours. Prerequisites: CSP 946 and departmental consent. D 18 977 2 0825

990. Special Problems in Counseling and School Psychology. (1-4). Directed problems in research for specialist degree students under supervision of a graduate instructor. Prerequisites: IS 801 and instructor's consent. D 18 990 4 0826

Educational Administration and Supervision

Graduate Faculty


Associate Professors: Ronald G. Davison (associate dean), J. Rex Douglas, M. Claradine Johnson (EAS graduate coordinator)

Assistant Professor: Raymond L. Calebrese

Master of Education

The Department of Personnel Services offers a program leading to the Master of Education (MEd) in educational administration and supervision.

For admission to full standing in the Master of Education program, candidates must submit a Graduate Record Examination (General Test) score.

Specialist in Education

The Specialist in Education (EdS) is awarded upon completion of an advanced program of study in educational administration or educational supervision. The program provides formal learning experiences for students of administration or supervision beyond the master's degree. Purposes of the specialist in education program are:

1. To provide learning experiences in specific intellectual and performance areas that result in superior accomplishment in leadership roles in educational administration or educational supervision.
2. To provide learning experiences that support the advanced graduate student's pursuit of specialized skill development in desired administrative or supervisory areas.
3. To provide integrated field experiences that enable the advanced graduate student to apply newly acquired intellectual and performance skills in a clinical setting, with appropriate professional and practitioner direction.

Admission Requirements

Candidates may apply for admission to Graduate School in nondegree status to begin course work. Submission of the Plan of Study leading to admission to candidacy to the Specialist in Education should be filed as soon as the admission requirements listed below are completed. The Plan of Study should be completed no later than one month following the completion of 12 semester hours of graduate credit that are a part of the Specialist in Education. Course work completed after the 12 graduate hours noted above and before the submission of the Plan of Study for the Specialist in Education may not count toward the minimum of 30 hours for the degree.

For admission to the Specialist in Education program, candidates must meet the following requirements:

1. A minimum of two or three years of teaching experience or experience in the schools will be required of candidates seeking Kansas school administration or educational supervision.
2. A master's degree from an accredited institution in an area of study related to the major field of the Specialist in Education degree.
3. A graduate grade point average of 3.00 or better on a 4.00 scale.
4. Submitted score on the Graduate Record Examination (General Test) to be utilized for counseling and advisement.
5. A conference with the adviser to develop a tentative Plan of Study.
6. The Graduate Record Examination requirement must be completed by MEd and ED151 admission candidates during enrollment in EAS 801, Educational Administration Theory.
7. A review and approval of the Plan of Study by the educational administration and supervision unit of the Department of Personnel Services and the Graduate School.

Degree Requirements

To complete the program, candidates must:

1. Fulfill requirements of the Plan of Study.
2. Maintain a grade point average of at least 3.00 or better on a 4.00 scale throughout the Specialist in Education program.
3. Complete one semester of full-time study or one Summer Session of full-time study (Summer Session of approximately eight weeks).
4. Complete a minimum of 30 semester hours of graduate credit with:
   a. At least 12 hours in a candidate's specialization of educational administration and supervision.
   b. At least six semester hours of 900-level courses.
   c. Completion of a research component that will include one of the following:

   (1) An acceptable thesis, or major research study in earlier programs.
   (2) EAS 860, Research Seminar in Educational Administration and Supervision (or another acceptable graduate-level research course).

Completion of an experience component that will include one of the following:

(1) An internship (EAS 946-949 plus EAS 960).
(2) A practicum (EAS 891).

A maximum of one-third, or 12 hours, of the graduate work, whichever is greater, on a minimum of 30 hours required for the Specialist in Education degree may be transferred from another accredited graduate school. The specific courses must be approved by the major advisor, the department and the Graduate School.

Courses considered for transfer must have been completed at an accredited graduate school, must carry a minimum grade of "B" and must have been in courses started not more than six years earlier than the semester in which the degree work is completed.

Courses started more than six years before the semester in which the degree work is completed may not be used as part of a degree program. However, in some cases courses taken before this time may be validated. To have courses validated, students must petition the Graduate School and pass a special written examination with a grade of "B" or better. Transfer courses and work that originally received a grade of "C" may not be validated. Courses completed ten or more years before the degree is granted, even if previously validated, may not be used to meet degree requirements.

Doctor of Philosophy and Doctor of Education

A transfer program in educational administration leading to the Doctor of Philosophy or Doctor of Education is available in cooperation with The University of Kansas. Program information and career advisement are available at the Department of Personnel Services, College of Education.

Courses for Graduate/Undergraduate Credit

715. Administration of the Community College. (3). Administration and supervision...
Courses for Graduate Students Only

801. Introduction to Administration and Supervision. (3). An examination of the major theories of administration and their application to specific problems. Emphasis is on the development of the superintendent of the school district, especially problems involving the community and staff. Included in data gathering are: desktop computer systems and potential. Open to all College of Education graduate majors. D 16 801 0 0827

804. Supervision and Improvement of Instruction. (3). The application of curricular theories and knowledge of methods of supervision to the problems of improving classroom instruction and teaching methods. D 16 804 0 0827

810. The Principalship. (3). Designed primarily for in-service superintendents carrying a master's program in educational administration and supervision. Course content focuses on the role expectations of building principals at the elementary, middle and high school levels. Specific work is designed for each student's projected work level. Prerequisite: EAS 801. D 16 810 0 0827

814. Instructional Management: Hunter Model. (3). Development of the skills required to assess and assist teachers in improving classroom instruction, a review of effective teaching techniques and the application of learning strategies developed by Madeline Hunter and associates. Emphasis is on upgrading supervisory proficiency through the direct observation of teaching episodes for assessment, analysis, and evaluation techniques. Supervisor conferencing and coaching skills are stressed to improve teacher utilization, pupil motivation and pupil productivity. Prerequisite: EAS 804 or instructor's consent. D 16 814 0 0826

826. Curriculum Management. (3). A study of curriculum philosophies, theories and developmental processes. Included are the following topics: curriculum planning and proposals, curriculum development, the building and school system levels, and techniques of program evaluation. Prerequisite: EAS 704. D 16 826 0 0828

828. Management and Evaluation of Alternative Programs. (3). A study of the management, operation and evaluation of alternative programs appropriate to continuous learning, nongradedness, individualized instruction, flexible scheduling, self-directed instruction, and educational credentials. Emphasis is on an overview of administration of the school in the community college coupled with improvement of educational services in the community through continuous education. Control, methods of finance, facilities, focus on individual students and evaluation of the entire process are stressed. D 16 828 0 0827

836. School Personnel Management. (3). Advanced study of staff problems—selection, recruitment, evaluation, orientation, in-service training, evaluation, transfer and dismissal, and retirement. Prerequisite: master's degree or instructor's consent. D 16 836 0 0827

842. School Law. (3). General concepts of law, interpretations of statutes and court decisions affecting education, and legal responsibilities of school personnel. D 16 842 0 0827

843. Kansas School Law. (3). An examination of specific Kansas legislation and court decisions affecting educational institutions and/or regional and state issues in school law. Prerequisite: graduate standing. D 16 843 0 0827

852. Special Studies in Educational Administration and Supervision. (1-3). Group studies in a preselected specialized area of educational administration and supervision. Repeatable for credit with departmental consent. Prerequisite: departmental consent. D 16 852 0 0827

853. School Business Management. (3). School budgeting processes, accounting, risk management, purchasing and data management procedures. Management of custodian, maintenance, food, and transportation services. Prerequisites: EAS 801 and 804 or instructor's consent. D 16 853 0 0827

859. Research Seminar in Educational Administration and Supervision. (3). Designed primarily for students in advanced study with a research orientation. Course content and emphasis are varied according to the needs of students as research proposals and studies are developed, conducted and examined. Prerequisite: completion of master's degree or advisor's consent. D 16 859 0 0824

862. Presentation of Research. (1-2). A project submitted in thesis manuscript form Repeatable for a maximum of 2 hours of credit. Prerequisite: EAS 820. D 16 862 0 0828

871. Group Process for Administrators and Supervisors. (3). A laboratory-based course in which the various aspects of group processing are experienced by class members in a group setting and activities. These experiences for potential and practicing administrators and supervisors have carry-over application to their present and future job responsibilities in an organizational setting. D 16 871 0 0828

872. Conflict Management. (3). This course is designed to study the effect of language, attitudes, beliefs on interpersonal communication and relationships which lead to the types and sources of organizational role and personal conflict. Approaches to interpersonal and organizational conflict resolution will be emphasized. D 16 872 0 0828

875-876. Master's Thesis. (2-1). D 16 875 0 0827. D 16 876 4 0827

878. Strategies for School Improvement. (3). An examination of organizational/institutional characteristics of schools as determinants of student learning and teacher effectiveness (i.e., pupil academic achievement). Various school improvement models are considered, including programs designed specifically for elementary and secondary schools. Research studies are used to establish established correlates for school effectiveness, as well as related teacher effectiveness variables. Prerequisite: EAS 804 and 804. D 16 878 0 0827

884. School Plant Design and Operation. (3). Study of new school plant design and operation based upon educational programs. The evaluation of existing schools, remodeling and renovation and maintenance of present school plant are included. Prerequisite: master's degree or instructor's consent. D 16 884 0 0827

888. Data Management for School Administrators. (3). An advanced course for microcomputer literate students in extending educational knowledge and skill in administrative practices and concepts of management information systems. Hands-on experience in machine language programming, data base management, word processing, and spreadsheet programs, using Apple computers. D 16 888 0 0827

890. Special Problems in Administration. (1-4). Directed problems in research for master's study is primarily under 24 16 880 0 0828

891. Preservice Building Administrator Practicum. (3). The practicum is designed as a preservice activity for students seeking building-level administrator certification in Kansas. Emphasis is on the acquisition of knowledge and skill in administrative practices and procedures through a building-level field experience. The student must file an application for the practicum, approved by the supervising EAJA faculty member, cooperating building administrator and the school district coordinator. Prerequisites: EAS 804, EAS 804 or concurrent enrollment. D 16 891 0 0827

904. Clinical Supervision for Administrators/Supervisors. (3). An examination of theories of clinical supervision and their application by administrators in the supervisory process. Emphasis is on improving learning experiences for students by facilitating improved or alternative instructional solutions to student, classroom, and program learning problems. Prerequisite: EAS 804. D 16 904 0 0827

909. Planning in Educational Administration. (3). Seeking out, analyzing and making appropriate use of information in effective school planning. Examines systems analysis, management information systems in school settings and strategies for long-and short-range planning. Prerequisites: EAS 801 and EAS 804. D 16 909 0 0827

945. 947. 948. 949. The Internship. (2, 3, 4, 5). Administrative assignment in educational institutions. Prerequisites: 9 semester hours of professional education courses under 3.100 graduate grade point average. D 16 945 0 0827. D 16 947 2 0827. D 16 948 2 0827. D 16 949 2 0827

953. Financial Support of Education. (3). Concepts of the financial support of educational units at local, state, and national levels. Emphasis is on methods of taxation, budget preparation, and efficient expenditures. Prerequisite: EAS 804 and 804 of instructor's consent. D 16 953 0 0827

955. Field Project in Administration and Supervision. (2-6). Field projects are planned to meet a legitimate need in an educational setting in which the student will be directly involved. The project may fulfill a community need, a departmental concern or
a needed investigation or inquiry. Acceptable projects are developmental or must include an appropriate research design. A useful, well-documented report of the project is required, with the plan, format and style approved by the student's committee. Prerequisite: completion of master's degree. D 16 905 2 6027

963. Seminar in the Process of Administration. (1-3). Concurrent enrollment in the internship is required. Arranged on an individual basis. D 16 960 3 0827

965. School and Community. (3). A study of the relationships between a school and its community and the administrative responses that show promise of improving relationships between students, staff and parents. Students analyze data related to a particular community to better assess the educational needs of both students and non-students and develop more appropriate organizational responses to those needs. D 16 665 3 0827

990. Special Problems in Administration. (1-4). Directed problems in research for specialist and doctoral degree students under supervision of a graduate instructor. Prerequisite: instructor's consent. D 16 660 3 0827

991. Practicum in Educational Administration. (1-3). This course is designed for persons who have been employed in their first administrative position and are seeking recertification in Kansas. The course of study will be individually designed by an EAS faculty member with the student and his/her school district supervisor. The course will address the needs of the student and the district. The thrust will be to assist the student to extend basic skills relevant to a particular administrative assignment. The student must register for 3 hours of credit in EAS 591 to meet recertification requirements. Prerequisites: completion of master's degree and departmental consent. D 16 691 3 0827

Physical Education, Health and Recreation

Graduate Faculty

Associate Professor: John Hansen (chairperson and graduate coordinator), Larry Thye

Assistant Professors: Natasha Fite, Richard Lepold, Dave Pizarro, F. Yvonne Slinski

Master of Education

The Master of Education (MEd) may be earned by electing a 30-hour sequence with a thesis or a 36-hour sequence without a thesis. The core requirements for the MEd are the same for both programs. Students selecting the 30-hour sequence must take PE 875-876. Thesis. Students electing the thesis option will not be required to complete the written comprehensive examination at the conclusion of their program. An oral examination over the written thesis will be the culminating activity. Core requirements are: PE 800, 810, 812, 860, 880, IS 704 and either 825, 840 or 890. The department strongly recommends that PE 800, 860 and IS 704 be taken early in the program. The college requirements for the MEd are summarized at the beginning of the College of Education section of the Graduate School Bulletin.

Sports Administration

The MEd may also be earned with an emphasis in sports administration. The program is designed to prepare students for career opportunities in the administration of sports programs at the public school, university or professional level.

For admission to full candidacy, students must:
1. Submit a letter of application
2. Be accepted by the Graduate Administration Committee
3. Submit three letters of reference to the department
4. Complete either the Graduate Record Exam (GRE) or the Miller Analogy Test by the end of the first enrolled semester and
5. Interview with the sports administration committee.

Students will have conditional candidacy until the above items have been completed. This is a nonthesis program with a total of 36 hours required (including internship). The core requirements are PE 801, 847, 544 and 570. An oral exam over all portions of the candidates' program will be the culminating activity.

Professional Courses

Professional courses for physical education, health and recreation are offered in the College of Education and, unless otherwise indicated, are open to both men and women.

Courses for Graduate/Undergraduate Credit

500. Health Education. (2-3). Health problems and organization of materials for health instruction. Individual projects are required for graduate students. D 13 500 2 0837

502. Applied Health I. (2). Introduction to public health problems and practices. Field exercises are arranged. Prerequisite: departmental consent. D 13 620 2 0837

504. Applied Health II. (2). Intensive study of selected health problems with regard to illness prevention and the present state of world health. Prerequisite: PE 502 or departmental consent. D 13 504 2 0837

515. Rhythmic Activities in the Elementary School. (2). This course is designed to teach methodology and curricular content of rhythmic activities appropriate for elementary school children. D 13 515 2 0835

530. Physiology of Exercise. (3). 3R; 1L. To provide the student with a working knowledge of human physiology as it relates to exercise. D 13 530 1 0835

533. Measurement and Evaluation in Physical Education. (3). A study of the modern practices utilized in the total evaluation of physical education programs, included in the course content: (1) basic statistical procedures, (2) evaluating students, (3) evaluating teaching and (4) a survey of measurement tools. D 13 544 2 0835

543. Organization and Administration of Physical Education Programs. (3). The organizational and administrative problems of physical education programs and the management of the physical plant. D 13 544 2 0835

547. Field Option Internship. (6). Field experience for students in fitness, sports business, safety or athletic training. Students will spend the equivalent of full-time employment in the appropriate agency for one full semester. Prerequisite: junior standing and departmental consent. PE 491, 2.25 GPA, 2.500 major GPA. D 13 547 2 0835

570. Psychology of Sport. (3). An in-depth analysis of the psychology of motor learning and its implications for the teacher-trainer. D 13 570 2 0839

590. Independent Study. (1-3). Prerequis­ite: departmental consent. D 13 590 3 0835

750. Workshop in Education. (1-4). D 13 750 2 0835

752. Special Studies in Health, Physical Education, and Recreation. (1-3). Group study in a preselected area of health, physical education or recreation. Repeatable for credit with departmental consent. Prerequisite: departmental consent. D 13 752 2 0835

781. Cooperative Education Field Study. (1-8). The goal of this course is to provide the graduate student with a field placement which integrates theory with a planned and supervised professional experience designed to complement and enhance the student's academic program. Individualized programs must be formulated in consultation with appropriate graduate faculty. The plan of study for a graduate degree-bound student must be filed before approval of enrollment for cooperative education graduate credit. May be repeatable for credit with a limit of 8 hours counting toward the graduate degree. Offered Cr/Nr only. D 13 781 2 0835

Courses for Graduate Students Only

800. Recent Literature in Health, Physical Education, and Recreation. (3). Survey and critical analysis of recent and other pertinent materials in the field. D 13 800 2 0835

801. Seminar in Sports Administration. (3). This course is designed to provide the student with a comprehensive overview of problems relating to sports administration programs. A sample of topics covered follows: public relations, promotion, personnel management, time management and travel. D 13 801 2 0837

810. Adapted Physical Education. (3). Philosophy, principles and methods of adapting physical education and recreational activities to the needs of the handicapped and the exceptional individual. Laboratory experience is provided. Prerequisite: PE 339 or departmental consent. D 13 810 2 0819

812. Advanced Techniques in Physical Education. (3). Comprehensive coverage of selected physical education activities with special emphasis on class procedures. Laboratory experiences are included. D 13 812 2 0835
825. Physical Education in Elementary Schools. (2). New concepts, recent trends, methodology, programming and supervision. This course is designed for the elementary teacher and physical education specialists. D 13 825 0 0835

826. Movement Education I. (3). This course is designed to introduce instructional techniques and curricular content utilized in the teaching of movement exploration (educational gymnastics and creative rhythms). The measurable aspects of weight, space, time and flow will be studied to provide insight into the noncompetitive instruction of children when teaching movement skills. D 13 826 2 0835

840. Seminar in Advanced Methods. (2). An examination and discussion of the factors that affect the teaching-learning process applicable to physical education. Emphasis is on individual understanding and improvement as students analyze their own teaching effectiveness. D 13 840 9 0335

847. Internship. (6-12). Internship in selected area of specialization of the sports administration program. Prequisite: department consent. D 13 847 2 0835

860. Research Methods in Health, Physical Education, and Recreation. (3). An introduction to research in health, physical education and recreation. Included in the course content are: (1) importance and meaning of research, (2) a literature search, (3) laboratory exercises and the student's advisory committee, and (4) the research report. D 13 860 0 0835

875. Thesis, (2). Prerequisites: IS 704 and PE 860. D 13 875 4 0835


880. Analysis of Motor Skills. (3). Movement and sport skills analyzed in terms of mechanical principles by means of films and experiments. D 13 880 0 0835

890. Problems in Health, Physical Education, and Recreation. (1-4). Directed reading and research under supervision of a graduate instructor. D 13 890 0 0835

College of Engineering

Offices: 100 Wallace Hall

William J. Wilhelm, Dean
Barbara E. Bowman, Assistant Dean

Departments
Aeronautical—Bart L. Smith, chairperson; Walter J. Horn, master's graduate coordinator; Glen W. Zumwalt, doctoral graduate coordinator
Electrical—Roy H. Norris, chairperson; Mark T. Jiang, graduate coordinator
Industrial—Don Malzahn, chairperson; Zbigniew Czajkiewicz, master's graduate coordinator; Donald L. Hammertzheim, graduate coordinator
Mechanical—James M. Bowyer, Jr., chairperson; Al Gosman, graduate coordinator

The College of Engineering offers graduate programs leading to a Master of Science (MS) in aeronautical engineering, electrical engineering, mechanical engineering and engineering management science. The Doctor of Philosophy (PhD) in engineering is described below.

Admission Requirements
Admission to the PhD program requires that the student has completed (or nearly completed) a master's degree in engineering or physical science. Some students may find it necessary to take prerequisite courses to be able to meet the course breadth requirements. The student is recommended to the graduate dean in consultation with his/her advisory committee for each student for admission to the PhD program. The student is recommended to the graduate dean in consultation with the graduate coordinator of the department where the graduate student will be housed.

Qualifying Examination
Before 18 post-master's graduate hours are completed, after admission to the PhD program, the student under the direction of his/her advisory committee must take written examinations in (1) mathematics, (2) the major field of study, and (3) one other of the fields of specialization; this latter is termed the "minor field." The qualifying examinations are two hours each and are offered as requested. The schedule for the exams will be established by the graduate coordinator in the department where the student is housed and the exams will be established and graded by members of the student's advisory committee or the appropriate departments of members of the student's advisory committee. On the first attempt, the student may take at least two parts of the exam. No part may be attempted more than twice. This examination tests students' breadth of knowledge and determines their ability to formulate mathematical representations of real physical situations. Upon passing, a student is known as an Aspirant for the PhD.

Plan of Study and Advisory Committee
Within the first 12 hours of PhD course work, the department chairperson, in consultation with the graduate coordinator and the student, recommend to the Engineering Graduate Committee an advisory committee for each student, consisting of four engineering faculty members and one graduate faculty member from outside the College of Engineering. The chairperson of the advisory committee should be the student's
dissertation adviser. The student and advisory committee chairperson will formulate a plan of study and a tentative dissertation topic for approval by the advisory committee, the department chairperson, the engineering graduate committee and the graduate dean. The plan of study will include designation of major and minor fields and all graduate-level course work which is applicable to the degree.

Course Breadth Requirements: To insure proper breadth of course work, the Plan of Study must include at least 12 hours of mathematics, at least 15 hours in the student's major field and at least one course each in two other fields of specialization. A Plan of Study normally contains about 60 semester hours of courses, including courses from the master's degree.

Foreign Language or Research Tools Requirement (FLORT): The Plan of Study must include either (1) proof of translating ability in one foreign language in which a significant amount of printed material in the student's field exists, or (2) six hours of course work (not necessarily at the graduate level) in advanced computing skills, statistics or experimental methods.

Time Limits and Residency Requirement
From the time the student is admitted to the program, no more than six years may elapse until requirements for the degree have been completed. However, the student may petition the advisory committee for a leave of absence to pursue full-time professional activities related to higher doctoral program and long-range professional goals. At least two semesters shall be spent in residency on the WSU campus involved in full-time academic pursuits. This may include up to half-time teaching and research. Well-designed plans for obtaining dissertation research experience under the supervision of the student's advisor will be considered in lieu of the residency requirement.

Dissertation Approval Examination (DAE)
When the PhD aspirant has completed the major portion of the course work and FLORT requirement, the advisory committee can petition for permission to administer the DAE. The aspirant will submit a written dissertation proposal to the advisory committee and to the engineering graduate committee. After reading the proposal and receiving approval of the topic from the engineering graduate committee and permission of the graduate dean, the advisory committee will conduct an oral examination to determine the aspirant's ability to carry out the proposed research and whether or not this research qualifies as a PhD dissertation. Any essential change in the project requires committee approval and a recommendation from the engineering graduate committee. After passing the DAE, the student is known as a Candidate for the PhD Degree. A candidate must be continuously enrolled in Engr. 976, PhD Dissertation, for a minimum of six hours each semester and at least two hours in the Summer Session until completion of the dissertation or 24 hours of Engr. 976 have been taken. After this, two hours per semester and one hour per semester are required. In any case, no less than 24 hours of enrollment for PhD dissertation will be required. The dissertation may be performed in absentia with the approval of the advisory committee.

Final Dissertation Examination
The student must defend the dissertation before the advisory committee. At least five months must elapse between the DAE and the final examination. The final examination will be open to the public. Invited guests or external examiners may be invited if the committee desires.

General Engineering

Courses for Graduate/Undergraduate Credit

510. Topics in Engineering. (3). This course demonstrates the relationship between engineering and mathematics and the natural and physical sciences. The use of these disciplines in the practice of engineering will be shown through specific examples. Prerequisites: Math 344, EE 199 or AE 327 or equivalent. E 10 510 0 0901

585. Computer Graphics. (3). 2R; 2L. Forms of computer graphics, input-output devices, generation of points, vectors, etc. Included are interactive versus passive graphics and the mathematics of three dimensions, projections and the hidden line problem. Animated movies, computer-aided design and instruction are included as well as applications. Prerequisites: Math 344, EE 199 or AE 327 or equivalent. E 10 585 1 0901

600. Integration of Engineering Concepts. (3). A course designed for senior students to integrate their classwork into a coherent concept of the major principles, tools and techniques of engineering. Prerequisites: junior standing, preferably taken last semester of undergraduate work. E 11 600 0 0901

Courses for Graduate Students Only

960. Advanced Selected Topics in Engineering. (1-3). New or specialized advanced topics in engineering are presented under this listing. Repeatable for credit when subject material warrants. Prerequisite: instructor's consent. E 10 960 0 0901

976. PhD Dissertation. (1-16). Repeatable up to a maximum of 36 hours. Prerequisite: admission to doctoral aspirant status. E 10 976 4 0901

990. Advanced Independent Study in Engineering. (1-3). Arranged individual, independent study in specialized content areas in engineering under the supervision of a faculty adviser; repeatable toward the PhD degree. Prerequisites: advanced standing and departmental consent. E 10 990 4 0901

Aeronautical Engineering

Graduate Faculty

Assistant Professor: Walter J. Bernhart, Assistant Professor: Edward J. Rodgers, Bert L. Smith (chairperson), Melvin H. Snyder

Associate Professor: William H. Wentz, Jr., Glen W. Zunwalt (doctoral graduate coordinator)

Professors: Walter J. Bernhart, Andrew J. Craig, Edward J. Rodgers, Bert L. Smith (chairperson), Melvin H. Snyder

Assistant Professor: M. Gawad Nagali

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The Department of Aeronautical Engineering offers programs leading to Master of Science (MS) and Doctor of Philosophy (PhD) degrees. These programs are enhanced by the presence of the aviation industry in Wichita, including Beech Aircraft Corp., Boeing Military Airplane Co., Cessna Aircraft Co. and Gates Learjet Corp. Graduate course work is scheduled so that engineers employed in local industry may pursue graduate work.

Master of Science

Courses of study leading to the MS degree are available with specializations in aerodynamics, propulsion sciences, guidance and control, and solid mechanics. Both thesis and nonthesis options are available.

Admission Requirements
To be admitted to graduate programs in aeronautical engineering, students must have completed the equivalent of an undergraduate major in engineering or related areas. Students' records are examined individually prior to admission so that their potential for graduate study can be evaluated. For admission, a grade point average of 2.750 is required for (1) the last two years of undergraduate work, (2) all engineering courses and (3) mathematics and physical sciences courses.

Degree Requirements

The Master of Science requires completion of a plan of courses that is approved by a student's adviser and the department chairperson. The program includes required courses and technical electives; details may be obtained from the
Graduate Courses

Graduate/Undergraduate Credit

Doctor of Philosophy

For admission and degree requirements, see the Graduate Programs in Engineering section.

Graduate Courses

All graduate courses must be approved in advance of enrollment by a student's graduate adviser.

Courses for Graduate/Undergraduate Credit

Graduate Courses

508. Systems Dynamics. (3). Lumped parameter modeling; classical, numerical, transform and state model methods of solution; introduction to systems with feedback; analyses of various physical systems. Prerequisites: AE 573 and Math 550. E 11 508 1 0901

512. Experimental Methods in Aerodynamics. (2). A study of experimental methods and test planning, error analysis and propagation, model design, instrumentation and flow visualization. Use is made of subsonic and supersonic wind tunnels. Prerequisite: AE 424. E 11 512 1 0902


525. Flight Structures I. (3). Stress analysis of flight vehicle components. Prerequisites: AE 524, AE 333, Math 550 and ME 350 both of which may be taken concurrently. E 11 525 0 0902

527. Numerical Methods in Engineering. (3). Error analysis. Polynomial approximations and power series, iterative solutions of equations; matrices and systems of linear equations, numerical differentiation and integration, approximate solution of differential equations by finite differences are included. Prerequisites: AE 327 and Math 550 which may be taken concurrently. E 11 527 1 0901


532. Propulsion. (3). Turbomachinery design and analysis, performance prediction, study of inlet and exhaust problems and integration with airflow. Prerequisites: AE 327 and AE 424, may be taken concurrently. E 11 532 0 0902

560. Selected Topics in Aeronautical Engineering. (1-3). Prerequisites: departmental consent. E 11 560 0 0902

561. Flight Structures II. (3). 2R; 2L. Strength analysis and design of flight vehicle components: Special projects in structural analysis and design. Prerequisite: AE 525. E 11 561 0 0902


563. Mechanics of Deformable Solids I. (3). Typical topics studied are: transformation of stress and strain in three dimensions, noncircular laminated composite, beams with asymmetric cross sections, energy methods and the finite element method of analysis, stress concentration, theories of fracture, composite mechanics, etc. Prerequisite: AE 333. E 11 563 0 0921

564. Field Analysis. (3). Potential theory: applications of the equations of Poisson and Helmholtz and of the diffusion and wave equations to various fields and plane phenomena. Analysis of representative problems is also made. Prerequisite: Math 400. E 11 664 0 0902

575. Selected Topics in Aeronautical Engineering. (1-3). Prerequisite: departmental consent. E 11 675 0 0902

576. Selected Topics in Engineering Mechanics. (1-3). Prerequisite: departmental consent. E 11 676 0 0921

577. Vibration Analysis. (3). A study of free, forced, damped and undamped vibrations for one and two degrees of freedom, as well as classical, numerical and energy solutions for multidegree freedom systems. An introduction to continuous systems is given. Prerequisites: Math 550 and AE 373. E 11 677 0 0902

580. Structural Mechanics I. (3). Matrix methods for the analysis of the free and forced vibrations of multiple degree of freedom structures. Prerequisite: AE 677. E 11 700 0 0902

760. Selected Topics in Engineering Mechanics. (1-3). Prerequisite: departmental consent. E 11 760 0 0902

761. Selected Topics in Aerodynamics and Fluid Mechanics. (1-3). New or special courses are presented under this listing on sufficient demand. Repeatable for credit when subject material warrants. Prerequisite: departmental consent. E 11 761 0 0924

762. Selected Topics in Propulsion. (1-3). New or special courses are presented under this listing on sufficient demand. Repeatable for credit when subject material warrants. Prerequisite: departmental consent. E 11 762 0 0902

773. Engineering Mechanics: Dynamics II. (3). A study of kinematics and kinetics of particles and rigid bodies in one- and two-dimensional motion, with an introduction to vibration of rigid bodies. Lagrange's equations are included. Prerequisites: AE 373 or equivalent. E 11 773 0 0921

Courses for Graduate Students Only

801. Structural Dynamics II. (3). A study of vibration of strings and membranes; longitudinal and control and an introduction to the analysis of closed-loop flight systems. Prerequisite: AE 514. E 11 703 0 0902

711. Aerodynamics of Nonviscous Fluids. (3). A study of equations of motion, potential flow, conformal transformation, finite wing theory and nonsteady airfoil theory. Prerequisite: AE 424 or ME 621. E 11 711 0 0902

716. Aerodynamics of Compressible Fluids I. (3). Analysis of an inviscid flow for one- and two-dimensional cases, moving shock waves, one-dimensional flow with friction and heat addition, linearized potential functions, method of characteristics, conical shock and oblique shock similarity laws. Prerequisite: AE 424, AE 420, ME 621 or equivalent. E 11 716 0 0924

721. Analysis of Elastic Solids I. (3). The equations of elasticity are developed and used to determine stresses and deformations in two dimensional (plane stress and plane strain) problems. Additional topics include: analysis of isotropic, orthotropic and anisotropic stress-strain relations applicable to a laminated composite, stress concentration, stress analysis of laminates made of several laminates at different fiber orientations, Simple laminated and laminated wound composite products made of advanced fiber composites such as graphite-epoxy, kevlar-epoxy, boron-epoxy, etc. are designed and analyzed. Prerequisites: AE 333 and Math 311 or instructor's consent. E 11 753 0 0921

753. Mechanics of Fiber Composites. (3). An introduction to Hooke's Law for deformable solids; two-dimensional orthotropic and anisotropic stress-strain relations applicable to a laminated composite, stiffness and strength of laminates made of several laminates at different fiber orientations. Simple laminated and laminated wound composite products made of advanced fiber composites such as graphite-epoxy, kevlar-epoxy, boron-epoxy, etc. are designed and analyzed. Prerequisites: AE 333 and Math 311 or instructor's consent. E 11 753 0 0921
Aerodynamics of Viscous Fluids. (3). Viscous flow theory and boundary layers. Prerequisites: AE 424 or 450 or ME 621. E 11 612 0 0921

Transonic Aerodynamics. (2). Experimental and analytical difficulties in flow and flight near Mach one. Basic equations and solution methods; linearized potential equation; shock-occurrence criteria on wings; Transonic Area Rule; nozzle throat design; Modern and Analytical Difficulties in Flow and Separation. Prerequisites: AE 424 or 420 or ME 621. E 11 607 0 0921

Finite Element Analysis of Structures. (2). Finite element analysis of structures. The subject includes variational, transmission and failure of materials. Prerequisite: AE 677. E 11 601 0 0921

Doctor of Philosophy and Master of Science

Graduate Faculty

Professors: Lloyd M. Benningfield, Elmer A. Hoyer, Mark T. Jong (graduate coordinator), Roy H. Norris (chairperson), Robert L. Schrag

Associate Professors: Everett L. Johnson, John B. O'Laughlin, Gary C. Thoman

Assistants: Robert L. Eckert, Abbas Masnavi, Mahmood E. Sevani

Electrical Engineering

Graduate/Undergraduate Credit

540. Transient and Frequency Analysis. (3). Review of classical transient analyses and Fourier series. An introduction is made to Laplace and Fourier transforms with emphasis on network response, complex frequency concepts and signal spectra. Prerequisites: EE 382 and Math. 550. May not be counted toward a graduate electrical major. E 12 580 0 0909

555. Electrical Design Project I. (3L). A design project under faculty supervision chosen according to the student's interest. Prerequisite: departmental consent. May not be counted toward a graduate electrical major. E 12 585 3 0009

558. Advanced Electromechanical Energy Convertors. (3). A continuation of EE 458, including solid state control. Computer applications are stressed. Prerequisites: EE 492 and 488. E 12 588 1 0909

594. Logic Design and Switching Theory. (3). An introduction to the function and application of digital integrated circuits. Combinational and sequential design techniques are covered in detail. Prerequisite: junior standing or departmental consent. May not be counted for credit toward a graduate electrical major. E 12 594 1 0909

595. Electrical Design Project II. (1). 3L. May not be counted toward a graduate electrical major. Prerequisite: EE 585 or departmental consent. E 12 595 3 0009

596. Electric Energy Systems. (3). Concepts of electric energy systems, high-energy transmission lines, system representation, load-flow analysis, load-flow control, economic operation, symmetrical and unsymmetrical faults and system stability. Computer applications are stressed. Prerequisites: EE 458. E 12 599 0 0000

698. Engineering Applications of Small Computers. (3). The course is designed to provide an understanding and appreciation of small computer capability and the application of these computers engineering problems. Through hands-on operation, topics such as interfacing to special equipment, graphics, special operating computer designs, Local Area Networks, organization and programming considerations are studied and applications emphasized. Prerequisites:
EE 228 or equivalent and at least one EE course at 500 level or above. E 12 630 0 0909

663. Waves, Waveguides and Antennas. (3). A study of radiation and transmission of electromagnetic wave energy. Topics include plane wave propagation in various media, normal and oblique reflections, dielectric windows, transmission through waveguides and introduced phenomena involving discrete and continuous-time random processes. Applications to system analysis and identification, analog and digital signal processing, data compression, parameter estimation and related disciplines will be discussed. Prerequisite: EE 594 or departmental consent. E 12 694 0 0909

754. Probabilistic Methods in Systems. (3). This is a course in random processes which emphasizes the design of robust techniques of random systems, information theory and signal processing. This course covers basic concepts and techniques of communication and control systems, the operation of stochastic processes involving discrete and continuous-time random processes. Applications to system analysis and identification, analog and digital signal processing, data compression, parameter estimation and related disciplines will be discussed. Prerequisites: EE 594 and 684 or equivalent. E 12 754 0 0909

781. Analog Filters. (3). A detailed study of analog filter design methods. Both passive and active filters are included. Analog filter approximations are discussed, sensitivity and noise analyses are covered. Prerequisite: EE 661. E 12 781 0 0909


786. Digital Communication Systems. (3). A course designed to cover theoretical and practical aspects of digital information systems. Topics to be covered include modeling and analysis of discrete information transmission, decision theory, source coding, and channel coding. Applications in digital signal processing and sampled-data systems are surveyed. Prerequisite: EE 590 or departmental consent. E 12 786 0 0909

790. Independent Study in Electrical Engineering. (1-3). Arranged individually, independent study in specialized areas in recent classes in the engineering disciplines under the super vision of a faculty member. Repeatable for credit. Prerequisite: departmental consent. E 12 790 4 0909

792. State-Variable Techniques in Systems I. (3). Review of mathematical fundamentals and linear systems. Formulation of state-variable models for linear, continuous and discrete systems and methods of controlling and observability. State-space systems are studied in addition to Liapunov and Lagrange stability and computation approximation techniques. Prerequisite: EEE 590 or departmental consent. E 12 792 0 0909

794. Advanced Digital Systems. (3). A course covering primarily two topics: (1) microprocessors and microprogramming. The operation and application of microprocessors are presented and a survey of available devices is reviewed. The characteristics of microprogrammable architecture are covered and the techniques of microprogramming are presented. The techniques are applied on the department's microprogrammable minicomputer. Prerequisites: EE 684 and 228 or equivalent. E 12 794 0 0909

The following abbreviations are used in the course descriptions: RL stands for lecture and L for laboratory. For example, 3R 2L means 3 hours of lecture and 2 hours of lab.
898. Advanced Energy Systems (3). A continuation of EE 598 with the topics treated in greater depth. Computer applications are stressed. Prerequisite: EE 598 or departmental consent. E 12 898 0 0909

899. Advanced Energy Systems II. (3). State-Variable Techniques in Systems II. (3). A study of the design and analysis of nonlinear control systems with an emphasis on stability. Topics include stability definitions, phase-plane methods, linearization, time and frequency domain stability criteria, limit-cycle criteria and exact methods for relay control systems. E 12 899 0 0909

900. Advanced Independent Study in Engineering (1-3). Arranged individual, independent study in specialized content areas in engineering under the supervision of a faculty advisor. Repeatable up to a maximum of 36 hours. Prerequisite: admission to doctoral aspirant status. E 12 900 0 0909

901. Advanced Independent Study in Engineering II. (1-3). New or specialized advanced topics in engineering are presented. Repeatable for credit. Prerequisite: instructor's consent. E 12 901 0 0909


976. PhD Dissertation. (1-16). Repeatable up to a maximum of 36 hours. Prerequisite: admission to doctoral aspirant status. E 12 976 0 0909

990. Advanced Selected Topics in Engineering. (1-3). New or specialized advanced topics in engineering are presented. Repeatable for credit. Prerequisite: instructor's consent. E 12 990 0 0909

991. Sensitivity Methods in Control Systems Design. (3). Sensitivity analysis of deterministic and stochastic systems, sources of uncertainty in control systems, etc., plant parameter variations, time delays, small nonlinearities, noise disturbances and model reduction, quantitative study of the effects of uncertainties on system performance, low-sensitivity design strategies, state and output feedback design, sensitivity function approach, singular perturbation and model reduction techniques, adaptive systems and near-optimal control. Prerequisites: EE 893 E 12 991 0 0909

Industrial Engineering

Graduate Faculty

Professor: Don Malach (Interim chairperson)
Associate Professors: Donald Hombartzheim, Abu Masud
Assistant Professor: Zbigniew Czajkiewicz
Graduate coordinator), Nasser Fard, Jeffrey Fernandez, Osama Eyada
Visiting Associate Professor: Chian Daghi

Doctor of Philosophy and Master of Science

The Department of Industrial Engineering offers a graduate program leading to the Master of Science (MS) in engineering management science and participates in the Doctor of Philosophy (PhD) in engineering program.

Admission Requirements

To be admitted to a graduate program in industrial engineering, students must have completed the equivalent of an undergraduate major in engineering or other quantitatively oriented fields. Applicants' records are examined individually prior to admission to evaluate their potential for graduate study. Normally, a grade point average of 2.750 is required for full admission for (1) the last two years of undergraduate work and (2) all mathematics, engineering and physical sciences course work.

Degree Requirements

The MS in engineering management science requires the completion of a plan of courses that is approved by the student's adviser. The program includes required courses and electives; details may be obtained from the department chairperson. Two options are available. (1) the thesis option requires a minimum of 30 total hours, including three hours of thesis through IE 876 and (2) the non-thesis option requires a minimum of 34 hours, including three hours of seminar through IE 876. Degree programs in either option must include at least 18 credit hours of 700-level (or above) course work. The thesis option allows six hours maximum and the non-thesis option allows 12 hours maximum of elective courses in business, engineering, mathematics, computer science and psychology or any other discipline approved by the department.

Examinations

Before a degree is granted, candidates must pass an oral examination administered by an ad hoc faculty committee, over their thesis or seminar and course work. For information on the Doctor of Philosophy see the Graduate Program in Engineering section.

Courses for Graduate/Undergraduate Credit

549. The Human Factor in Engineering Design. (3). A systematic approach to the optimization of human-environment interaction. Topics include human information processing and limitations, work space design and environmental factors. Prerequisite: IE 354. E 13 549 0 0913


553. Production Control. (3). Techniques of production planning, scheduling and dispatching, and applications to automation and computer control. Prerequisite: IE 452. E 13 553 1 0913

554. Statistical Quality Control. (3). Measurement and control of product quality using statistical process control and acceptance sampling techniques. Prerequisites: IE 354, E 13 554 1 0913


556. Manufacturing Methods and Materials. (3). A study of manufacturing and fabrication of materials. Prerequisites: IE 354, E 13 556 1 0913

557. Manufacturing Process Control. (3). A study of techniques and applications for manufacturing. Prerequisites: EE 382, E 13 557 0 0913

558. Modern Techniques in Safety Engineering. (3). An advanced study of the principles and quantitative measures of industrial safety and the Occupational Safety and Health Act. Prerequisite: IE 357. E 13 558 1 0913

559. Senior Projects in Industrial Engineering. (1-3). Intermediate study in specialized content areas in engineering under the supervision of a faculty advisor. Repeatable up to a maximum of 36 hours. Prerequisite: admission to doctoral aspirant status. E 12 559 0 0913


564. Engineering Probability and Statistics II. (3). A study of applications in engineering. Prerequisites: IE 355, E 13 564 1 0913


566. Probability Methods in Operations Research. (3). A development of the probabilistic techniques necessary for the study of queues, inventory systems with stochastic demand, forecasting, and optimal control. Prerequisites: IE 354, E 13 566 1 0913

570. Industrial Robotics I. (3). A study of principles and applications of industrial robots in manufacturing. Prerequisites: IE 354, E 13 570 1 0913


671. Industrial Robotics II. (3). A study of systems and applications of industrial robots in modern manufacturing. Prerequisites: IE 354, E 13 671 1 0913

720. Urban Systems. (3). A study of urban systems. Cross-listed as UA 720. This course develops the principles
of systems analysis and the tools by which these principles can be applied. Examples and applications are taken from urban problems. Emphasis is on the formulation of realistic models and analytical approaches. Case studies are evaluated. Prerequisite: departmental consent. E 13 720 0 0913

722. Simulation of Social and Administrative Processes, (3). A continuation of IE 550. Included topics are the mathematical development of the simulation model, review of previously studied models, and their application to social and administrative problems. Prerequisite: IE 550. E 13 730 0 0913

723. Queuing and Inventory Systems. (3). Analysis of behavior of queueing systems and their interrelationships. Poisson, non-Poisson and Markov chain models are discussed. Includes the development of single and multiple item constrained inventory models and periodic and continuous review policies. Prerequisite: IE 550. E 13 732 0 0913

735. Applied Forecasting Methods. (3). Analysis of prediction techniques used in forecasting and scheduling by time series and probability models. Techniques and error analysis are studied. Prerequisite: IE 650. E 13 735 0 0913


433. Applied Operations Research. (3). A survey of various techniques used in operations research. Topics include mathematical programming, queuing theory, inventory models and simulation. Prerequisites: IE 354 and IE 355. E 13 743 0 0913

745. Production Engineering Cases. (3). The organization, design and control of production and associated staff functions. The formulation of manufacturing policies and case studies in production design are included. Prerequisite: IE 553. E 13 745 0 0913

749. Advanced Human Factors. (3). Continuing IE 549. Topics include principles and application of human factors to the design of the workplace, displays, control systems, hard tools and various video display terminals. Prerequisite: IE 549. E 13 749 0 0913

750. Industrial Engineering Workshops. (1-4). Various topics in industrial engineering. Prerequisite: departmental consent. E 13 750 0 0913

754. Reliability and Maintainability Engineering. (3). Intended to acquaint students with the evolving methodology of reliability, which is a design parameter. Problems of quantifying, assessing and verifying reliability are studied. Various factors that determine the stress and strength of components with emphasis on such approaches are presented. Examples and problems cover a broad range of engineering fields, such as mechanical, electrical, industrial, aeronautical, metallurgical, computer structures, automatic control systems. Prerequisite: IE 354. E 13 754 0 0913

756. Decision Support Systems. (3). A study of decision support system techniques related to real-time database, spreadsheets, and expert systems. Prerequisite: IE 350 or departmental consent. E 13 756 0 0913

764. Systems Engineering and Analysis. (3). Presentation of system design process from the identification of a need through conceptual design, preliminary design, and system test and evaluation. Operational feasibility, reliability, maintainability, operability and economic feasibility are studied. Prerequisites: IE 354 and IE 355. E 13 764 0 0913

780. Topics in Industrial Engineering. (3). New or special courses are presented under this listing. Repeatable for credit when subject matter warrants. E 13 780 0 0913

Courses for Graduate Students Only

831. Classical Optimization Techniques. (3). Advanced treatment of classical optimization techniques. Prerequisite: departmental consent. E 13 831 0 0913

842. System Simulation with Digital Computers. (3). Advanced development of the techniques and methods for simulating complex systems. An introduction to simulation experiments and on the statistical analysis of results. Prerequisite: IE 660. E 13 842 0 0913

843. Operations Research. (3). A study of the theory and application of nonlinearmodel-building techniques for the problems found in industry. Included topics are the theory of linear and quadratic programming, separable, convex, quadratic, geometric and stochastic programming. Prerequisites: IE 550 and IE 650. E 13 843 0 0913

849. Industrial Engineering Problems. (1-3). Analysis, research and solution of a selected problem. E 13 849 0 0913

860. Engineering Management Communications. (3). This course is a study of the design of technical communications for specific audiences, the writing process, the editing of technical writing, formal presentation of technical material and the design of visual aids. E 13 860 0 0913

870. Flexible Manufacturing Systems. (3). Advanced study of modern, computer-ized manufacturing systems. Topics include integrated CAD/CAM systems, data base and computer integrated CAD/CAM, interfaces to manufacturing machines, computer and manufacturing devices. Prerequisite IE 570 or equivalent. E 13 870 0 0913

876. Thesis. (1-6). Prerequisite: consent of thesis advisor. E 13 876 0 0913

879. Seminar in Management Science. (3). Application of management science methods and models to real problems. A special project, including original case research, supervised internships or field research is assigned. Prerequisite: departmental consent. E 13 879 0 0913

880. Topics in Industrial Engineering. (3). New or special courses are presented under this listing on sufficient demand. Repeatable for credit when subject matter warrants. E 13 880 0 0913

930. Multiple Criteria Decision Making. (3). An introduction to the concepts and techniques for decision making where the multiple criteria nature of the problem must be recognized. Prerequisites: IE 650 or IE 743. E 13 930 0 0913

956. Knowledge-Based Systems. (3). An introduction to the concepts and techniques in knowledge-based systems or expert systems. Includes design and development of artificial knowledge-based systems using microcomputer-based software. Prerequisite: IE 199. E 13 956 0 0913

970. Industrial Robotics II. (3). Advanced study of modern robotics systems. The course emphasizes the design and implementation of the robotic cell for manufacturing industry. Topics include artificial intelligence in robotics, vision systems, robot control applications and robotics. Prerequisite: IE 700 or departmental consent. E 13 970 0 0913

976. PhD Dissertation. (1-16). Repeatable up to a maximum of 36 hours. Prerequisite: admission to doctoral aspirant status. E 13 976 0 0913

990. Advanced Independent Study in Engineering. (1-3). Arranged individual, independent study in specialized content areas. Prerequisite: consent of departmental consent. E 13 990 0 0913

Mechanical Engineering

Graduate Faculty

Professors: James M. Bowyer, Jr. (Chairperson), Albert L. Gosman (graduate coordinator), A. Richard Graham, Mahesh S. Greavos
Assistants: Jorman Haaland, S. S. Chaudhuri, Sidney Chau, James A. Harris, Mohammed R. Naji, Paul O. Steranka, Jorge E. Taka, Lionel R. Whitmer

Doctor of Philosophy and Master of Science and Areas of Specialization

The Department of Mechanical Engineering offers courses of study leading to the Master of Science (MS) that allow specialization in bioenvironmental engineering, engineering materials properties and failure modes, instruments, controls and automation, mechanical engineering design, and thermodynamics and transport processes. The department also participates in the Doctor
of Philosophy (PhD) in engineering program.

Admission Requirements

Admission to the program requires the equivalent of an undergraduate major in mechanical engineering or related areas.

Degree Requirements

The MS in mechanical engineering requires the completion of one of two options: (1) the thesis option requires a minimum of 30 credit hours, including four hours of directed study through ME 576 and (2) the non-thesis option requires a minimum of 34 credit hours, including two hours of directed study through ME 578. In the non-thesis option, an ad hoc faculty committee gives an oral examination to students in relation to their project.

Students must have the Plan of Study in either option approved by their graduate adviser and department chairperson and must have their plan meet the department's requirements regarding required and elective courses. Information about the elective courses may be obtained from the student's graduate adviser.

Course work in either option must include (1) a minimum of 17 credit hours at the 700 level or above and (2) a minimum of six hours outside of the department.

Examinations

Before a degree is granted, candidates must pass an oral examination over the thesis or non-thesis and course work. For information on the Doctor of Philosophy, see the Graduate Programs in Engineering section.

Courses for Graduate/Undergraduate Credit

The courses numbered 302 through 767 are not automatically applicable toward an advanced degree in engineering. They must be approved by the student's adviser, the graduate coordinator and the chairperson of the department.

502. Thermodynamics II. (3). Continuation of ME 398, with emphasis on availability, irreversibility, Maxwell's equations and thermodynamic property relations. Prerequisites: ME 398. E 14 502 0 0910

503. Mechanical Engineering Laboratory. (2). 6L. Selected experiments designed to illustrate the methodology of experimentation as applied to mechanics and thermal systems. Experiments include the measurement of performance of simple systems and evaluation of physical properties and parameters of systems. Prerequisites: ME 402, 541, 622. E 14 503 1 0910

504. Instrumentation. (3). 2R; 3L. A more complete treatment of the measurement problem with careful examination of modern instrumentation systems, including dynamic behavior and non-linearity. Concepts for data, design, synthesis and selection of instrumentation systems are included. Prerequisites: ME 402. E 14 504 1 0910

541. Mechanical Engineering Design II. (3). 2R; 3L. Applications of the engineering design principles to the creative design of mechanical equipment. Problem definition, conceptual design, feasibility studies, development concepts, calculation to obtain creative solutions of current real engineering problems, introduction to human factors, economics and reliability theory, group and individual design projects. Prerequisites: ME 350 and 436 with a grade of C+ or above in both. E 14 541 1 0910

544. Environmental Engineering. (3). Theory, analysis and design of heating, ventilating and air-conditioning systems based on psychrometrics, thermodynamics and heat transfer for applications. Emphasis on design procedures for space air-conditioning and heating and cooling loads in buildings. Prerequisites: ME 400 and 522. E 14 544 0 1010

548. Mechanical Engineering Projects. (1). A design, analysis or research project under faculty supervision. Problems are selected according to student interest. Prerequisites: ME 301 and senior standing. E 14 548 3 0910

621. Fluid Mechanics. (3). Continuation of fluid mechanics of ME 400. Analysis of steady and unsteady, incompressible and compressible, single and multiphase fluid flows. Emphasis on use of analytical, numerical and experimental methods. Prerequisites: ME 400 and 522. E 14 621 0 0910

622. Heat Transfer. (3). A continuation of heat transfer of ME 548. Steady and transient multiphase, free, forced and mixed convective fluid transfer. Various analytical methods, numerical methods and approximate solutions are discussed. Prerequisites: ME 400 and 541. E 14 542 0 0910

630. Biomathematical Engineering. (3). Study of the methodology and biophysics of the living body from the standpoint of basic mechanical engineering principles. Various artificial organs and life support systems are introduced and discussed. Prerequisites: ME 400 and 530. E 14 530 0 1910

641. Thermal Systems Design. (2). Application of the preliminary design process for thermal systems such as building environmental systems and stationary and transportation power plants. Design projects include thermal, mechanical and economic aspects. Prerequisites: ME 400 and 522. E 14 641 0 0910

648. Mechanical Engineering Projects. (1). A design, analysis or research project under faculty supervision. Problems are selected according to student interest. Prerequisite: ME 548. E 14 648 3 0910

659. Mechanical Control. (3). Analysis of the dynamic behavior of control systems. Theory and application of the above control systems. Control engineering design. Prerequisites: ME 402 and 549. E 14 559 0 0910

670. Senior Thesis I. (1). A design, analysis or research project performed under faculty direction. Enrollment is limited to mechanical engineering students who are in the last two semesters of their studies and require recommendation by a member of the department faculty. Prerequisites: ME 541 and 641, which may be taken concurrently, and departmental consent. E 14 670 3 0910

671. Senior Thesis II. (1). A continuation of ME 670. Prerequisite: ME 670. E 14 671 3 0910

705. Design of Engineering Experiments. (3). Study of the mathematical and statistical aspects of basic engineering experiments. Theories of test planning, data checking, analysis and presentation are discussed. Prerequisites: departmental consent. E 14 705 1 0910

734. Solar Engineering. (3). A study of the solar energy with particular emphasis on solar collection systems and energy systems, including solar space and water heating systems, building integration. Prerequisites: ME 400 or departmental consent. E 14 734 0 0910

741. Nuclear Engineering. (3). Study of the advancement of nuclear physics and its application in energy production, including reactor reaction, reactor core physics, nuclear heat transfer and nuclear reactor design. Prerequisites: ME 400 and Math. 550. E 14 741 0 0910

744. Advanced Environmental Engineering. (3). A continuation of ME 544 with an emphasis on building energy systems related to the design and selection of heating, ventilating and air conditioning equipment and distribution system. Prerequisites: ME 544 or departmental consent. E 14 744 0 0910

749. Kinematics and Dynamics of Machines. (3). Analysis and synthesis of mechanisms, force analysis of machines. Prerequisites: ME 439. E 14 749 0 0910

751. Special Topics in Mechanical Engineering. (1-3). New or special courses are presented under this listing. This course may be repeated for credit when subject matter warrants. Prerequisite: departmental consent. E 14 751 0 0910

755. Intermediate Thermodynamics. (3). Laws of thermodynamics, introduction to statistical concepts of thermodynamics, thermodynamic properties, chemical thermodynamics, and statistical mechanics. Prerequisites: ME 400 or departmental consent. E 14 755 0 0910

758. Computational Fluid Dynamics and Heat Transfer I. (3). Basic finite difference methods of numerical solution of partial differential equations. Stability analysis. Finite difference methods for wave equation, heat conduction equation, Laplace's equation and numerical solution of partial differential equations. Prerequisites: ME 412 and ME 622 or equivalent. E 14 758 0 0910
767. Theory of Rational Design. (3). Design decision techniques, including frequency, axiomatic and Bayesian formulation, statistical inference techniques, Jaynes' maximum entropy principle and error analysis. Prerequisite: departmental consent. E 14 767 0 0910

Courses for Graduate Students Only

801. Boundary Layer Theory. (3). Development of the Navier-Stokes equation, laminar boundary layers, transition to turbulence, turbulent boundary layers and an introduction to homogeneous turbulence. Prerequisite: Math. 651 or departmental consent. E 14 801 0 0910

845. Fracture. (3). Ductile and brittle fracture phenomena and mechanisms, linear elastic fracture mechanics, transition temperature approaches, tests for fracture resistance and design methods. Prerequisite: departmental consent. E 14 845 0 0910

846. Fatigue and Wear. (3). Fatigue of metals and nonmetallics: phenomena, fatigue testing procedures and design methods. Survey of wear problems in engineering. Prerequisite: departmental consent. E 14 846 0 0910

851. Heat Transfer-Conduction. (3). Theory and measurement, Fourier's equation, steady and unsteady state with and without heat sources and sinks and numerical methods. Prerequisites: ME 622, Math. 651 or departmental consent. E 14 851 0 0910

852. Heat Transfer-Convection. (3). Free and forced convection in laminar and turbulent flow. Analysis and synthesis of heat transfer equipment are included. Prerequisite: ME 622 or departmental consent. E 14 852 0 0910

853. Heat Transfer-Radiation. (3). Radiative properties of real surfaces, configuration factor analysis, radiative transfer in participating media, exchange factor analysis, Monte Carlo methods. Prerequisite: ME 622 or departmental consent. E 14 853 0 0910

856. Advanced Thermodynamics. (3). Statistical thermodynamics, Boltzmann Bose-Einstein and Fermi Dirac statistics, calculation of thermodynamics properties, elementary kinetic theory, introduction to irreversible thermodynamics. Prerequisite: ME 502 or departmental consent. E 14 856 0 0910

858. Computational Fluid Dynamics and Heat Transfer II. (3). Vector form of the Navier-Stokes and the energy equation. Generalized transformation of the flow equations to the computational domain. Numerical methods for inviscid flow equations, boundary layer type equations, "parabolized" Navier-Stokes equations and the Navier-Stokes equations. Prerequisite: ME 756 or equivalent. E 14 858 0 0910

860. Electromechanical Control Systems. (3). Description, analysis and design of electromechanical control systems, with an emphasis on actual devices. Prerequisite: ME 659 or departmental consent. E 14 860 0 0910

861. Similitude in Engineering. (2). Critical analysis of models and analogies as aids to engineering design. Prerequisite: departmental consent. E 14 861 0 0910

868. Rational Design Methods. (3). The principles of creativity, decision theory, modeling, optimization and reliability as applied to problems of engineering design. Prerequisite: departmental consent. E 14 868 0 0910

870. Special Topics in Mechanical Engineering. (3). New or special courses are presented under this listing on sufficient demand. Repeatable for credit when subject material warrants. Prerequisite: departmental consent. E 14 870 0 0910

876. Thesis. (1-4). E 14 876 4 0910

878. Directed Studies. (1-4). Repeatable as approved in the Graduate School plan of study. The student must write a paper. Students selecting the directed study option to fulfill the degree requirement need also to take an oral examination on the study made. Prerequisite: departmental consent. E 14 878 4 0910

976. PhD Dissertation. (1-6). Repeatable up to a maximum of 36 hours. Prerequisite: admission to doctoral aspirant status. E 14 976 4 0910

990. Advanced Independent Study in Engineering. (1-16). Arranged individual, independent study in specialized content areas. Repeatable toward the PhD degree. Prerequisites: advanced standing and instructor's consent. E 14 990 3 0910
College of Fine Arts

Offices: C124 Duerksen Fine Arts Center
Rhoda-Gale Pollack, Dean
Ronald Christ, Coordinator for graduate studies in art
Donald Corbett, Coordinator for graduate studies in music

Departments in Division of Art and Design
Art Education—Mary Sue Foster, chairperson
Art History—Stockton H. Garver, chairperson
Graphic Design—David T. Childs, chairperson
Studio Arts—Raymond D. Olivero, chairperson
Division of Dance—Carol Iwasaki, director

Departments in Division of Music
Music Education—James Lynn Hardy, chairperson
Music Performance—William E. Mathis, chairperson
Musico!ogy-Composition—David T. Childs, chairperson
Division of Theater—Richard Welsbacher, director

Division of Art and Design

The Division of Art offers programs leading to both the Master of Arts and Master of Fine Arts degrees. Students seeking the Master of Arts degree take an emphasis in art education. Students seeking the Master of Fine Arts degree may take a major in ceramics, painting, printmaking or sculpture. The specific requirements for each major are described under the appropriate departmental listing.

Art Education

Graduate Faculty
Associate Professor: Mary Sue Foster (chairperson)
Assistant Professors: Lanny Milbrandt, Douglas A. Kinnett

Master of Arts with Emphasis in Art Education

The Master of Arts (MA) degree with emphasis in art education meets the needs for advanced study in the field. The program is designed for students pursuing a career in public school art teaching, supervision, college teaching, museum education or art research.

Admission Requirements

To be admitted without deficiencies, students must have completed a baccalaureate program in art education and meet requirements for Kansas state certification in this field. Also required are a 2.750 overall grade point average during the last two years of undergraduate study and a 3.000 grade point average in art, with a minimum of 12 hours in art history or equivalent, 15 hours in one studio area and nine hours in art education curriculum. Applicants are required to present for evaluation a personal and professional resume and ten examples of their work in either portfolio or slide form. Up to half of the portfolio may be work produced by students of the applicant. All work should be identified with name, title, size and media. When deemed necessary, undergraduate courses determined by the major professor may be required before students are admitted to the MA program with full standing. All correspondence should be addressed to the chairperson of the art education department.

Degree Requirements

Two major plans may be followed in meeting the requirements for the MA degree.

Plan A. The minimum requirements through Plan A are summarized below. Of the 30 hours required, 15 must be in courses numbered 700 or above.

Art education including 3 hour thesis 18 hours
Major art areas and related fields 12 hours
Total 30 hours

Plan B. The minimum requirements through Plan B are summarized below. Of the 33 hours required, 18 must be in courses numbered 700 or above.

Art education (includes 6 hours of research problems) 18 hours
Major art areas and related fields 15 hours
Total 33 hours

All candidates must pass an oral examination after completing 12 semester hours. Candidates must pass an oral defense of their thesis if following Plan A. If following Plan B, they must make a verbal and/or visual presentation of their terminal project.

Plan of Study

In order to define a program of study for the graduate degree, students must submit a proposal the Plan of Study form leading to admission to candidacy for the degree no later than one month following the completion of 12 semester hours of graduate credit.

Transfer of Credit and Extension Work

A maximum of six semester hours of graduate work may be transferred from another graduate school with the approval of the major adviser and the dean of the Graduate School, preferably before the work is taken. Correspondence courses are not accepted for credit, and extension credit is accepted only if the major department and the dean of the Graduate School give their approval and if the course is taught by the Wichita State University graduate faculty. Only six hours of such work will be accepted. Six hours of graduate-level courses in one department taken on a nondegree student basis will be accepted. Courses taken outside of one department before acceptance into the art education masters program may or may not apply toward the degree.

Courses for Graduate/Undergraduate Credit

5100. Stimulating Creative Behavior. (3). Topics include theories of creativity, strategies for problem-finding and problem-solving, identifying various external and internal blocks to creativity, testing for creativity, the relationships of creativity, cognition and visual thinking, creative challenges and stimuli. Course emphasizes methods to elicit creative behavior, repeatable once for credit. F 14 5100 0 0831

512. Metal Processes for Jewelry Construction. (3). The emphasis in this course is on fabrication techniques, design analysis and function of jewelry designed and produced by students and acknowledged craftsmen. Repeatable once for credit. Prerequisite. Art Ed 212 or instructor's consent. F 14 512 0 0831

5140. Aesthetic Inquiry. (3). The course will focus on contemporary trends in aesthetics relative to the visual arts. Students will be expected to write critical observations and interpretations in response to art work. Prerequisite. Upper-division art major. F 14 5140 9 0831

515. Developing Visual Materials for Art Education. (3). A production laboratory that concentrates on the use of technological equipment for making multimedia experiences (films, slides, tapes, projector, etc.) for art education students. Students engage in constructing units of visual learning. F 14 515 1 0831
Courses for Graduate/Undergraduate Credit

520. Seminar in Art History. (3). Systematic study in selected areas of art history. Course content varies but individual areas are not repeatable for credit. Prerequisite: instructor's consent. F 15 520 9 1003

5210. Italian Renaissance. (3). A study of the Italian Renaissance in this course is offered in the 13th and the 16th century. Emphasis is given to early developments in Florence and Rome. Prerequisite: F 15 5210 1 003

5221. Italian Baroque. (3). A study of Baroque painting, sculpture, and architecture in Rome, Venice and Bologna from 1600 to 1750 with emphasis on Tiepolo. F 15 5221 1 003

523. 18th and 19th Century European Art. (3). A history of European art from Watteau through post-impressionism. F 15 523 1 003

524. 18th and 19th Century American Art. (3). A history of American art from the colonial period through the 19th century. F 15 524 1 003

525. 20th Century Art Before 1945. (3). A history of American and European art in the first half of the 20th century. F 15 525 1 003

526. Art Since 1945. (3). A study of the history of art in the United States from 1945 to the present. Emphasis is given to early developments in Florence and the arts of painting and sculpture as they developed in the United States and Europe. F 15 526 1 003

528. Museum Techniques I. (3). Designed primarily for the graduate student interested in museum work. Includes specialized research related to administrative responsibilities of a museum, exhibition, recording, preservation and financial activities. F 15 528 1 003

529. Modern Architecture. (3). A course designed to offer an overall view of the development of modern architecture from its inception in the early 20th century until today. Theoretical connections between architecture and the arts of painting and sculpture as they developed in the United States and Europe are stressed. F 15 529 1 003

530. The Art of Classical Greece. (3). A study of Greek sculpture and architecture of Greece during the Hellenistic period. 4th to 1st centuries B.C. F 15 530 1 003

531. The Art of Hellenistic Greece. (3). A study of the painting, sculpture and architecture of Greece during the Hellenistic period. 4th to 1st centuries B.C. F 15 531 1 003

532. Independent Study in Art History. (1-3). Work in a specialized area of the study of art history. Directed readings and projects. Prerequisite: instructor's consent. F 15 532 1 003

533. Seminar: Topics in Modern Art. (3). Selected readings and problems in art of the modern era. Course content varies but individual areas are not repeatable for credit. Prerequisite: instructor's consent. F 15 533 1 003

626. Bibliography and Information Retrieval in Art History. (3). A course to prepare art history majors for work in the graduate school. The course is designed with the various research resources, such as bibliographies, indexes, collections, concordances and compiles. Practical assignments for information retrieval provide the experience necessary for mastering research techniques. Prerequisite: nine hours in art history. F 15 626 1 003

Courses for Graduate Students Only

828. Thesis. (2). F 15 828 1 1003

832. Independent Study. (1-3). Individual supervised work in a specialized area of the study of art history. Directed readings, research and projects. Repeatable for credit. Prerequisite: suitable preparation for graduate work in art history (e.g. BA or BFA in art history) and instructor's consent. F 15 832 1 1003

Graphic Design

Graduate Faculty
Professor: Clark V. Britton, Jr.

Although there is no graduate degree in graphic design, the following course is available for graduate study.

Course for Graduate/Undergraduate Credit

530. Seminar in Graphic Design. (3). Supervised study and research. Weekly consultation and reports are required. Repeatable for credit. Prerequisite: departmental consent. F 15 530 1 1003

Studio Arts

Graduate Faculty
Associate Professors: Raymond Olivo (Chairperson), John Boyd, Ronald Christ, Richard St. John
Assistant Professors: Douglas Kinnett (Graduate Coordinator), David Olson, Kathleen Shanahan, Christopher Staley

Master of Fine Arts

The Master of Fine Arts (MFA) degree is offered for qualified students planning careers as professional artists, either working independently or as associate teachers in the college or art school level. The program is designed for a major in ceramics, painting, printmaking or sculpture.

Admission Requirements

Admission without deficiencies requires a 2.750 grade point average during the last two years of undergraduate study and a 3.250 overall grade point average in the major field of study: ceramics, painting, printmaking or sculpture. Also required is a Bachelor of Fine Arts (BFA) degree, or the equivalent, that includes a minimum of 12 hours of art history, 15 hours in the major field and 20 hours of related work. Applicants should present examples of work for evaluation. They should submit 15 color slides (2" x 3") in
their major area. All work should be identified with name, title, size and media. Applicants should also include a short statement of their artistic philosophy. Also list all honors, awards, scholarships, exhibitions, special recognition for work in art or services rendered through art. Three letters of recommendation should be forwarded. No application is considered until an application to Graduate School, transcripts and the materials listed above are received. A stamped return envelope for all materials should be included.

Students holding degrees from institutions where requirements differ from those at Wichita State may be required to take undergraduate courses to make up deficiencies as determined by the major professor and the graduate art coordinator. Applicants should address all correspondence to the graduate art coordinator.

Degree Requirements

Minimum course requirements for completion of the MFA degree are summarized below. In addition, 45 of the 60 hours must be taken in courses numbered 800 or above.

- Studio courses in the major area: 23 hours
- Studio courses in a minor option area: 15 hours
- Courses in art history: 9 hours
- Terminal project in the major area: 10 hours
- Course in art seminar or directed readings: 3 hours
- Total: 60 hours

The terminal project consists of an exhibition of original studio art work, accompanied by either (1) a written report in thesis form or (2) the MFA terminal project report, which is a photographic documentation of the candidate's studio work (submitted in duplicate).

Plan of Study

In order to define a program of study for the graduate degree, students must submit in triplicate the Plan of Study form leading to admission to candidacy for the degree no later than one month following the completion of 24 semester hours of graduate credit.

Graduate Review

MFA degree students must satisfactorily complete four graduate reviews conducted in their major MFA area at the end of each fall and spring semester. At this time, the graduate faculty makes observations and recommendations regarding the quality of the students' work and their standing in the program. No graduate review is held during Summer Session.

Transfer of Credit

All graduate credit for transfer will be at the discretion of the departmental advisor and graduate coordinator. A maximum of 24 semester hours from prior graduate study may be considered for transfer to the MFA program. However, no transfer work will be considered until the students have successfully completed 24 semester hours and their first graduate reviews and no hours can be applied to a major field of study. If a transfer of credit is allowed, it may reduce course requirements but not entrance requirements. A ruling on hours converted to MFA program by the dean of the Graduate School, graduate art coordinator and the major professor is final. Graduate nondegree work obtained before admission to a planned degree program will not be accepted.

Required Prerequisite

Students who have not been accepted to degree standing in the MFA Studio or MA Art Education programs may enroll in 800-level courses only with written consent of the departmental graduate coordinator.

Examinations

At the beginning of and during the semester in which the degree is to be conferred, two interviews between candidates and their committees are conducted. The proposed content of the MFA exhibition is discussed and evaluated. The graduate committee's findings, upon final review and the MFA terminal examination, are filed by the major professor with the graduate dean at least two weeks before the end of the final semester. This procedure constitutes the terminal examination for MFA candidates.

Policy Toward Student Art

The Division of Art and Design reserves the right to select and retain a maximum of three pieces from the graduate exhibition. MFA printmaking candidates may be required to deposit one print from any or each edition for the University Collection.

General

Course for Graduate/Undergraduate Credit

500. Topics in Visual Art and Design. (3). Topics of special interest and significance to faculty and students in Studio Arts. Content varies in subject matter from one semester to another. Repeatable for credit with departmental consent. F 16 500 1 1002

Ceramics

Courses for Graduate/Undergraduate Credit

570. Advanced Ceramics Studio. (3). Lab fee. Advanced studio problems involving forming methods, glaze formulation and firing. Procedures. Periodic lectures held involving advanced studies of ceramic materials and glaze formulation. Repeatable for credit. Prerequisite: SA 370 F 16 570 1 1009

574. Advanced Study of Kiln Methods. (3). Advanced study of kiln design and construction with research in the area of refractory materials. Reading assignments, notebook and laboratory work are required. Prerequisite: SA 374 F 16 574 1 1009

575. Study of Ceramic Materials II. (3). Lab fee. Lectures and research covering clays, glazes and refractory materials. Reading assignments are made concerning physical and chemical characteristics of pottery materials. Prerequisites: SA 275 and 370. F 16 575 0 1009

576. Study of Ceramic Glazes II. (3). Lab fee. The study of glaze formulation and the color and crystalline effects of oxides on base glazes. Notebook, formulation records and laboratory work required. Prerequisite: SA 575. F 16 576 1 1009

578. Independent Study in Ceramics. (1-3). A professional emphasis on technical or aesthetic research in the ceramics field. Available only for the advanced ceramics student with consent of instructor. Statement of intent must be submitted for faculty approval before registration. Prerequisite: departmental consent. F 16 578 0 1009

Courses for Graduate Students Only

800. Seminar in Art Topics. (3). Designed to explore areas of common interest in the arts. Supervised study, research and discussion. Repeatable for credit. F 16 800 9 1009

870. Special Problems in Ceramics. (1-5). Research in advanced problems in ceramics. Repeatable for credit. F 16 870 3 1009

875. Advanced Research of Ceramic Materials. (3). Lectures and advanced research covering clays, glazes and refractory materials. Reading assignments are made concerning physical and chemical characteristics of pottery materials. Notebook and outside lab work are required. F 16 875 4 1009

876. Advanced Study of Ceramic Glazes. (3). The study of glaze formulation and the color and crystalline effects of oxides on base glazes. Notebook, advanced formulation records and laboratory work required. Prerequisite: SA 875. F 16 876 4 1009

878-879. Terminal Project—Ceramics. (2 or 3 or 5; 3 or 5). F 16 878 4 1009; F 16 879 4 1009

Drawing

Courses for Graduate/Undergraduate Credit

545. Advanced Drawing Studio. (1-3). Drawing with a variety of media. Graphic problems relative to individual technical and
Courses for Graduate Students Only

800. Seminar in Art Topics. (3). Designed to explore areas of common interest in the arts. Supervised study, research and discussion. Repeatable for credit. F 16 800 9 1009

840. Special Problems in Life Drawing. (1 or 3). Drawing from life. Sketchbooks and/or portfolio required. Repeatable for credit. F 16 840 3 1002

845. Special Problems in Drawing. (1-3). Advanced drawing in various media with emphasis on independent work and the development of personal expression. Repeatable for credit. F 16 845 3 1002

Painting

Courses for Graduate/Undergraduate Credit

550. Advanced Painting Studio. (1-3 or 5). Designed for the professionally oriented student. Emphasis is on independent study. Repeatable for credit. Prerequisites: four semesters of SA 350 and interview with instructor. F 16 550 1 1009

551. Advanced Watercolor Studio. (3). Sketchbooks and/or portfolio required. Prerequisites: completion of Foundation program and SA 251. F 16 551 1 1002

553. Independent Study in Painting. (3). A professional emphasis on technical and aesthetic research in the painting area. Available only for the advanced painting student with consent of instructor. Statement of intent must be submitted for faculty approval before registration. Prerequisite: departmental consent. F 16 553 1 1009

Courses for Graduate Students Only

800. Seminar in Art Topics. (3). Designed to explore areas of common interest in the arts. Supervised study, research and discussion. Repeatable for credit. F 16 800 9 1009

860. Special Problems in Painting. (1 or 3). Advanced studio problems in painting. Repeatable for credit. F 16 860 3 1002

862 & 863. Special Problems in Printmaking—Lithography. (1 or 5 or 3 or 5). Advanced painting on an individual basis. Encouragement is given to investigation combined with a craftsman-like approach. Techniques include all intaglio, relief and combined methods, black and white and color. Repeatable for credit. F 16 862 3 1002

868-869. Terminal Project—Printmaking. (3 or 5 or 3 or 5). F 16 868 4 1002; F 16 869 4 1002

Sculpture

Courses for Graduate/Undergraduate Credit

580. Advanced Sculpture Studio. (1-3). Course in sculpture in any medium, with emphasis on individual development and creativity. Repeatable for credit. Prerequisite: SA 380. F 16 580 1 1002

582. Advanced Handbuilding Techniques in Clay. (3). Advanced studio problems involving sculptural handbuilding forming methods, glaze and surface formulation and firing procedures. Lectures and research on advanced studies of the role of clay sculpture in contemporary society. Prerequisite: SA 380. F 16 582 1 1009

585. Independent Study in Sculpture. (3). A professional emphasis on technical or aesthetic research in the sculpture area. Available only for the advanced sculpture student with consent of instructor. Statement of intent must be submitted for faculty approval before registration. Prerequisite: departmental consent. F 16 585 1 1009

Division of Dance

While a formal major in dance at the graduate level is not offered, the following courses are available for graduate credit.

Courses for Graduate/Undergraduate Credit

501. Modern Dance IV. (3). Continuation of Dance 401. Advanced level. Emphasis on professional technique and performance quality. Repeatable for credit. Prerequisite: instructor's consent or by audition. F 25 501 5 1008

505. Dance Performance and Production. (3). Students receive practical experience in the organization and presentation of a dance concert. Class content may include design and construction of costumes and properties, design and execution of stage lighting and make-up, various areas of publicity, promotion and audio techniques. Students are also required to choreograph and perform and be responsible for all technical aspects of the concert to be performed at the end of the semester. Prerequisite: Dance 405. Concurrent enrollment in appropriate-level modern dance or ballet technique class required. F 25 505 5 1008


545. Methods of Teaching Dance. (3). Course in developing teaching skills for elementary schools, high schools, recreation centers, private and professional schools and universities, through lesson planning and in-class teaching practice. Prerequisite: Dance 401 or 410. F 25 545 5 1008
882. Advanced Techniques in Special Music Education. (3). A critique of the music education special emphasis MME candidates only. Research literature and trends in special music education are studied. An evaluation of analysis of materials and techniques and special projects exploring the development of musical understanding in the dysfunctioning child are included. This course satisfies the requirement, effective September 1, 1981, that applicants for initial certification or renewal of secondary and/or elementary certification shall present a survey course or equivalent content from other courses, in the subject area of exceptional children. This course is repeatable for credit for credit. Prerequisites: Mus. Ed. 402 or 404. F 11 822 0 0832

871. History and Philosophy of Music Education. (2). A study of historical trends and contemporary philosophies relevant to music education. Behavioral objectives and curriculum planning. Prerequisites: Mus. Ed. 851, F 11 871 0 0832

875. Thesis Research. (1-2). F 11 875 4 0832

876. Thesis. (2). F 11 876 4 0832

Music Performance
Graduate Faculty
Professors: Harrison Boughen, Joseph C. Combs, Jay C. Decker, George H. Gibson, William E. Mathis (chairperson), Walter J. Myers
Associate Professors: Dorothy Crum, W. James Jones, Paul E. Reed, Robert L. Town, Vernon Lee Yenne
Assistant Professors: Thomas L. Allen, David Austin, Myles A. Mazur, Frances K. Shelly, Nicholas E. Smith, Russell D. Widener

Master of Music with Emphasis in Performance
Admission to the Master of Music (MM) program with emphasis in music performance requires a performance background with a Bachelor of Music degree in the performance area of specialization or the equivalent. Background deficiencies must be satisfied before admission to candidacy is granted. All performance degree candidates must complete a satisfactory audition in their performance area of specialization. The audition should be completed as early as possible—but no later than the end of the first semester of enrollment. Final acceptance in a performance specialty is dependent on approval of the respective performance faculty.

A formal graduate recital, in lieu of a thesis, must be presented in partial fulfillment of the requirements for the MM degree with emphasis in performance. In order to have permission to schedule a degree recital, students must satisfy the general performance degree expectations. Permission to schedule the recital must be obtained no later than the semester before the semester in which the recital is to be performed. The student's performance repertoire and the recital program must be in accordance with the guidelines and expectations established by the performance area concerned.

Students studying for the MM degree with emphasis in performance should plan to be in residence during at least one fall or spring semester, since continuous study opportunities may not exist in Summer Session.
Master of Music with Emphasis in Piano Pedagogy

The Master of Music (MM) degree with emphasis in piano pedagogy gives primary emphasis to the development of tutorial concepts specific to keyboard skills and artistry, secondary, but significant, emphasis is placed on an acceptable demonstration of keyboard performance at the master's degree level. The pedagogy option includes extensive preparation in the area of keyboard literature and stresses the relationship of performance to selected repertoire and teaching-skills development.

Admission Requirements

Students must have completed a Bachelor of Music in piano performance degree or its equivalent. All candidates must complete a satisfactory audition as early in the program as possible—in no event later than the close of the first semester of enrollment. Permission to pursue the degree is tentative pending approval of the audition. Deficiencies, if noted, must be satisfied before admission to candidacy for the degree.

Degree Requirements

The MM degree with emphasis in piano pedagogy requires the completion (minimum) of 32 graduate hours, including a graduate degree recital. Of these hours, 20 must be in courses numbered 700-897. Students must complete a satisfactory recital as early in the program as possible—in no event later than the last quarter of the first semester of enrollment. Permission to pursue the degree is tentative pending approval of the audition. Deficiencies, if noted, must be satisfied before admission to candidacy for the degree. The degree option includes the following courses:

1. 852. Introduction to Graduate Study, 3 hours
2. 830. Seminar in Music Theory, 3 hours
3. 843. Piano Pedagogy Seminar, 2 credits.
4. Pedagogy and literature courses as specified in the pertinent MM (piano pedagogy) curriculum guide.

Applied Music Private Study

731. (1). Repeatable for credit. Graduate. F 12 731 3 1004
732. (2). For majors only. Repeatable for credit. Graduate. F 12 732 3 1004
733. (4). For performance majors or students preparing for master's degree recital only. Repeatable for credit. Graduate. F 12 734 3 1004

Courses for Graduate/Undergraduate Credit

548. Double Reed Making and Adjusting. (1). Making and adjusting oboe, English horn
508. Piano Pedagogy. (2). Primarily concerned with the art and science of teaching. Includes observations of master teachers in the University and community. F 12 508 0 1004
581. Piano Teaching Materials. (2). A survey of teaching methods and materials from beginning through early advanced levels. F 12 581 0 1004
620. String Pedagogy; Violin and Viola. (a). A study of tutorial techniques for violin and viola, including the teaching of mini-lessons for instructor and class critique. Prerequisite: violin or viola performance capability or consent of instructor. F 12 620 0 1004
625. Voice Pedagogy. (2). Designed to acquaint the voice major with vocal techniques and materials of private and class instruction. F 12 625 0 1004
627. Music Theater Directing. (2). Coaching, mounting and staging music-drama productions, with an acting and direction techniques. Prerequisite: instructor's consent. F 12 627 0 1004
631. Advanced Conducting and Score Reading. (2). Baton technique, score reading, and musicianship. Prerequisite: Mus. Perf. 217 or 218 or equivalent. F 12 631 0 1004
680. Woodwind Pedagogy. (2). A comprehensive study of woodwind instrument techniques, concepts, and materials of studio instruction for the advanced student, including the teaching of mini-lessons for instructor and class critique. Prerequisite: performance capability on a woodwind instrument or consent of instructor. F 12 680 0 1004
681. Brass Pedagogy. (2). A comprehensive study of brass instrument techniques, concepts, and materials of studio instruction for the advanced student, including the teaching of mini-lessons for instructor and class critique. Prerequisite: performance capability on a brass instrument or consent of instructor. F 12 681 0 1004
682. Percussion Pedagogy. (2). A comprehensive study of percussion instrument techniques, concepts, and materials of studio instruction for the advanced student, including the teaching of mini-lessons for instructor and class critique. Prerequisite: performance capability on percussion instruments or consent of instructor. F 12 682 0 1004
690. Special Topics in Music. (1-4). For individual or group instruction. Repeatable with departmental consent. F 12 690 2 1004
691. Advanced Choral Conducting. (2). A comprehensive study of conducting and rehearsal techniques, analysis and ear training, and types of choral preparation for the advanced student. Prerequisite: Mus. Perf. 217 or 218 or equivalent. F 12 691 0 1004
707. Piano Repertoire. (1). Designed to give performing and listening experience to piano performance majors. Repeatable for credit. F 12 707 2 1004
710-711-712-713-714. Ensembles. (1-1-1-1-1). (1) Orchestra; (B) Concert Band; Marching Band; Symphony Band; Wind Ensemble; (C) Choral Union; (D) Men's Glee Club; (E) Women's Glee Club; (F) A Cappella Choir; (G) University Singers; Concert Chorale; (H) Piano Accompaniment; (I) Opera Theater; (L) Madrigal Singers, Chamber Singers; (N) Woodwind Ensemble, (O) Saxophone Quartet; (P) Brass Chamber Ensemble; (Q) Percussion Ensemble; (T) String Ensemble; (U) Jazz Arts Ensembles I & II; (V) Guitar Ensemble. Repeatable for credit. F 12 710 1 1004; F 12 711 1 1004; F 12 712 1 1004; F 12 713 1 1004; F 12 714 1 1004
717Y. Voice for Music Theatre. (2). Basic repertoire and singing techniques with weekly master class devoted to music theatre techniques and applications. Prerequisite: must be approved for credit. F 12 717Y 3 1004
750. Music Performance Workshop. (1-4). Repeatable for credit. F 12 750 0 1004
760. Group Piano Practicum. (2). Supervised group piano teaching for graduate students. Prerequisites: Mus. Perf. 580 and 581. F 12 760 2 1004
761. Studio Piano Practicum. (2). Supervised studio teaching for graduate students. Prerequisites: Mus. Perf. 580 and 581. F 12 761 2 1004

Courses for Graduate Students Only

841. Special Project in Music. (1-3). Individually supervised study or research, with emphasis upon the personal needs of the student. Repeatable for credit. Prerequisite: instructor's consent. F 12 841 4 1004
842. Special Project in Music. (1-3). Individually supervised study or research, with emphasis upon the personal needs of the student. Repeatable for credit. Prerequisite: instructor's consent. F 12 842 4 1004
843. Piano Pedagogy Seminar. (2). Variable topics, such as (1) advanced techniques in class piano or private piano (college curriculum); (2) class piano in early childhood; (3) class piano for leisure-age students; (4) class piano in public (or private) schools, extending the preparation of piano pedagogy students as needed. Repeatable for credit. Prerequisite: Mus. Perf. 580. F 12 843 0 1004
852. Introduction to Graduate Study. (3). See course listing under musicology-composition department. F 12 852 0 1006
873. Graduate Recital. (3). Performance of a full recital featuring the chief performing medium. Prerequisite: consent of instructors in applied area. F 12 873 4 1004
874. Professional In-Service Presentation Project. (2). Planning, organizing, and presenting a three-hour in-service presentation ("workshop") to in-service private piano teachers, perhaps in conjunction with an established community piano teacher's league, etc. Available as a terminal requirement alternative (in lieu of performance recital) in the Master of Music (piano pedagogy emphasis). Students approved for this terminal requirement option will also be required to perform a major piano work, prepared at acceptable recital level, during the spring recital presentation within the final year (two semesters) of the degree program. Requires approval of piano performance area faculty. Prerequisite: departmental consent. F 12 874 4 1004

The following abbreviations are used in the course descriptions: F stands for fall and L for laboratory. For example, 2R. 2L means 2 hours of lecture and 2 hours of lab.
Musicology-Composition

Graduate Faculty
Professor: Walter A. Mays
Associate Professors: David T. Childs (chair), John W. Thomson

Master of Music
Emphasis in Music History-Literature
Completion of a Master of Music (MM) degree with emphasis in history-literature requires a demonstrated reading proficiency in one of three languages: German, French or Italian. Students may demonstrate proficiency by satisfactorily completing the Graduate School Foreign Language Test designed by the Educational Testing Service or by completing equivalent language courses, such as French 060 or German 010, at Wichita State. A thesis is also required for the degree.

The general requirements for the MM degree are summarized at the beginning of the Division of Music section of the Graduate School Bulletin.

Emphasis in Music Theory-Composition
Admission to the MM program with emphasis in theory-composition requires a Bachelor of Music degree with a major in theory-composition or the demonstrated equivalent. Background deficiencies must be satisfied before students may enroll in graduate composition courses. Applicants must also submit representative compositions for examination by the composition faculty, approval for admission to candidacy is contingent upon the candidate's demonstrated ability to complete a final project in composition.

Completion of the MM degree with emphasis in theory-composition requires at least one semester of 840A-C. Seminar in the Techniques of Composition. In addition, students must complete a terminal project which must consist of one of the following: (1) a composition of major proportions, (2) a body of works in various media or (3) a written thesis in the area of music theory. Composition majors may be required by the thesis committee to have a work or works performed publicly. The composition or compositions must be submitted in a minimum of two copies and bound in keeping with the procedures established through the Graduate School of The Wichita State University. These ink copies represent high quality of musical manuscript and must be completed in the candidate's own hand.

The general requirements for the MM degree are summarized at the beginning of the Division of Music section of the Graduate School Bulletin.

Courses for Graduate/Undergraduate Credit
523. Form and Analysis. (2) Extensive analysis of the forms and formal processes of musical literature. Prerequisite: Mus.-Comp. 227. F 13 563 0 1004

531. Introduction to Electronic Music. (2) Basic techniques of electronic music. Instruction in music technology for students who wish to use the electronic medium in teaching, performing or communicating in any way with their constituency. F 13 563 0 1004

559-660. Applied Composition. (2-2) Individual study in advanced musical composition, with emphasis on writing for small ensembles in the smaller forms. Designed for theory-composition majors. Repeatable. Prerequisites: Mus.-Comp. 560 and instructor's consent. F 13 569 3 1004 & F 13 660 3 1004

651. 18th Century Counterpoint. (2) Contra puntal devices of the 18th century, as found in the works of J.S. Bach. Prerequisite: Mus.-Comp. 228. F 13 561 0 1004

563-564. College Music. (1-1) A laboratory in the techniques of preparing and performing early music. Prerequisite: instructor's consent. F 13 563 2 1005 & F 13 564 2 1005

582-583. Piano Literature. (2-2) Survey of the historical styles of professional piano repertory. F 13 582 0 1006 & F 13 583 0 1006

597-598. Organ Literature and Practice. (1-1) Performance and discussion of works for the instrument of all periods; study of organ design and construction and practice in aspects of service playing, such as hymn playing, modulation, accompanying and improvisation. Required for all organ majors. Repeatable. Prerequisite: Mus.-Comp. 228 or instructor's consent. F 13 597 0 1004 & F 13 598 0 1004

623. Opera Literature. (2) A comprehensive survey of Italian, German, French, Russian, English and American opera literature from the 17th century to the present. Not limited to music majors. F 13 623 0 1006

624. Oratorio and Cantata Literature. (2) A study of the solo vocal literature of the larger sacred and secular forms from the 17th century to the present. Not limited to music majors. F 13 624 0 1006

626. Voice Literature. (3) A comprehensive survey of early Italian, French, choral, German lied, contemporary English, French, Italian and Russian and Spanish literature. F 13 626 0 1006

641. Orchestration. (2) The study of instrumentation, emphasizing idiomatic scoring for various instrumental combinations, with approach to the problems of full orchestra and band scores. Prerequisite: Mus.-Comp. 227. F 13 641 0 1004

643. Band Arranging. (2) Fundamental principles of arranging and scoring musical materials for various bands and wind ensembles. Prerequisite: Mus.-Comp. 227. F 13 643 3 1004

645. Choral Arranging. (2) Scoring for women's, men's and mixed choirs. Performance and analysis of student's arrangements in class are included. Prerequisites: Mus.-Comp. 228 and 230. F 13 645 0 1004

652. Choral Literature. (2) A historical survey of choral literature from Renaissance to the 20th century. F 13 652 0 1006

659-660. Applied Composition. (2-2) Individual study in musical composition, with emphasis on writing for both small ensembles and large groups in the larger forms. Repeatable. Prerequisites: Mus.-Comp. 560 and instructor's consent. F 13 659 3 1004 & F 13 660 3 1004

661. 16th Century Counterpoint. (2) Analysis and application of the techniques of the 16th century. Prerequisite: Mus.-Comp. 227. F 13 661 0 1004

671. Chromatic Harmony. (2) Advanced study of chromatic harmonic materials of all periods with special attention to the 19th century. Analysis and creative writing are emphasized. Prerequisite: Mus.-Comp. 227. F 13 671 0 1004

672. Contemporary Techniques. (2) Advanced study of music from impressionism to the present, with emphasis on related literature and creative writing. Prerequisite: Mus.-Comp. 228. F 13 672 0 1004

685. String Literature and Materials. (2) A survey and stylistic analysis of music for solo strings and chamber combinations, beginning with the early baroque period. F 13 685 0 1006

690. Special Topics in Music. (1-4). For individual or group instruction. Repeatable with departmental consent. F 13 690 2 1006

693. American Music. (2) A survey of music in the United States from 1620 to 1920. F 13 693 0 1006

750. Musicology-Composition Workshop. (1-4). Repeatable for credit. Prerequisite: instructor's consent. F 13 750 2 1004

755. Basic Musicianship in the Secondary School Curriculum. (2) An examination of approaches to musicianship training at the secondary school level, including the study of fundamentals through musical analysis and composition in various styles. F 13 755 0 1004

758. Teaching of Theory in the Community Junior College. (2) Designed to prepare the junior college theory teacher. Attention is given to contemporary trends in music theory and their application to planning courses of study, evaluation of texts and pedagogical techniques. F 13 758 0 1004

781. Cooperative Education. (1-8). A field placement which integrates course work with a planned and supervised professional experience designed to complement and enhance the students' academic program. Individualized programs must be formulated in consultation with and approved by appropriate faculty sponsors and Cooperative Education coordinators. Students enrolled in Co-op 781 may follow one of two scheduling patterns: parallel, enroll concurrently in a minimum of six hours of course work in addition to their Co-op assignment; alternating, working full-time one semester in a field study and returning to full school enrollment the following semester, such student need not be concurrently enrolled in any other course. Prerequisites: successful completion of the freshman year and satisfactory academic standing prior to the first job assignment; may be repeated for credit. Offered C/NCR only. F 13 781 2 1006

791-792. Seminar in Music History. (3-3). Areas of interest in music history are de-
Theater Education

Graduate Faculty
Professor: Richard Weisbacher
Associate Professors: Joyce Cavazzini, Arnold Weiser
Assistant Professors: Judith Babin, Arden Weaver

Courses for Graduate/Undergraduate Credit

516 & 517. Playwriting I and II. (3 & 3). Cross-listed as Eng. 517 and 518. The writing of scripts for performance. Emphasis is on both verbal and visual aspects of playwriting. If possible, the scripts are performed. Prerequisite: Instructor's consent. A 27 516 1007 & A 27 517 1007

Staging and Movement Techniques. (3). Continued development of techniques established in Speech 2430 with additional emphasis on contemporary and stylized plays. Prerequisite: Speech 2430 and sophomore standing. A 27 520 1007

544. Advanced Stagecraft. (3). R; L arr. A study of the principles of scale perspective and foreshortening applied to the stage with consideration of the elements of design and composition. Focus is on stage construction and set design. All elements of advanced stagecraft, including new materials and scenic techniques, are considered in this study. A 27 542 1007

569. Directing II. (3). R; L arr. Staging and rehearsal techniques with emphasis on the problems of the period and stylized play. Prerequisites: Speech 259 or departmental consent and junior standing. A 27 569 1007

610. Musical Theater for the Public School Teacher. (2). Provides an interdisciplinary course, utilizing interdepartmental expertise (speech and music) to teach the student in both areas how to produce a musical in the secondary school. Prerequisite: Concurrent enrollment in Mus. Ed. 610. A 27 610 1007

621. Advanced Oral Interpretation. (3). Intensive study and analysis of various forms of literature, the techniques of effective oral communication and the building of the individual or group concert recital. Arranged workshops and festivals. Prerequisites: Speech 221 and junior standing. A 27 621 1007

622. Academic Theater Practicum. (2). The investigation and exploration of the theatrical act in the classroom situation within the University community. This course is designed to reinforce the research, writing, directing and performance skills. Enrolled students, functioning as a company, produce and perform for various disciplines on campus. Repeatable once for credit. A 27 622 1007

623Q. Development of the Theater I. (3). The history of theatrical activity as a social institution and an art form, from its beginnings to the 19th century. Representative plays, methods of staging and theatrical architecture of various periods are included. A 27 623Q 1007

624Q. Development of the Theater II. (3). From the 17th century to the present. A 27 624Q 1007

625. Dramatic Theory. (3). Critical examination of selected aesthetic theories of the theatrical art and the relationship of the theories to major dramatic works and theatrical periods. Prerequisite: Speech 623Q or departmental consent. A 27 625 1007

628. Playscript Analysis. (3). The course is designed to develop student's abilities to analyze playscripts from the point of view of those who face the task of staging them. The focus is on understanding and testing practical methods of analysis developed by outstanding theater directors, teachers and critics. Collective analysis and individual projects are part of the course work. Prerequisite: Speech 623Q or 624Q or departmental consent. A 27 628 1007

643. Styles in Acting. (3). Training in, and development of, the special techniques required for period or stylized plays with special emphasis on Greek, Shakespearean, Restoration, and modern non-realistic styles. Prerequisite: Speech 2430, 542 and junior standing. A 27 643 1007

644. Scene Design. (3). Fundamentals of scenic design. Practical work on University Theatre and Experimental Theatre productions is included. A 27 644 1007

645. Stage Lighting. (3). R; L arr. Lighting equipment and light design and its relation to scenery design. Emphasis is upon the problems in schools and colleges. Practical work on University Theatre and Experimental Theatre productions is included. Prerequisite: Speech 244 with a grade of "C" or better. A 27 645 1007

646. History of Costume. (3). R; L arr. Historical and technical survey and individual research of costume from ancient Egypt to present day with emphasis on social, political, economic and religious influences. Theory and practice of adapting period styles to the stage. Prerequisite: Speech 244 with a grade of "C" or better. A 27 646 1007

675. History of Costume. (3). R; L arr. Historical and technical survey and individual research of costume from ancient Egypt to present day with emphasis on social, political, economic and religious influences. Theory and practice of adapting period styles to the stage. Prerequisite: Speech 244 with a grade of "C" or better. A 27 646 1007

Courses for Graduate Students Only

820. Investigation and Conference. (2-3). Cross-listed as Spch. 620. Directed research an experimentation for graduate students in some phase of (a) public address, (b) theater history and production, (c) radio-television or (d) the teaching of speech. Repeatable for credit up to a total of six hours. A 27 820 3-1009

821. History of Dramatic Criticism. (3). A study of the principles of major critical theories from Aristotle to the present. A 27 821 1007

824. Development of Modern Theater Styles. (3). An analysis of the major movements in the modern theater since 1900. Emphasis is on both literary and physical elements of styles. A 27 824 1007

Division of Theater

A Master of Arts degree in communication with an emphasis in theater is available through the Department of Communication. The following courses may apply for graduate credit:

The following abbreviations are used in the course descriptions: L stands for lecture and F for laboratory. For example, 2FL means 2 hours of lecture and 2 hours of lab.
College of Health Professions

Offices: 400 Ahlberg Hall
M. Diane Roberts, Dean

Departments
Dental Hygiene—Mary Martha Stevens, chairperson
Health Administration and Education—Walter Wentz, chairperson
Health Science—Stephen C. Gladhart, chairperson
Medical Technology—James Jackson, chairperson
Nursing—Martha M. Shaver, chairperson
Physical Therapy—Mary Jo Mays, chairperson
Physician Assistant—J. Dennis Blessing, chairperson
Respiratory Therapy—Wilmer Beachy, acting chairperson

The College of Health Professions offers graduate programs leading to a Master of Health Science (MHS) degree with options for emphasis in administration, education or advanced clinical studies, and a Master of Nursing (MN) degree with opportunities for students to develop competency as administrators, teachers or in areas of clinical concentration.

Admission to either of these programs of study requires a bachelor's degree and the fulfillment of requirements listed for each program and elsewhere in the Graduate School Bulletin.

Master of Health Science

Graduate Faculty
Professor: Maurice Tinterow
Associate Professors: Frank Chan, Jean Guthbertson, James Jackson (chairperson, medical technology department), Diane Roberts (dean, College of Health Professions), Walter Wentz (chairperson, health administration and education department)
Assistant Professors: Wilmer Beachy (acting chairperson, respiratory therapy department), J. Dennis Blessing (chairperson, physician assistant department), Jolynne Campbell, Joe Cauthers, Mary Conrad, Ann Copeland, Marc Dicker, Stephen Gladhart (chairperson, health science department), Linda Hogan, Carla Lee, Mary Jo Mays (chairperson, physical therapy department), Maurice Penner, Barbara Smith, Mary Martha Stevens (chairperson, dental hygiene department), Susan Tork, Abel Whittemore

This graduate program for health professionals is organized to meet the needs of practicing health care practitioners who hold the baccalaureate degree. The departments of dental hygiene, health administration and education, medical technology, physical therapy, physician assistant and respiratory therapy participate in the MHS program through faculty and curricular involvement, and many health professionals in these disciplines will find the MHS program applicable to their interests. The major roles within the health care system for which graduates will be prepared are those of educators, administrators and practitioners.

Although opportunity for full-time study is available, the program has been developed especially for the employed part-time student, and a selection of required courses is available in the evening. The program must be completed within six years.

Admission Requirements
Admission to the MHS program requires that candidates be appropriately credentialed in a health field; however, students may request admission based on experience and clinical studies. Admission is based on the applicant's applicability to the MHS degree program and goals and objectives. Admission requests based on professional necessity and background of health experience may be made to the director of the graduate program. Certain practicum courses and the advanced clinical studies emphasis have special requirements.
1. An applicant must have a baccalaureate degree from a regionally accredited educational institution and credentials (if available) in a health area.
2. A student must have participated in the health field. A new baccalaureate student may enter the program, but will be declared a candidate for the degree only after completion of the equivalent of one year of full-time professional experience in the health care field. More than nine hours of courses may be taken before acceptance as a candidate. Exemptions to this requirement must be approved by the MHS Council.
3. A personal interview is necessary with the master of health science director and a designated department coordinator, or, in the absence of an appropriate department, a designated advisor.
4. The student must complete an application and statement of interest.
5. The student must have earned a minimum GPA of 3.00 in the last 60 credit hours of undergraduate course work for full standing. Probationary status will be granted according to Graduate School guidelines.
6. Students may be required to meet additional requirements established by their departments.

Degree Requirements
The award of the MHS degree requires a minimum of 34 credit hours of graduate work for a thesis. At least 12 hours must be in courses numbered 700 and above. The nonthesis option requires a minimum of 37 credit hours.

The curricula are planned with study directed toward analysis, synthesis and evaluation of the health care delivery system. Courses of study can provide comprehensive, in-depth review of the various forces acting upon the health care delivery system and the health care provider in their various roles. The director of the MHS should be contacted for detailed information on the curricula.

A core of 12 hours is required of all students in the MHS program. The foundation courses address concerns common to all health professions and include current issues, research and quality assurance in the health professions. Students then continue in an area of emphasis to achieve a greater understanding of the issues and research problems facing the health field.

Areas of Emphasis. The MHS director must be contacted for planning sheets which list all requirements for available emphasis areas of administration, education and clinical studies. Specific courses are required within each emphasis, and electives are identified to meet the individual's specific needs and career goals. Each student is assigned an advisor designated for each area of emphasis. These advisors work with the students in developing individual plans of study and in selecting and evaluating learning in light of career interests and goals. Supportive courses are drawn from many disciplines in the University, including business, education, psychology, biology and chemistry.

Academic Standards. Students
enrolled in the MHS program are expected to maintain grades of "B" or better in all required courses and a "B" average in all other coursework attempted. Students in the clinical emphasis are required to complete an acceptable thesis. (Students in the education or administration emphasis should refer to departmental requirements.) The student must gain approval of the thesis proposal by the graduate advisor(s) and this committee and must pass a final oral examination covering the thesis topic.

In lieu of a thesis, the student may choose the practicum/project option in the education or administration emphasis. Seminars, reports and independent study assignments may be required for completion of the practicum/project, resulting in a major written report.

Nondegree Students. Students not seeking degrees may take some graduate courses listed under the MHS program as long as all prerequisites are satisfied and the enrollment has the approval of the graduate coordinator. Refer to the Graduate School criteria for nondegree students.

Health Administration and Education

The Department of Health Administration and Education participates in the Master of Health Science program, and several of its courses are included in the MHS core curriculum.

Courses for Graduate/Undergraduate Credit

503. Organization and Administration of the Health Care System. (3). Cross-listed as Geron. 503. Analysis of the nature of health and the input to health and health care delivery. The course discusses general systems theory and systems analysis in relation to health care. It emphasizes the interrelatedness of economic, political, and social aspects of the health service system. Course content will vary. Prerequisite: departmental consent. H 24 503 0 1202

504. Health Economics. (3). Cross-listed as Econ. 665. An analysis of health care systems in the United States in relation to the demand for and supply of health services, the quantity, quality, and pricing of health services, the need for insurance, and the role of the government in the health sector. Prerequisite: HAE 503 or Econ. 202. H 24 504 0 1202

505. The Politics of Health. (3). Cross-listed as Pol. Sci. 505. Designed to show how government in the United States makes decisions in the health field, to describe the political forces shaping governmental policy in health and to analyze the arguments for and against an increased governmental role in health. Prerequisite: HAE 503. Pol. Sci. 121 or departmental consent. H 24 505 0 1202

507. Health Planning. (3). Designed to discuss strategic business planning in health services management. Includes a strategic management scheme that will accommodate change and encourage innovation and enhance productivity. Provides an identification and adaptation of strategies and options in an anticipatory time frame that provides the organization with protection against the perils of cross-decision-making in traditional entrepreneurial organizations. Prerequisites: junior standing and instructor consent. H 24 507 0 1202

509. Health Care Operations Analysis. (3). An examination of methods for measuring the operational efficiency and effectiveness of health care and medical care programs. Includes methods to analyze and evaluate current operations and approaches to enhance management control systems in a health setting. Prerequisites: HAE 503, Math. 111 or equivalent, Mgmt 360 and junior standing. H 24 509 0 1202

510. Health Finance. (3). An examination of the principles of financial planning and management for health care institutions. Emphasis is on understanding and applying general financial concepts to the health setting. Financial organizations, sources of operating revenues, management of working capital, and budgeting are considered utilizing examples for hospitals and other health organizations. Prerequisites: HAE 503 and Accct 210 or equivalent. H 24 510 0 1202

565. Concepts of Quality Assurance in Health Care. (3). This is a course for health care personnel which focuses upon current social concerns with assessing quality of health care and appropriate utilization of activities and resources. Prerequisite: departmental consent. H 24 565 0 1202

590. Legal Aspects of Health Care Administration. (3). Cross-listed as Geron. 590. A study of the principles of law as applied to the health fields. This includes such areas as release of information, subpoena, records and testimony; settlement of claims (insurance); doctor-patient-nursing home relationship and legal consent; and topics such as personalized health care. Prerequisite: departmental consent. H 24 590 0 1202

605. Health Services Research. (3). Deals with intermediate statistical procedures and research designs that health professionals must understand in order to intelligently analyze research in the health care field and to conduct research themselves. This course covers the content of the experimental survey and ex post facto design in research plus statistical techniques, including correlation coefficients, the t-test, chi square and analysis of variance. Prerequisite: departmental consent. H 24 605 4 1202

684. Health Administration Policy. (3). Cross-listed as Mgmt. 684. Course designed to give graduating seniors an understanding of the structure of health care organizations, the various roles and responsibilities managers have within these organizations. Exposure to management, policy making and strategic planning processes is vital if students are to function in administrative positions in health care management. Prerequisite: HAE 503 and at least one other HAE course or departmental consent. H 24 684 0 1202

685. Computer Applications in Health. (3). Data reduction, data manipulation, and analysis using technical assistance of micro and mainframe computer for operational research and administrative purposes. Health data bases from hospitals or other agencies such as state health department, HHS, HHS, are investigated. More emphasis is placed on the knowledge of statistical procedures on large computers with more statistical and graphical capacity. Prerequisite: HAE 605 or instructor's consent. H 24 685 0 1201

686. Seminar in Health Care Administration. (3). An in-depth discussion and analysis of selected topics in health care administration. Topics vary from semester to semester and include examination of specific financial, managerial and operational problems and characteristics of health service organizations and agencies. Prerequisites: HAE 503 and at least one other HAE course. H 24 686 9 1202

720. Community Health Organization and Administration. (3). Introduction to the organization and activities in the health system — roles and problems. Introduction to administrative and financial concepts. Prerequisite: departmental consent. H 24 720 0 1201

808. Epidemiology of Chronic Disease. (3). The study of the distribution and determinants of chronic diseases and injuries in human populations. The frequencies and types of illnesses in groups of people and the factors that influence their distribution. Prerequisites: instructor's consent. H 24 808 0 1201

Health Sciences

The Department of Health Sciences participates in the Master of Health Science program, and several of its courses are included in the MHS core curriculum.

Courses for Graduate/Undergraduate Credit

501. Health Education Instructional Design. (3). A course designed to assist health professionals in constructing health science curricula. Emphasis is given to identifying various instruction models and applying educational principles, writing behavioral objectives, and discussing various instructional materials. Special emphasis is given to program development in school, community and patient education settings. Prerequisite: instructor's consent. H 18 501 0 1201

506. Teaching and Learning Strategies in Health Science. (3). A course examining the various means of presenting health knowledge and coupling these teaching strategies with the audiences and types of students that will receive this knowledge. The nature of health care curriculum is examined in depth, as are procedures for developing and enhancing them. Health education curricula are explored. Prerequisite: departmental consent. H 18 506 0 1202

COLLEGE OF HEALTH PROFESSIONS/MEDICAL TECHNOLOGY

511. Neuroanatomy and Neurophysiology. (3). Course includes study of the structure, function, and functions of the central and peripheral nervous systems. Prerequisite: HS 310 or CDS 214. H 18 511 1 0425

521. Independent Study. (1-6). Offers reading and conference experience to complete a directed research or supervised study program. Prerequisite: upper division or graduate standing, or department chairperson's consent. H 18 521 3 1201

531. Applied Principles of Nutritional Support and Therapy. (3). A study of the principles of nutritional support and diet therapy. Topics include diet therapy for a variety of clinical disorders; the effects of diet therapy and nutrition on health and disease; the role of nutrition in the management of disease; and the role of the dietitian in the management of disease. Prerequisite: H 18 531 0 0424

570. Interpretations of Sexuality for Health Professionals. (3). The planning, development, implementation and evaluation of continuing education projects. Course provides information pertinent to management majors, department directors, shift supervisors and other personnel who need an understanding of the management of clinical revenue generating departments. Prerequisite: senior standing or greater in health professions and Mgmt. 360 or instructor's consent. H 13 501 9 1299

701. Issues in Health Care. (3). An in-depth look at current issues facing health professionals. Topics may be presented in lectures, small groups, simulation, and with guest speakers. Trends in health care, ethics, consumerism and current research findings will be presented and will include disease prevention and health promotion, ethics, consumerism and current research findings as they relate to current trends in the health professions. Prerequisite: Graduate standing. H 18 570 0 1200

703. Evaluation in the Health Professions. (3). This course presents the background and methods for evaluating performance in the health professions. Principles of planning, development, and use of evaluation tools in the clinical setting are emphasized as well as the planning and use of evaluation tools in educational and professional settings. H 18 703 0 1201

704. Continuing Education in the Health Professions. (3). Planning, implementation, and evaluation of continuing education programs for the health professions. Review of existing continuing education models and consideration of alternative systems. H 18 704 0 1201

705. Health Services Research. (3). An examination of statistical research methods used by health care professionals and organizations. Topics include presentation of information, methods of data collection and statistical analysis, probability, expectation, sampling distributions, hypothesis testing, analysis of variance and multiple comparison designs. Prerequisite: upper division statistics course or consent of MHS graduate coordinator. H 18 705 0 1201

706. Characteristics of the Adult in Professional Education. (3). This course is designed to help students understand the process of accomplishing professional development throughout the lifespan of the individual. Students will explore the concept of professionalism, and will study the processes of health education, the demands of practice and the learners themselves. There will be opportunities to apply knowledge, skills and competencies in real-life situations through discussions, readings and reports in class. Prerequisites: HS 501 and HS 506. H 18 706 0 1201

710. Research Methods in Health Professions. (3). Examination of research methodologies as related to the health professions. Included in the course will be identification of significant health care research problems, development of relevant hypotheses, review and critical evaluation of literature, and identification of methodology pertinent to the hypothesis developed. This methodology will address the selection of sample, measurement instrument, and research design. H 18 710 0 1200

712. Administration of Hospital-Based Education. (3). Examination of research methodology as related to the health professions. Included in the course will be identification of significant health care research problems, development of relevant hypotheses, review and critical evaluation of literature, and identification of methodology pertinent to the hypothesis developed. This methodology will address the selection of sample, measurement instrument, and research design. H 18 712 1 0122

714. Quality Assessment and Assurance for Health Care Institutions. (3). Introduction to the concepts and activities relevant to quality assurance from both inside and outside the institution—roles and problems. Introduction to quality assurance problems as a structured process. Prerequisite: instructor's consent. H 18 714 0 1201

750. Workshop in Health Related Professions. (1-4). An examination of selected topics directly and indirectly related to the delivery of health care service. H 18 750 2 1201

800A. Seminar in Health Science. (1). Recent developments and issues affecting the financing, organization and management of health care delivery on both the public and private sector of our nation's medical care system. Prerequisite: HS 701 or departmental consent. H 21 800A 1 1200

800B. Seminar in Health Education. (1). Examination of current issues in allied health education in both public and academic settings. Prerequisite: HS 701 or departmental consent. H 21 800B 9 1201

810. Practicum/Project. (3). This course is designed to enhance and complement the academic experience of students pursuing the Master of Health Science degree. This learning experience provides an opportunity to link the student's academic studies with actual practice in direct observation and supervision. This experience includes the administrative/academic program in a selected health care organization. Students participating in this experience will be assigned to specific tasks under the guidance and direction of a faculty member of the College of Health Professions. Along with the faculty person, the student may also be under the direction of a field instructor/field supervisor from the host agency. H 18 810 2 1201

865. Thesis. (1-3). Repeatable to a maximum of six hours. Prerequisite: consent of adviser. H 18 865 4 1201

Medical Technology

The Department of Medical Technology participates in the Master of Health Sciences program, and several of its courses are included in the MHS core curriculum.

Courses for Graduate/Undergraduate Credit

762. Method Evaluation and Selection. (3). This course presents a practical, practical approach to the evaluation of laboratory methodologies. This approach incorporates the use of statistical analysis, evaluation of technology, and clinical application. Prerequisites: MT 459, 469, 479 and 498, or equivalent. H 18 762 0 1223

760. Hematologic Neoplasms. (3). A study of the morphology of hematologic neoplasms, and the health care practitioners' interactions with persons of those disorders. H 14 760 0 1223

765. Advanced Clinical Hemostasis. (3). Advanced studies in the mechanisms of hemostasis, pathophysiological changes that can occur in the hemostatic mechanism, and the laboratory evaluation of these changes. Prerequisites: MT 402 or instructor's consent. H 14 765 0 1223

770. Therapeutic Dimensions of Clinical Laboratory Science. (3). A study of the expanding role of the clinical laboratory in the monitoring of therapy and the patient's response to therapy. Areas to be addressed include hemoglobin and hematology, urinalysis and sedimentation, and immunoglobulins. H 14 770 0 1223

775. Advanced Clinical Pathophysiology. (3). Advanced studies in the mechanisms of the disease process and pathological changes that can occur in various pathophysiological states. Prerequisites: HS 402, or 15 hours of biology, or instructor's consent. H 14 775 0 1223

780. Issues in Immunohematology. (3). An in-depth analysis of current issues in research and practice relevant to the responsiveness to changes in patient care through application in technology, research and supervision. Prerequisites: MT 479 and HS 701 or instructor's consent. H 14 780 0 1223

790. Epidemiology and Infection Control. (3). A study of the expanding role of hospital personnel in the performance of hospital epidemiology and infection control.
Areas to be addressed will include basic epidemiologic principles, basic considerations of hospital infections including investigations and surveillance, potential problem areas within the hospital environment, the role of the hospital laboratory and possible endemic and epidemic infections. Prerequisites: course in general microbiology or instructor's consent. Taught in the fall semester. H 14 750 0 1223

680. Seminar in Laboratory Sciences. (1). Recent issues and advances in the field of clinical laboratory science including the areas of microbiology, chemistry, hematology, immunology, and immunohematology will be discussed. The students will be responsible for assigned topics, using current journal articles as resource material. Prerequisite: department consent. H 14 800 0 1223

890. Thesis. (1-3). Repeatable to a maximum of 6 hours. Prerequisite: consent of thesis advisor. H 14 890 2 1223

Physical Therapy
The Department of Physical Therapy participates in the Master of Health Sciences program, and several of its courses are included in the MHS core curriculum.

Courses for Graduate/Undergraduate Credit
500. Advanced Developmental Disabilities. (1), 1R; 1L. Elective. The emphasis of this course is on advanced evaluation and treatment of children with perceptual motor and/or developmental disabilities. Reading assignments, class discussions and laboratory experiences will be directed toward student's interests or particular needs. Prerequisite: PT 380. H 17 500 0 1212

505. Pathophysiology I. (4). The body's defenses and responses to disorders, disease, and injury will be studied. The common disorders, diseases, and injuries to the body systems will be analyzed as to cause, effect, and treatment. Prerequisite: departmental consent. H 17 505 0 1201

506. Pathophysiology II. (4). The in-depth analysis of diseases, disorders, and injuries to the musculoskeletal system and to the nervous system will be presented. Pathology, assessment, and treatment will be discussed. Prerequisite: departmental consent. H 17 605 0 1201

900. Thesis. (1-4). Repeatable to a maximum of six hours. Prerequisites: enrollment in graduate studies and consent of thesis advisor. H 17 900 4 1212

Master of Nursing
Graduate Faculty
Associate Professors: Donna D. Hamley (director of graduate program), Alicia Huckstadt, Francine Nichols
Assistant Professors: Helen Halstead, Jeanette Jeffers, Susan Kruger, Martha Shriver (chairperson, nursing department), Betty Sullivan

The graduate program in nursing leads to the Master of Nursing (MN) degree. This program is individualized to meet the needs and professional goals of each student. The curriculum has been developed especially for part-time (six credit hours) study, although opportunity for full-time (9-12 credit hours) is available. The purpose of the graduate program in nursing is to prepare advanced nursing practitioners who function as clinicians, administrators and educators.

Admission Requirements
In addition to the general University requirements for admission to graduate studies, the Department of Nursing requires:
1. A baccalaureate degree with a major in nursing from an NLN-accredited school. Applicants with degrees in other disciplines will be considered on an individual basis.
2. Admission to the Graduate School at The Wichita State University.
3. Department of Nursing approval.
4. Evidence of Registered Nurse license.
5. Coverage by professional liability insurance, to be renewed annually.
6. Graduate Record Examination scores
7. One year of nursing practice following professional licensure.

Prerequisites: A course in statistics accepted by the Department of Nursing and an undergraduate research course are required. Prerequisite courses are not credited to the degree.

Degree Requirements
Satisfactory completion of the following courses is the minimum requirement for the MN degree:

A. Phase I (Core)
Nurs. 703, Foundations of Nursing Education 3
Nurs. 705, Nursing Research 3
Nurs. 711, Issues in Nursing Education 3

B. Phase II
1. Clinical Concentrations: Student selects one (12 hours)
Nurs. 833, Adult Nursing I 3
Nurs. 834, Adult Nursing Practicum 3
Nurs. 838, Adult Nursing II 3

2. Electives or selected courses 3-6

Credit Hours:
Total hours required 36-42

Phase I courses must be completed before beginning Phase II courses. The student, with an academic advisor, will determine the subsequent sequencing of course work. Prerequisite courses are completed prior to enrollment in nursing courses; elective courses may be taken, with departmental approval, prior to enrollment in nursing courses.

Courses for Graduate/Undergraduate Credit
565. Directed Study in Nursing. (1-4). Elective. Individual study of the various aspects and/or problems of professional nursing. Repeatable. Prerequisite: departmental consent. H 11 505 3 1203

543. Women and Health Care. (3). This course examines the historical development of the women's health movement, focuses on current issues relevant to women and health care and explores the roles of women in the health care system and as consumers of health care. Self-care practices of women are...
examine and ways to promote positive health practices are studied. Open to non
matriculated RNs. H 711 543 0 1203

670. Interpretations of Sexuality for Health Professions. (3). Cross-listed as HS 570. Elective. Strategies to assist clients and fami-
lies to cope with sexual problems and diabetes mellitus. Exploring varying interpre-
tations of biological, psychological, and cultural aspects of sexuality to the helping
professions. Open to nonnursing majors. H 711 570 0 1203

700. Assessment of Pediatric and Adolescent Clients. (3). 2R; 3L. A theoretical and
clinical laboratory experience in which students focus on the assessment of pediatric and adolescent clients. Open to admission to RN and graduate students. H 711 700 1 1203

703. Foundations of Nursing. (3). Focuses on the nature of theory and the process of theory development. The historical develop-
ment of nursing theory is traced and projections for the future are explored. Selected concepts of nursing are analyzed in terms of educational, theoretical, nursing research, and nursing education. Prerequisites: admission to Graduate School. H 711 703 0 1203

704. Health Maintenance of the School Age Child. (3). 2R; 3L. This course examines and applies major theories, conceptual models, and research studies related to health nursing. Open to RN and graduate students. H 711 704 0 1203

705. Nursing Research. (3). Building on an initial research experience, this course is de-
signed to assist the student in understanding premises which govern research design, im-
plementation and evaluation. Consideration is given to current issues in nursing research and their impact on the investigation of nurs-
ing problems. The researcher, the problems studied and the consumer of research. Prerequisites: courses completed by the student prior to registration, Prerequisites: statistical courses completed by the student prior to registration. H 711 705 0 1203

706. Organization and Management of the School-Health Program. (3). 2R; 3L. This course is designed to provide concepts of organization and management to the school-health delivery system. Political, economic and social factors which influence the school-health delivery system are explored. Open to RN and graduate students. H 711 706 0 1203

707. Research Seminar. (1). Designed to assist the student to complete a thesis proposal. Prerequisites: Nurs 702, 705 and de-
partmental consent. H 711 707 0 1203

708. School Nurse Practicum. (2L). An intensive clinical experience in which students analyze, design, implement and evalu-
ate nursing systems to promote the health of individuals in the school-health delivery sys-
tem and the broader community system. Open to RN and graduate students. H 711 708 1 1203

711. Issues in Nursing. (3). Various issues in professional nursing are analyzed. Course focuses on issues ranging from concerns \[...\]
832. Maternal-Child Nursing: Practicum I. (3). An intensive clinical experience in which the student focuses on the process of systematic assessment of individuals and groups within a family system. A seminar accompanies the practicum. Prerequisite or corequisite: Nurs. 829. H 11 832 1 1203

833. Adult Nursing I. (3). This course will examine clinical concepts and issues related to the maintenance of optimal health states of adults. Emphasis is placed on assessment, measurement and nursing interventions related to these concepts. Prerequisites: Nurs. 703, 705 and 711. H 11 833 0 1203

834. Adult Nursing Practicum. (3 or 6). An intensive clinical experience in which the student is expected to design, implement and evaluate nursing care for adults. Specialized areas of study are selected and may include health maintenance or illness care of acutely or chronically ill adults. Practicum sites may include hospitals, extended care facilities, rehabilitation centers, community health agencies. A seminar is included as part of the practicum. Prerequisites: Nurs. 703, 705, 711 or instructor's consent. Nurs. 833 or 839 may be concurrent. H 11 834 2 1203

835. Perspectives in Maternal-Child Nursing. (3). This course critically examines health care delivery systems for maternal and child health. The effects of political, economic and social factors on maternal and child health are analyzed. Nursing roles in the delivery of maternal and child health care are examined. Prerequisites: Nurs. 703, 705, 711 and 829. H 11 835 0 1203

836. Maternal-Child Nursing: Practicum II. (3). An intensive clinical experience in which the student analyzes, designs, implements and evaluates nursing systems for individuals and groups within a family system. Prerequisites: Nurs. 703, 705, 711, 829 and 832. Nurs. 835 may be concurrent. H 11 836 2 1203

837. Perspectives in Gerontological Nursing. (3). Emphasis is placed on the synthesis of concepts and theories into a functional theoretical framework of gerontological nursing. This basis is utilized to identify health problems of older adults and to plan appropriate preventive, rehabilitative or restorative approaches to those problems. Attention is given to social, economic, political, ethical and legal aspects as they impinge upon the well being of older adults. Prerequisites: Nurs. 833 and 834 or instructor's consent. H 11 837 0 1203

839. Adult Nursing II. (3). This course examines clinical concepts and issues related to major disruptions in the health status of adults. Emphasis is placed on assessment, measurement and interventions related to these concepts. Prerequisites: Nurs. 703, 705 and 711. H 11 839 0 1203

841. Foundation of Community Health Nursing. (3). As the health care system broadens its base to community settings, an appraisal of historical development, trends and issues related to community health nursing will be investigated. Conceptual models and theories are analyzed as related to nursing practice and research in the community. Prerequisite: instructor's consent. H 11 841 0 1203

843. Perspectives in Psychiatric/Mental Health Nursing. (3). A critical examination of the delivery of mental health nursing. Emphasis is given to practitioner roles and therapeutic nursing modalities. The effect of historical, social, political, economic and ethical factors are analyzed. Prerequisite: Nurs. 819. H 11 843 0 1203


Fairmount College of Liberal Arts and Sciences

Offices: 200 LAS

Phillip D. Thomas, Dean

Departments
Administration of Justice—Donald L. Blazicke, chairperson; Galen Janeksela, graduate coordinator

American Studies—James Thomas, chairperson

Anthropology—Lowell Holmes, chairperson; Donald Blakeslee, graduate coordinator

Biological Sciences—L. Raymond Fox, chairperson and graduate coordinator

Chemistry—B. Jack McCormick, chairperson and graduate coordinator

Computer Science—Mary Edgington, chairperson; Viswanathan Senthilnathan, graduate coordinator

English—Helen J. Throckmorton, chairperson; Sarah Daugherty, graduate coordinator

Geology—Daniel F. Merriam, chairperson; John Gris, graduate coordinator

History—John Dreifort, chairperson; John D. Born, graduate coordinator

Journalism—Robert Illidge, chairperson

Mathematics—Dharam Chopra, chairperson; Esmond Devun, graduate coordinator

Minority Studies—John C. Gaston, chairperson

Modern and Classical Languages and Literatures—Ginette Adams, chairperson; Eunice Myers, graduate coordinator

Philosophy—Deborah Soles, chairperson

Physics—Donald L. Foster, chairperson and graduate coordinator

Political Science—James W. McKenney, chairperson and graduate coordinator

Psychology—Charles Bursdal, chairperson; Gary Greenberg, graduate coordinator

Religion—Michael Kalton, chairperson

Sociology/Social Work—Ronald Matson, chairperson; John Hartman, graduate coordinator

Speech Communication—Keith Williamson, chairperson; Robert Vartabedian, graduate coordinator

Administration of Justice

Graduate Faculty


Associate Professor: Ronald G. Iacovetta

Assistant Professors: Fred W. Benson, Donald L. Blazicke (chairperson), Stephen E. Doeren, Wayne Dunham, James A. Fagin, Galen M. Janeksela (graduate coordinator)

Master of Administration of Justice

The Master of Administration of Justice (MAJ) degree requires a minimum of 36 semester hours with specializations offered in (1) criminalistics, investigation and forensic science, (2) criminal justice administration, (3) corrections, (4) criminal justice education, (5) environmental...
protection and (6) investigative reporting/journalism.

Admission Requirements
It is recommended that applications for admission be filed with the dean of the Graduate School by March 1 for consideration for admission in the fall semester. Evaluation for admission is based upon the applicant's undergraduate record, and nature of academic background.

A minimum of 15 hours of work in administration of justice or approved equivalent is required (otherwise, deficiency requirements will be assessed). Limitations on the number of students admitted to each degree program each academic year may be established because of constraints imposed by the department's graduate teaching/advising capacity.

Degree Requirements
The MAJ degree requires a minimum of 36 hours, including 21 hours taken in courses numbered 600 or above. All students are required to take AJ 600, 601, 611 and 812 to complete a thesis, practicum or internship requirement or a 36-hour course work option and a comprehensive exam. At their option, students specializing in criminalistics investigation may substitute an 800-level research methods course in chemistry, biological sciences, geology, physics or engineering for AJ 811, providing they have the approval of the administration of justice department's Graduate Faculty Committee.

Six established areas of specialization are contained in the MAJ program. The six specialized areas and courses needed to meet requirements in each are summarized below.

1. Criminalistics investigation and forensic science
   Required—AJ 804, 805, 821, 823
   Electives—8 to 12 additional hours in appropriate graduate-level course work from chemistry, biological sciences, geology, physics or engineering for AJ 811, providing they have the approval of the administration of justice department's Graduate Faculty Committee.

2. Criminal justice administration
   Required—AJ 806, 822, 832 and three hours from AJ 633 or 630, unless taken at the undergraduate level, in which case an 800-level administration of justice elective may be taken.
   Electives—9 to 12 hours of electives in administration of justice or allied fields (with the approval of the department's Graduate Faculty Committee), with six hours at the 800 level and three hours from AJ 802, 803, 814, 823 or 824.

3. Corrections services
   Required—AJ 802, 803, 833 and three hours from AJ 853, 856 or 860, unless taken at the undergraduate level, in which case an administration of justice 800-level elective may be taken.
   Electives—9 to 12 hours of administration of justice or allied fields (with the approval of the department's Graduate Faculty Committee), with six hours at the 800 level and three hours from AJ 806, 814, 822, 824 or 832.

4. Education
   Required—AJ 814, 824 and nine hours of graduate-level course work in the College of Education, as approved by the department's Graduate Faculty Committee.
   Electives—6 to 9 hours of administration of justice graduate-level course work, with three hours from AJ 802, 803, 806, 822, 832 or 833.

5. Environmental protection
   Required—AJ 805, 827 and two courses from AJ 804, 805, 821, 822 or 832.
   Electives—12 hours at the graduate level in biological sciences, chemistry or geology, with the approval of the administration of justice department's Graduate Faculty Committee.

6. Investigative reporting/journalism
   Required—AJ 804, 805 and Journ. 502, 520, 729
   Electives—six hours of graduate-level course work in the Department of Journalism selected from Journ. 510, 570, 645 or 690.

A flexible program can also be outlined for students seeking the MAJ degree who do not want to specialize in any of the established areas of concentration if qualified academically. Such a program must include the department core, AJ 800, 801, 811, 812 and additional course work in administration of justice approved by the department's Graduate Faculty Committee.

Examinations
The department offers two tracks for completing the MAJ degree. Thesia, practicum or internship candidates are required to defend orally both their prospectus and their final project. Students electing the 36-hour straight course work track are required to pass a written comprehensive examination.

Facilities
Students in the Wichita State MAJ degree program have access to excellent computer and research facilities, as well as a criminalistics laboratory. Students may also use local, state and federal criminal justice agencies, including state and federal penitentiaries for field research or internship.

The Milton H. Neffern International Center for the Forensic Sciences serves as a vital resource of the Department of Administration of Justice and as an important depository of information relating to major forensic cases in the United States and abroad. The center serves as an important information center for forensic scientists and law enforcement agencies working to solve major criminal cases. In addition, it serves the need of students majoring in the department. Located in the Liberal Arts and Sciences Building, the center contains extensive library materials, tapes and other documents pertaining to major forensic cases.

Courses for Graduate/Undergraduate Credit

501. Agency Administration II. (3). An intensive examination of a variety of emerging administrative and management innovation and concepts. The processes related to the determination and implementation of management philosophy for the justice agency and its individual practitioners are explored. Prerequisite: AJ 201 or department consent. A 29 530 0 2105

510. ADP in Administration of Justice. (3). A survey of use and potential of automated data processing in police, courts and correctional agencies. The ethical and legal problems confronting society and agencies of the justice system occasioned by the use of computers as information-gathering and storage instruments are examined, as well as the advantages of using ADP in basic and applied research in the administration of justice. A 29 510 1 2105

512. Research Methods. (3). An introduction to statistical methods, including experimental design, the analysis of statistical processes and related procedures. A study is made of the general methodology of research as it pertains to the administration of justice. A 29 512 0 2105

520. Criminal Evidence. (3). Concepts of criminal evidence rules as they pertain to kinds and degrees of evidence—procedure for admitting or excluding evidence, witnesses and privileged communications, the hearsay rule and its exceptions, and judicial notice, burden of proof and presumptions. Emphasis is placed on the rules of evidence that govern the administration of justice process. A 29 530 0 2105

521. Law and the Administration of Justice Process. (3). Examination of the recent judicial interpretations of the process laws, of evidence, substantive law and administrative law. An in-depth study of statutory provisions is made with emphasis on the conflict of laws and legal trends affecting administration of justice personnel. A 29 521 0 2105

533. Juvenile Justice. (3). An analysis of decision-making processes in juvenile jus-
560. Community Prevention Programs. (3). An analysis of typologies, philosophies, and operations of existing and projected community-based crime prevention programs. Emphasis is also placed on a variety of governmental and nongovernmental community support and action programs, which, although traditionally identified as such, have appreciably contributed to the administration of justice processes. Program categories to be analyzed include citizen involvement (voluntary and civic advisory groups) and educational, religious, and family welfare and youth services. A 29 560 2 2105

570. Security Staff Supervision. (3). Analysis of the personal supervision, training, and evaluation techniques utilized by administration of justice agencies with emphasis on techniques that optimize the agency-employee working relationships. Prerequisite: AJ 201. A 29 656 0 2 2105

572. Security Technology. (3). Physical security hazards; threats; sabotage; theft and pilferage problems; as they affect governmental and private agencies, as well as actions taken by security officers to counter them. Emphasis is on research in the development of security technology and software. Prerequisite: AJ 370 or instructor's consent. A 29 572 0 2 2105

600. Forensic Anthropology. (3). Cross-listed as Anthro. 28 610. This course encompasses the area of criminal investigation involving biological evidence: blood, hair, fingerprint, dental and skeletal systems. It covers procedures of collection, preservation, marking, transportation, referral, laboratory analysis, classification and identification with an emphasis in anthropological interpretation. A 28 600 2 2002

605. Conflict Resolution in the Administration of Justice. (3). An analysis of community and individual reaction to agency policy. Emphasis is placed on the agency's role as mediator between offenders and victims of crime and between other groups and individuals in conflict. A 29 600 0 2 2105

6100. The Victim and the Administration of Justice. (3). An examination of the relationship of criminal victims to the criminal justice system. Consideration is given to the role of the victim in crime occurrences, as well as theoretical developments in the field. A 29 6100 2 2105

633. Planning in the Administration of Justice. (3). Analysis of planning technique related to the procedures, personnel, physical and specialized equipment, budget and extra agency activities. Prerequisite: AJ 201 or departmental consent. A 29 633 0 2 2105

635. Public and Community Relations. (3). Analysis of techniques utilized by administration of justice agencies in both public and community relations programs that are designed to optimize the agency's community engagement. Special emphasis is placed on the unique characteristics of both public and community relations. A 29 635 0 2 2105

639. Techniques of Agency Staff Supervision. (3). Analysis of the personal supervision, training, and evaluation techniques utilized by administration of justice agencies with emphasis on techniques that optimize the agency-employee working relationships. Prerequisite: AJ 201. A 29 639 0 2 2105

641. Forensic Psychiatry. (3). Analysis of the role of psychiatry in the administration of justice process. Emphasis is placed on introduction of student to concepts and procedures of forensic psychiatry. A 29 641 0 2 2105

643. Forensic Science. (3). Analysis of the medical role of prevention, detection and treatment as related to the administration of justice. Emphasis is placed on medical specialties as they affect the government and private agencies, as well as actions taken by security officers to counter them. Emphasis is also placed on research in the development of security technology and software. Prerequisite: AJ 370 or instructor's consent. A 29 572 0 2 2105

646. Seminar on Investigation Theory and Practice. (3). Analysis and discussion of investigative theory and practice with special emphasis on technological innovation and current justice perspectives. A 29 343 4 2 1 2105

653. Field Corrections Techniques. (3). Analysis of the techniques of probation, parole, after-care supervision and related services. Special emphasis is placed on field correction techniques as they relate to other segments of the administration of justice system. A 29 653 0 2 2105

656. Institutional Corrections Techniques. (3). An advanced seminar that emphasizes case studies in institutional corrections techniques as they relate to other segments of the administration. A 29 656 0 2 2105

660. Techniques of Prevention Program Development. (3). An analysis of the techniques utilized to organize and develop traditional and projected crime prevention and related programs. Special emphasis is placed on institutional corrections techniques as they relate to other segments of the administration of justice system. A 29 660 0 2 2105

700. Workshop in Administration of Justice. (3). Prerequisite: AJ 1000 or instructor's consent. A 29 700 2 2105

781. Cooperative Education. (1-6). This course provides the student with a field placement that integrates theory with a planned and supervised professional experience designed to complement and enhance the student's education. Students will work with a faculty member in the formulation and completion of an academic project related to the field experience. The cooperative education experience must be an integral part of the student's graduate program. Individualized programs are formulated in consultation with the student's advisor and the department Cooperative Education coordinator. A 29 781 3 2105

Courses for Graduate Students Only

800. General Seminar on the Administration of Justice. (3). An overview and integration of major propositions, concepts, assumptions, information from the various fields of administration of justice, including law enforcement, the courts, corrections and legislative control. The possible contribution of other community agencies is also explored. A 29 800 0 2 2105

801. Judicial Process and the Administration of Justice. (3). The review and discussion of the historical development of the American criminal justice system. A 29 801 0 2 2105

802. Advanced Field Corrections Methods. (3). An in-depth analysis of the methods of field corrections, including pre- and after-care supervision. Special emphasis is given to the relationship that field corrections has to the larger administration of justice system. A 29 802 0 2 2105

803. Advanced Institutional Corrections Methods. (3). A course analyzing basic methods utilized in the organization and accomplishment of objectives in correctional institutions. Along with the more traditional correctional institutions, the seminar reviews various methods utilized in diagnostic centers, halfway houses and other treatment models. A 29 803 0 2 2105

804. Seminar on the Techniques of Criminal Investigation. (3). A description, analysis and demonstration of historical, contemporary and projected future techniques and procedures utilized in the apprehension of the criminal. A 29 804 2 1 2105

805. Seminar on Principles of Evidence and Proof. (3). An in-depth examination of different types of legal proof that are presented at court trials. Included in the examination are the mediums of witnesses, records, documents, concrete objects, etc. A 29 805 2 2105

806. Seminar on Agency Administration. (3). A comparative study and analysis of administrative philosophy, programs, procedures, organizations and functions of effective agency organizations. Administrative skills related to operations and personnel both within and outside of the agency are considered. A 29 806 0 2 2105

811. Research Methods for the Administration of Justice. (3). The advanced study
The Anthropology department offers a course of study leading to the Master of Arts (MA) degree.

Admission Requirements
Admission to the MA program in anthropology requires the completion of 15 semester hours of work in anthropology, a grade point average of 2.750 (on a 4.000 scale) in the last 60 hours of credit and a 3.000 grade point average in anthropology.

Degree Requirements
The MA degree in anthropology requires the completion of 30 semester hours, including the presentation of a thesis. At least 12 of these hours must be in courses numbered 500 or above. The 30 hours must include the core course in archaeology (501), cultural anthropology...
501. Approach to Archaeology. (3). Lab fee: An introduction to the problems of studying past cultures. Special attention is focused on methodology and techniques available to archaeologists and the theoretical rationale leading to sound interpretations of the structure of ancient cultures. Prerequisite: Anthro. 1010 or 1240 or equivalent. A 28 501 02 203.

502. Introduction to Archaeological Laboratory Techniques. (1-3). Maximum of three hours. An introduction to the laboratory processing of archaeological materials: Students obtain direct experience in all phases of preparing excavated materials for analysis, including cleaning, restorating, preserving, num­bering and cataloging of ceramic and lithic artifacts and other remains. Prerequisites: Anthro. 1010, 1240 or 3050. A 28 502 12 203.

503. Approach to Cultural Anthropology. (3). Offered every fall semester. The course is an overview of major currents in the study of culture and of cultures: Symbol systemsthe arts and bodies of knowledge. Controversies that presently animate discussions regarding the role, methods and content of modern anthropolo­gy will be explored. Prerequisites: Anthro. 1010 or 1240 or equivalent. A 28 503 22 202.

505. Approaches to Biological Anthropology. (3). Offered every spring semester. The course is an in-depth study of three central topics in biological anthropology: Evolutionary theory, paleoanthropology and modern human variation. Emphasis is on current theories, methods and issues. Required of all graduate students in anthropology. Prerequisite: Anthro. 1010 or equivalent. A 28 505 20 202.


508Q. Ancient Civilizations of the Americas Survey. (3). General survey of prehistoric cultures of Maya and Inca. Prerequisite: Anthro. 1010 or 1240. A 28 508Q 02 212.

511. The Indians of North America. (3). A survey of tribal societies and native confeder­ations north of Mexico from the prehistoric through the historic period. Prerequisite: Anthro. 1020 or 1240. A 28 511 02 2212.

514. Anthropological Perspectives in Ge­ontology. (3). Cross-listed as Geol. 514. An anthropological analysis of the life cycle with historical and cross-cultural perspectives. Prerequisite: Anthro. 1000, 1020 or 1240 or Soc. 2110. A 28 514 20 2202.

519. Applying Anthropology. (3). The application of anthropological knowledge and techniques to the solution of social problems in industry, public health and public administration. Prerequisite: Anthro. 1020 or 1240. A 28 519 0 22 202.

521. Performing Arts in Other Cultures. (3). The performing arts are highly developed in many cultures around the world in dance, music, song and in the dramatic presentations of ceremony and pageantry. These are studied on film, tape and records and in the live performances available locally. Prerequisite: Anthro. 1020 or 1240 or equivalent. A 28 521 02 2202.

522Q. Art Culture. (3). A survey of the visual and performing arts of northwestern peoples with special attention to their relationships in the cultural context. Prerequisite: Anthro. 1020 or 1240 or equivalent. A 28 522Q 22 202.

525. Early Man in the New World. (3). A critical examination of facts and theories concerning early man in the New World. Emphasis is placed on the peopling of the continent to the beginning of the Archaic Tradition, and of the role of cultural diversity in the eastern and North America. Prerequisite: Anthro. 1010 or 1240 or equivalent. A 28 525 02 2202.

540. Indians of the United States: Conquest and Survival. (3). An anthropological inquiry into four centuries of contact, conflict, resistance and resurgence. Prerequisite: Anthro. 1010 or 1240 or equivalent. A 28 540 20 2212.

542. Women in Other Cultures. (3). Cross-listed as WS 542. A course dealing with the place of women in various societies of the world. Emphasis is placed on women's roles in their respective cultures. Prerequisite: Anthro. 1010 or 1240 or equivalent. A 28 542 02 2202.

554. Economic Anthropology. (3). The study of methods of production, division of labor, organization of markets, concepts of money and property allocation in tribal societies. An emphasis is placed on kinship units as units of consumption and production. Prerequisite: six hours of anthropology. A 28 554 20 2202.

555. Economic Anthropology. (3). The study of methods of production, division of labor, organization of markets, concepts of money and property allocation in tribal societies. An emphasis is placed on kinship units as units of consumption and production. Prerequisite: six hours of anthropology. A 28 555 1 2202.

556. Fossil Evidence for Human Evolution. (3). A detailed examination of man's evolutionary history as evidenced by fossil remains and a survey of various interpreters' explanations of the fossil record. Prerequisite: Anthro. 1010 or Biol. 233 or equivalent. A 28 556 1 2202.

557. Human Osteology. (3). A course dealing with human skeletal and dental materials with applications to both physical anthropolo­gy and archaeology. Topics in lecture and exercise. Laboratory sessions include bone and tooth identification, measurement and analysis and skeletal preservation and reconstruction. Individual projects are undertaken. Prerequisite: Anthro. 1010 or equivalent. A 28 557 2 2202.


597. Topics in Anthropology. (3). Detailed study of topics in anthropology with particular emphasis being established according to the expertise of the instructor: A 28 597 3 2202.

600. Forensic Anthropology. (3). Cross-listed as AJ 600. The course encompasses the areas of criminal investigation involving biological evidence: blood, hair, fingerprint, dentition and skeletal system. It covers procedures of collection, preservation, marking, transportation, referral, laboratory analysis, classification and identification with an emphasis on anthropological interpretation. A 28 600 0 22 202.

602. Archaeological Laboratory Analysis. (1-3). Students analyze archaeological material, including ceramic, lithic, faunal and vegetal remains, according to accepted methods. Students learn to apply standard methods of identification and modes of inter­pretation to the materials to produce an acceptable archaeological report. Prerequi­sites: Anthro. 502 and instructor's consent. A 28 602 1 2203.

606. Museum Methods. (3). An introduction to museum techniques relating to the acquisi­tion of collections and related procedures, such as accessioning, cataloguing, documenta­tion, presentation and storage. Emphasis is on current trends in museological philosophy and the planning and installation of an exhibit. Prerequisite: Anthro. 605 or instructor's consent. A 28 606 5 2202.

607. Museum Exhibition. (3). Contemporary philosophy of exhibition design and the application of recent concepts to the planning and installation of an exhibit. Prerequisite: Anthro. 607 or instructor's consent. A 28 607 5 2202.

611. Southwestern Archaeology. (3). A comprehensive survey of the prehistoric, his­toric and living cultures of the American Southwest with particular emphasis on the cultural continuities and changes covering 11,000 years. Prerequisites: one introductory course in anthropology or departmental con­tent. A 28 611 0 22 203.

612. Indians of the Great Plains. (3). An investigation of the cultural dynamics of the Great Plains from the protohistoric period to the present. Prerequisites: six hours of anthropology and departmental consent. A 28 612 0 2212.

613. Archaeology of the Great Plains. (3). The archaeology of the Great Plains, from earliest evidence to the historic period. Prerequisite: one introductory course in an­
I. Departmental Consent (A 28 613 0 2202)

686. Advanced Studies in Archaeology and Ethnomedicine. (3). Special area and theory problems in a historical approach to culture. Pre-requisites: six hours of anthropological and departmental consent. A 28 626 0 2202

547. Theories of Culture. (3). A survey of the main theoretical movements in cultural anthropology, including both historical and contemporary schools of thought. Pre-requisite: six hours of anthropology. A 28 647 0 2202

648. Contemporary Theories in Anthropology. (3). This course deals with developments in anthropological theory since World War II: neo-evolution, cultural ecology, and ecological anthropology. Emphasis is placed on methods and techniques of analysis with a consideration of current interpretive models. Prerequisites: Anthropology 550 or 557 or departmental consent. A 28 620 9 2202

837. Seminar in Cultural Anthropology. (3). Intensive study of advanced theoretical questions in cultural anthropology. Repeatable up to six hours. Prerequisite: five hours of anthropology. A 28 837 9 2202

647. Colloquium in Anthropology. (1-2). Six credit only. Repeatable for a maximum of three hours. To provide graduate students with seminar-style experience in recent research in all of the subfields of anthropology. Course also allows those students preparing for theirses or dissertation at professional conferences to present them before a critical but friendly audience. Students presenting colloquium papers receive two credits. Prerequisite: graduate standing in anthropology. A 28 847 9 3303

469. Recent Developments in Anthropology. (3). A review of the latest discoveries and interpretations in the science of man. Prerequisite: Pre-requisite: five hours of anthropology. A 28 849 9 2202

870. Independent Reading. (2-3). Repeatable up to six hours. Prerequisite: departmental consent. A 28 870 3 2202


Biological Sciences

Graduate Faculty

Distinguished Professor: Alvin Sarachek
(Distinguished Professor of Natural Sciences)

Professors: L. Raymond Fox (Chairman and graduate coordinator), George H. Sweet
Associate Professors: Donald A. Distler, Victor B. Eichler, Ralph E. Peters
Assistant Professors: John T. Bish, Karen L. Brown, Brett Larson, Arthur L. Youngman

Master of Science and Areas of Specialization

The Master of Science in Biological Sciences is offered by the Department of Biological Sciences in the Biological Sciences. All graduate students majoring in areas of biological sciences are eligible to participate in the Master of Science degree program. Students are required to complete a minimum of 12 semester hours in the biological sciences and 15 semester hours of course work in the area of specialization. Students may choose from the following areas of specialization: Microbiology, Molecular Biology, Immunology, Cell Biology, Developmental Biology, Biophysics, Ecology, Evolutionary Biology, and Systematics.

Admission Requirements

To be admitted to the MS degree program in biological sciences, students must have a minimum grade point average of 3.0 on a 4.0 scale. Additionally, students must have completed at least 60 semester hours of college credit, of which at least 18 semester hours were earned at the graduate level. Students must have completed the following courses: one year of organic chemistry, one year of general biology, and one year of general chemistry. Students must also have a strong foundation in mathematics, including calculus, linear algebra, and differential equations.

Examinations

Examinations are given to students in the areas of specialization. These examinations are given at the end of the first year of study and at the end of the second year of study. The examinations are designed to assess students' knowledge of the material covered in the areas of specialization. The examinations are oral and are conducted by a committee of three faculty members.

Option I. The first option requires 30 hours of graduate work, including the presentation of a thesis. The 30 hours, 12 must be taken in courses numbered 700 or above. In addition, all students must enroll in two courses numbered 700 or above. Students may not enroll in 700 or above course work in statistics or integral and differential calculus. Students select the appropriate research tool at the recommendation of their graduate adviser, and the tool must be approved by the department at the time they are admitted to candidacy for the degree.

Option II. The second option is only open to applicants certified in some professional field, such as teaching, nursing or medical technology. Option II requires the completion of 36 hours of graduate work, including 12 hours in courses numbered 700 or above and a departmentally approved thesis based on library work. Option II excludes the requirements of research and proficiency in a research tool. However, where appropriate, up to three hours of credit in research, Biol. 890, may be counted toward the degree.

All incoming graduate students are assigned to an advisor by the graduate coordinator. With the aid of their advisors, students are responsible for completing the following no later than the fourth week of the third semester of enrollment or the completion of 12 hours, whichever comes first: (1) formation of a thesis committee, (2) submission of a research prospectus to the graduate coordinator and (3) submission of a Plan of Study to the Graduate School.

Examinations

Scores of the Graduate Record Aptitude Test and Advanced Test in Biology must be submitted before students can be admitted to full standing status in the degree program. A satisfactory oral defense of the thesis also is required.
Nonmajor Courses
(May not be used to satisfy the requirements for the major)

Courses for Graduate/Undergraduate Credit

509G. Foundations of Human Heredity.

Graduate/Undergraduate Credit

Courses for

74
cules and organisms by focusing on the

me s te r in e ven -numbered ye ars

is designed to bridge the gap between mole·

function, of the basIc units of life, cells. Topics

include a detailed treatment of Individual cel­

mission and population genetics of humans.

5180. Biology of Aging . (3). Cross-listed as

509G. Foundations of Human Heredity.

518G. Molecular Genetics. (3). (Offered in even-numbered

years.) A course designed primarily for students who

choose the biochemistry field major. A small number of

programs for the study of microbial growth; detecl

lor of antibody production and other immune

processes. Emphasis is placed on the study of

microbes and their products; food spoilage;

bacterial population changes; and other relevant

problems. The course is designed for students

majoring outside of the natural sciences and

in biology. Students are expected to prepare a term paper

choosen in consultation with the instructor. Prerequisite:

Bio I. 204, Chem. 662 and 663.

A 12 866 04 014

569. Research in Biochemistry. (A). (Offered in

odd-numbered years.) A course designed primarily for

students who choose the biochemistry field major. 

Prerequisite: Bio I. 204, Chem. 662 and 663.

A 12 669 04 014

570. Biology Seminar. (2). Reviews of cur­

rency requirements.

571. Statistical Applications in Biology.

(Offered spring semester only.) A course designed to

provide experience with practical applications of

statistical theory in biological data. The course includes

computation on data derived from the primary literature and

independently designed research projects. The design of experiments to answer specific

hypotheses is taught in the context of non-normal

distributed data sets and non-homogeneous experimental

test units and the use of pack­

aged computer programs for certain statistical

tests are emphasized. Access to calcula­
tors with at least two memory banks is

strongly encouraged. Students earning graduate credit are expected to complete an additional

statistical analysis assignment involving the use of the computing facilities.

Prerequisites: Stat. 370. A 12 573 2 0419

864. Genetics. (4), requires a critical review of the concept of the gene. Students seeking graduate credit are expected to complete reading assignments in the technical literature resulting in several written reports or a comprehensive term paper in consultation with the instructor. Prerequisite: Biol. 204. A 12 564 04 022

665. Special Topics in Biochemistry. (3). (Offered in even-numbered years.) A course designed primarily for students who choose the biochemistry field major. A small number of programs for the study of microbial growth; detection of antibodies. Emphasis is placed on the study of microbes and their products; food spoilage; food preservation by use of chemicals; radiation and high and low temperatures; drying and fermentation; food-borne microbial infections; and intoxications, and the microbial basis of food sanitation, control and inspection. Students earning graduate credit are expected to prepare a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite: Biol. 204. A 12 552 1 0411

552. Mycology. (4), 2R; 4L. (Offered in odd-numbered years.) The structure, development and reproduction of fungi, emphasis on the cytology and physiology of forms of scientific and economic importance. Students earning graduate credit are expected to prepare a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisites: Biol. 204 and Chem. 531. A 12 500 04 016

590. Immunobiology. (3). (Offered fall semester only.) The nature of antigens and antibodies and their interactions. Cellular and humoral aspects of immunological phenomena are included. Students earning graduate credit are expected to complete reading assignments in the technical literature on a topic chosen in consultation with the instructor. Prerequisites: Biol. 204 and Chem. 531.

A 12 500 04 016

591. Immunobiology Laboratory. (3). 6L. (Offered in even-numbered years.) Methods of immunization and techniques for quantitation and qualitative determinations of antibody or antigen and antigen-antibody reactions. Students earning graduate credit are expected to complete reading assignments in the technical literature on a topic chosen in consultation with the instructor. Prerequisites: Biol. 204 and Chem. 531.

A 12 591 1 0410

564. Pathogenic Microbiology. (4), 2R; 4L. (Offered in odd-numbered years.) An introduction to the important pathogenic microorganisms and their relationships to health and disease in man. Students earning graduate credit are expected to prepare a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite: Biol. 530.

A 12 554 1 0411

565. Microbial Physiology. (3). (Offered fall semester only.) An introduction to the basic techniques involved in the study of microbiology. Students earning graduate credit are expected to design and perform an additional experiment for completion with the instructor. Prerequisites: Biol. 330 and Chem. 531.

A 12 565 0 0411

566. Microbial Physiology Laboratory. (2). 6L. (Offered in odd-numbered years.) An introduction to the basic techniques involved in the study of microbiology. Students earning graduate credit are expected to design and perform an additional experiment for completion with the instructor. Prerequisites: Biol. 330 and Chem. 531.

A 12 565 0 0411

660. Topics in Microbiology. (2-4). Lab fee.

No more than a total of six credits hours earned from among Biol. 610, 640 and 650 may be applied toward major and minor requirements. Students must complete a Directed Independent Study Abstract form and obtain departmental approval prior to
### Organismal Biology and Ecology Courses for Graduate/Undergraduate Credit

- **502. Vascular Plants. (4). 2R; 4L.** (Offered fall semester in even-numbered years.) An introduction to the structure, reproduction and evolution of the major groups of flowering plants. Students earning graduate credit are expected to perform a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisites: Biol. 1204. A 12 502 1 0402

- **505. Plant Physiology. (4).** (Offered fall semester in even-numbered years.) An introduction to the characteristics which govern plant growth and development, including water relations, long distance transport processes, mineral nutrition, photosynthesis and respiration as it relates to growth and development and the chemical and environmental regulation of developmental processes. Concurrent enrollment in BioL 1202 is recommended. Students earning graduate credit are expected to perform a primary literature survey on a topic selected in consultation with the instructor and deliver a 30-minute oral presentation to the class. Prerequisite: Biol. 204. A 12 505 0 0406

- **506. Plant Physiology Laboratory. (2). 4L.** (Offered fall semester in even-numbered years.) An introduction to the techniques of experimental plant physiology. An emphasis is placed on experimental design, the use of elementary statistics in the analysis of results, drawing conclusions from experimental results and the written communication of experimental findings. Processes considered include photosynthesis, respiration, translocation, mineral nutrition and the control of plant growth and development by environmental and chemical factors. Graduate students are expected to design and perform an additional experiment in consultation with the instructor and present the results in written form using the format of the journal *Plant Physiology.* Prerequisite: Corequisite: Biol. 505. A 12 506 1 0406

- **520. Invertebrate Zoology. (4). 3R; 3L.** (Offered fall semester in even-numbered years.) A comparison of the morphology and phylogeny of the invertebrates with emphasis on the basic body types and their major variations. Students earning graduate credit are expected to produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite: Biol. 204. A 12 520 1 0413

- **524. Vertebrate Zoology. (4). 2R; 4L.** (Offered spring semester in even-numbered years.) Evolution, distribution, systematics, natural history and special characters of vertebrate animals. Students earning graduate credit are expected to produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite: Biol. 204. Biol. 527 is also recommended. A 12 524 1 0407

- **527. Comparative Anatomy. (5). 3R; 4L.** (Offered fall semester only.) An intensive study of vertebrate anatomy. Students earning graduate credit are expected to complete additional assignments chosen in consultation with the instructor, such as a term paper based on technical literature, dissection of additional animals, etc. Prerequisite: Biol. 12 527 1 0412

- **530. Parasitology. (4). 2R; 4L.** (Offered fall semester only.) The parasitology of man and other vertebrate hosts. Students earning graduate credit are expected to produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite: Biol. 204. A 12 530 1 0407

- **532. Entomology. (5). 3R; 4L.** (Offered fall semester only.) An introduction to the morphology, physiology, life cycles, behavior, ecology and economic significance of insects. Students earning graduate credit are expected to perform an individual experimental project on a topic of their choosing. Prerequisite: Biol. 204. A 12 532 1 0421

- **534. Mammalian Physiology. (3).** (Offered fall semester of odd numbered years.) An organizational survey of the major mammalian systems and their integral part of the laboratory. Prerequisites: Biol. 204 and Chem. 110Q. A 12 534 1 0410

- **535. Mammalian Physiology Laboratory. (3). 4L.** (Offered spring semester of odd numbered years.) An experimental approach to mammalian physiology. Emphasis is placed upon nervous and endocrine control systems and their effects on body functions. Students earning graduate credit are expected to submit a laboratory report relating the results of an experiment to those found in the current technical literature. Prerequisite: concurrent or prior enrollment in Biol. 534. A 12 535 1 0410

- **540. Comparative Embryology. (4). 2R; 4L.** (Offered spring semester in odd numbered years.) Gametogenesis, fertilization and developmental processes in animals with emphasis on the invertebrates. Students earning graduate credit are expected to complete additional assignments chosen in consultation with the instructor. Prerequisite: Biol. 204. Biol. 527 is also recommended. A 12 540 1 0427

- **544. Histology. (4). 2R; 4L.** (Offered spring semester in even-numbered years.) The microscopic anatomy of vertebrate tissues with emphasis on mammals. Students earning graduate credit are expected to complete additional assignments chosen in consultation with the instructor. Prerequisite: Biol. 204. A 12 544 1 0413

- **560. Plant Ecology. (4). 2R; 6L.** (Offered spring semester in even-numbered years.) Principles and patterns of plant distribution and adaptation to various environments and habitats. Emphasis is placed on the experimental approach to plant ecology. Field trips are an integral part of the laboratory. Prerequisite: Biol. 204. A 12 560 1 0420

- **575. Field Ecology. (3). 9L.** (Offered fall semester only.) Techniques for analysis of biological and physical processes that operate in lakes, streams and estuaries. Assigned readings, individual projects and field trips are required. Students earning graduate credit are expected to investigate the limnological properties of two ponds, comparing their characteristics, or investigate a specific topic of their choosing in a lake. The results of this investigation are reported as a technical paper. Prerequisites: Biol. 204 and instructor's consent. A 12 575 1 0420

- **578. Limnology. (5). 2R; 6L.** (Offered spring semester in even-numbered years.) Introduction to the biological and physical processes that operate in lakes, streams and estuaries. Assigned readings, individual projects and field trips are required. Students earning graduate credit are expected to investigate the limnological properties of two ponds, comparing their characteristics, or investigate a specific topic of their choosing in a lake. The results of this investigation are reported as a technical paper. Prerequisites: Biol. 204 and instructor's consent. A 12 578 1 0420

- **610. Topics in Botany. (2-4).** No more than a total of six credit hours earned from among Biol. 610, 640 and 650 may be applied toward major and graduation requirements. Students must complete a Directed Independent Study Abstract form and obtain departmental approval prior to enrollment. Prerequisite: Biol. 6101 0402

- **620. Animal Behavior. (3).** (Offered spring semester only.) Animal behavior, including humans, with major emphasis on the analysis of behavior as a concept of physiological processes. Students earning graduate credit are expected to produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite: Biol. 204 or departmental consent. A 12 620 1 0407

- **630. Sociobiology. (3).** (Offered fall semester in odd-numbered years.) A systematic study of the biological basis of social behavior in animals. The course focuses on animal societies whose population, structure, castes and communication and the underlying physiology. Students earning graduate credit are expected to produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite: Biol. 204 and instructor's consent. A 12 630 1 0407

- **640. Topics in Zoology. (2-4).** No more than a total of six credit hours earned from among Biol. 610, 640 and 650 may be applied toward major and graduation requirements. Students must complete a Directed Independent Study Abstract form and obtain departmental approval prior to enrollment. Prerequisites: Biol. 204. A 12 640 1 0407

The following abbreviations are used in the course descriptions: R stands for lecture and L for laboratory. For example, 2R, 3L means 2 hours of lecture and 3 hours of lab. **
671. Evolutionary Ecology. (4). 3R; 2L. (Offered fall semester in even-numbered years.) A synthesis of basic principles in population genetics and ecology is presented as a framework for the study of topics in evolutionary ecology. Emphasis includes (1) the maintenance and structure of population levels genetic variation; (2) mating structure and the evolutionary advantages of sex; (3) individual, kin, group selection; (4) population demographic structure; (5) population regulation and dispersal; (6) life history strategies in heterogeneous environments; and (7) demographic and genetic covariance. Basic techniques in population ecology are taught on several short field trips throughout the semester. Students earning graduate credit expected to participate in a weekly seminar in addition to class hours. Prerequisite: Biol. 584 or 585. 418 also is recommended. A 12 671 1 0420

728. Physiological Basis of Behavior. (3). A modern approach to coordinatory mechanisms that stress the essential unity of nervous and endocrine function. Prerequisite: Biol. 730 or instructor's consent. A 12 728 0 0410

Chemistry
Graduate Faculty
Associate Professors: Anneke S. Allen, William C. Grubbs, John W. Johnson, Jr., Ram P. Singhal, Melvin E. Zandler
Assistant Professors: R. Cameron Dorey, John B. McCarten, William M. Shirley

The Department of Chemistry at Wichita State offers courses of study leading to the Master of Science (MS) and the Doctor of Philosophy (PhD) degrees.

Admission Requirements
To enroll in the graduate program in chemistry, students must meet admission requirements of the Graduate School and hold an undergraduate degree with a major in chemistry. Students whose preparation is equivalent to the BS program recommended by the American Chemical Society Committee on Professional Training are considered well prepared for graduate study.

When admitted to the graduate program in chemistry, students are required to take orientation examinations. The results are used by an advisory committee of the department to counsel graduate students about which courses are appropriate.

Students must select a faculty member to be their research adviser by the beginning of their second semester in the graduate program. The research adviser guides the students in their research.

Degree Requirements (Master's)
The MS degree in chemistry requires the completion of 30 credit hours, including the presentation of a thesis. The program requires at least six credit hours in research. Chem. 730. Also, at least 15 credit hours in chemistry courses numbered above 700 must be taken, including at least one 700-level course from four of the following five areas: analytical chemistry, inorganic chemistry, organic chemistry, physical chemistry and biochemistry. Students must successfully complete Chem. 700 at least twice, and full-time students must register each semester in Chem. 701. Additional courses, which may be outside the major field, are selected by students in consultation with their adviser and the department's advising committee.

Chemical Physics Option Students who have a particular interest in chemical physics may follow a special option. They must take at least one 700-level course from four of six areas, including physics as the sixth area. Physics courses that may be taken include Phys. 631, 712, 714, 811, 881 or other approved courses. It is recommended that students in this option take Chem. 642. Additional information is available in the chemistry department office.

Examinations Master's students must pass qualifying examinations, which are the same as orientation examinations, in four areas of chemistry. An examination must also be passed in one research skill, including the areas of German, French, Russian (or the equivalent of one academic year of language with a grade of "B" or better); computer science; or electronic techniques.

Thesis The thesis is reviewed by a committee from the department, and an oral examination given by a faculty committee appointed by the Graduate School must be passed.

Degree Requirements (Doctorate)
Students should consult with the department regarding these requirements.

Courses for Graduate/Undergraduate Credit

501. Acids, Bases and pH. (1). The study of properties characteristic of acids and bases, typical acid-base reactions, indicators, pH. Prerequisite: Chem 1120 or equivalent. A 13 501 0 1905

514. Inorganic Chemistry. (3). Basic inorganic chemistry with an emphasis on molecular symmetry and structure, fundamental bonding concepts, periodicity of the elements, systems of the chemical elements, acid-base chemistry, and non-aqueous solvents. Classical coordination chemistry and introduction to bioinorganic chemistry. Prerequisite: Chem. 7102 with a grade of "C" or better. A 13 514 0 1906

523. Analytical Chemistry. (4). 2R; 6L. Lab fee. Evaluation of data, theory and application of gravimetric analysis and precipitation, neutralization and oxidation-reduction volumetric analyses. Prerequisite: Chem. 7120 with a grade of "C" or better. A 13 523 0 1909

524. Instrumental Methods of Chemical Analysis. (4). 2R; 6L. Lab fee. Introduction to: (a) analytical chemistry and optical methods of analysis and analysis and separation of complex mixtures, (b) gravimetric and instrumental analysis. In addition, basic computer programming is discussed as it applies to instrumental analysis. Prerequisites: Chem. 523 or 1240. A 13 524 0 1909

531. Organic Chemistry (5). 3R; 6L. Lab fee. An introduction to the study of carbon compounds with an emphasis upon reaction mechanisms, stereochemistry and spectroscopic analysis. Prerequisite: Chem. 1230 or 1240 with a grade of "C" or better. A 13 531 1 1907

532. Organic Chemistry (5). 3R; 6L. Lab fee. A continuation of Chem. 531 with emphasis upon the structures and reactions of principal functional groups and compounds of biological interest. Prerequisite: Chem. 531. A 13 532 1 1907

533. Elementary Organic Chemistry. (4). Basic organic chemistry with a special emphasis on topics of importance to health professions and education majors. Special emphasis is given to fatty acids, sugars, proteins, carbohydrates, and energy production. Students should also enroll in Chem. 534 simultaneously. Credit is not allowed for both Chem. 533-534 and 531. This course is not the need of chemistry majors or premed students. Prerequisite: Chem. 1120 or equivalent. A 13 533 0 1907

534. Elementary Organic Chemistry Laboratory. (2). Lab fee. A laboratory course to provide pertinent experiences in the laboratory to fortify the survey lecture course Chem. 533. Prerequisite or concurrent: Chem. 533. A 13 534 1 1907

540. Elementary Physical Chemistry. (4). An introductory treatment of thermodynamics, kinetics, quantum chemistry, spectroscopy and statistical thermodynamics for students not intending to become professional chemists. In contrast to the more formal, theoretically-oriented, traditional physical chemistry courses (545-546), this more practical-oriented course attempts to survey most of the important areas of physical chemistry in a heuristic and applied manner. This concentrated selection serves student majors in preprofessional programs; students majoring in geology, engineering, biological sciences and related fields as majors in biochemistry and chemistry.

Prerequisites: Chem. 1120 or
13. Inorganic Chemistry Laboratory. (2). 6L Lab fee. Experimental methods of inorganic chemistry. Prerequisite: Chem. 514 or concurrent enrollment. A 13 613 1 9006

16. Advanced Inorganic Chemistry. (3). Topics that will be covered include: modern bonding theory, structure and spectra of inorganic compounds, coordination and organometallic chemistry, boranes, inorganic ring systems and polymers, inorganic environmental chemistry, mechanism of inorganic reactions and solid state chemistry. Prerequisite: Chem. 514 and 546. A 13 615 0 9006

24. Advanced Analytical Chemistry. (3). 2R; 3L. Lab fee. Fundamentals of absorption and emission spectroscopy, light scattering techniques, mass spectrometry, nuclear magnetic resonance, polarography, voltammetry and coulometry. Prerequisite: Chem. 524. A 13 624 1 9009

51. Introduction to Biochemistry. (3). A brief history of biochemistry, emphasizing the development of molecular biology; study of major macromolecular structures, chemical properties, interactions, and current issues in the field. Prerequisite: Chem. 531 or 533 or one semester of organic chemistry. A 13 561 0 9014

60. Numerical Methods. (2). 1R; 3L. Applications of numerical methods to problems in chemistry and physics. Roots of equations, curve fitting, interpolation, extrapolation, smoothing of experimental data, numerical differentiation and integration and computer programming. Prerequisite: departmental consent. A 13 602 1 9015

603. Industrial Chemistry. (3). The course is designed to be the industrial-academic gap. Topics covered include chemical processes, sources of primary petrochemicals, organic chemistry, industrial processes in current use; principal techniques of organic chemistry, modern techniques and use of organic chemistry in current use; hazardous and nuclear waste disposal, acid rain, fluorocarbons, air pollutants, etc. Visits to nearby chemical companies and institutions are an important component of this course. Prerequisite: Chem. 552 or concurrent enrollment. A 13 603 0 9015

605. Medicinal Chemistry. (3). For students interested in chemistry related to the design, development and mode of action of drugs. The primary purpose of the course is to develop the student's understanding of organic chemistry that are used as medicinal agents and to explain the mode of action and chemical reactions of drugs in the body. Credit options include: departmental consent. A 13 605 0 9015

613. Inorganic Chemistry Laboratory. (2). 6L Lab fee. Experimental methods of inorganic chemistry. Prerequisite: Chem. 514 or concurrent enrollment. A 13 613 1 9006

615. Advanced Inorganic Chemistry. (3). Topics that will be covered include: modern bonding theory, structure and spectra of inorganic compounds, coordination and organometallic chemistry, boranes, inorganic ring systems and polymers, inorganic environmental chemistry, mechanism of inorganic reactions and solid state chemistry. Prerequisite: Chem. 514 and 546. A 13 615 0 9006

624. Advanced Analytical Chemistry. (3). 2R; 3L. Lab fee. Fundamentals of absorption and emission spectroscopy, light scattering techniques, mass spectrometry, nuclear magnetic resonance, polarography, voltammetry and coulometry. Prerequisite: Chem. 524. A 13 624 1 9009

641. Advanced Physical Chemistry. (3). Introduction to quantum chemistry, atomic and molecular spectra, statistical thermodynamics and reaction rate theory. Prerequisite: Chem. 546. A 13 641 0 9008

642. Chemical Physics. (3). Topics in areas of overlapping interest for students of chemistry and physics, such as thermodynamics, kinetics, quantum mechanics, solids and various types of spectroscopy. Prerequisite: departmental consent. A 13 642 0 9015

662. Biochemistry of Cell Constituents, Catalysis, Oxidation, Photosynthesis. (3). Study of major constituents of the cell: protein, carbohydrate, lipids, nucleic acids, enzyme catalysis, molecular oxidations, photosynthesis, and introduction to intermediary metabolism. A fundamental background of biology or microbiology is recommended but not essential. Biochemistry, field majors should enroll concurrently in Chem. 664. Prerequisites: Chem. 552 or departmental consent. A 13 662 0 9015

666. Special Topics in Biochemistry. (3). Offered spring semester in odd-numbered years. A small number of current problems in biochemistry are discussed in depth. Prerequisites: departmental consent. A 13 666 0 9015

669. Research in Biochemistry. (3). Students in the field major participate in a biochemistry research project under the direction of a faculty member. A written report summarizing the results is required. Prerequisites: departmental consent. A 13 669 0 9015

700. Chemistry Seminar. (1). Prerequisite: departmental consent. A 13 700 0 9015

701. Chemistry Colloquium. (1). Prerequisite: departmental consent. A 13 701 0 9015

705. Molecular Symmetry. (1). A study of the chemically relevant aspects of group theory. Topics include symmetry elements, character tables, symmetry classification of molecules and applications to group theory. A 13 705 0 9015

709. Special Topics in Chemistry. (2-3). A discussion of topics of special significance and interest to faculty and students. Offerings are announced and consent is required. Prerequisite: departmental consent. A 13 709 0 9015

712. Coordination Chemistry. (3). The study of classical, organo-metallic and bio-organic coordination complexes. Topics include coordination and bonding concepts, principles of synthesis, mechanisms of substitution and electron transfer reactions of metal ions and of catalysis and modes of action in biological systems. A 13 712 0 9015
713. Physical Methods in Inorganic Chemistry. (3). An introduction to electronic and vibrational spectroscopy, magnetic susceptibility, EPR, NMR, Mossbauer spectroscopy and X-ray crystallography as applied to inorganic compounds. Emphasis is placed upon the interpretation of results for understanding the electronic and molecular structure of compounds. Prerequisite: Chem. 705 or equivalent. A 13 713 O 1006

722. Analytical Spectroscopy. (3). Absorption (UV, visible, IR and atomic): emission; flame emission and atomic absorption spectroscopy; molecular fluorescence and phosphorescence methods; Raman, nuclear magnetic resonance and electron spin resonance spectroscopy; X-ray methods. Lectures and discussions on theory and practice are given. Particular emphasis is placed upon instrumentation and the acquisition of artifact-free data. A 13 722 S 1009

723. Electroanalytical Chemistry. (3). Topics include voltammetry, polarography, polarographic stripping, amperometry, coulometry, flame photometry, molecular fluorescence and phosphorescence methods; Raman, nuclear magnetic resonance and electron spin resonance spectroscopy; X-ray methods. Lectures and discussions on theory and practice are given. Particular emphasis is placed upon instrumentation and the acquisition of artifact-free data. A 13 723 S 1009

724. Digital Computers in Chemical Instrumentation. (3). An introduction to the use of the small digital computer in the laboratory. Lectures deal with digital logic, data acquisition techniques and the on-line digital computer in instrumentation. Laboratory exercise covers the design of digital logic circuits, interfacing, chemical instruments to the digital computer and programming the small digital computer. A 13 724 S 1906

731. Physical Organic Chemistry. (3). An examination of molecular orbital theory, conformational analysis, symmetry, atomicity and organic reaction mechanisms; electrophilic, nucleophilic and free radical reactions; organometallic systems and photochemistry. Prerequisite: Chem. 705 or equivalent. A 13 731 S 1907


741. Quantum Chemistry. (3). Theoretical basis of atomic and molecular structure. Topics include the postulates of quantum mechanics, exact solutions for the particle-in-a-box and the hydrogen atom, variation and perturbation techniques, electron spin, Hartree-Fock and configuration interaction methods, molecular-orbital and valence-bond wavefunctions and virial and Hellmann-Feynman theorems. Prerequisite: Math 344 or equivalent. Corequisite: Chem. 705 or equivalent. A 13 741 O 1908

742. Chemical Kinetics. (3). A description of reaction systems, including the mathematical and physical characteristics of simple and complex kinetic systems. Theorems of chemical kinetics are discussed, as are types of homogeneous kinetic reactions in the gas phase, the kinetic aspects of solution reactions, heterogeneous reactions and selected topics of current interest. A 13 742 O 1908

746. Molecular Spectroscopy. (3). The theoretical basis for spectroscopy and spectroscopic determinations of molecular structure. Topics include polyatomic atoms, time-dependent perturbation theory, vibration and rotation of diatomic molecules, vibration and rotation of polyatomic molecules, electronic states, radical states, ionic states and magnetic resonance spectroscopy. Prerequisites: Chem. 741 or its equivalent and Chem. 705 or its equivalent. A 13 746 O 1908

761. Enzyme Mechanisms. (3). An introduction to the study of enzyme mechanisms. Modern approaches include steady-state, relaxation and chemical modification methods. Prerequisite: one semester of undergraduate biochemistry. A 13 761 O 0414

762. Structure and Function of Nucleic Acids. (3). The study of monomers and polynucleotides, including chemical and physical-molecular organization of the DNA, structure and physical properties of the DNA, covalent bond, duplication, kiiotic DNA, and deoxyribonucleic acid. Prerequisite: one semester of undergraduate biochemistry. A 13 762 O 0414

763. Structure-Function Analysis of Biomolecules. (3). An examination of the physical, chemical and biological tools used for studying biomolecules. Topics include application of radioisotopes, autoradiography, primary, secondary and tertiary structure analysis, equilibrium dialysis and reaction kinetics; high-performance liquid chromatography, gel electrophoresis and spectroscopic, immunological and ligand binding methods. Prerequisites: one semester of undergraduate biochemistry and Chem. 546. A 13 763 O 0414

Courses for Graduate Students Only

890. Research in Chemistry. (2-12). SAU grade only. Research for the student planning to receive a MS Research is directed by a faculty member. Repeatable for credit. A 13 890 4 1906

890. Research in Chemistry. (2-16). SAU grade only. Research for the student planning to receive a PhD. Research is directed by a faculty member. Repeatable for credit. A 13 890 4 1906

Computer Science

Graduate Faculty

Associate Professors: Mary Edgington (chairperson), Viswanathan Senthilman (graduate coordinator), Zbigniew Wojcik, Jan M. Zytkow

Assistant Professors: Zhi-Xi Fang, Bruce W. Keohan, Robert Neufield, James Temayo

The Department of Computer Science offers two graduate degree programs, the Master of Computer Science (MCS) and the Master of Science (MS).

Master of Computer Science (MCS)

The MCS is a professionally oriented degree aimed at candidates with substantial background in the computing profession but not necessarily a degree in computer science. Through a wide range of electives outside the computer science department and a sizable graduate project called Practice, the MCS program seeks to emphasize the impact of computers in application areas.

Master of Science (MS)

This program offers the more traditional graduate degree intended primarily for candidates with an undergraduate degree in computer science. Through a combination of coherent electives and a research requirement segment, the MS program seeks to provide a level of concentration suitable for advanced professional work and/or further graduate study in computer science.

Admission Requirements

Candidates seeking to pursue graduate study in computer science are expected to meet the usual requirements for admission to the Graduate School, including the completion of a baccalaureate degree with a minimum GPA of 2.750 in the last 60 hours of course work. All candidates must earn a satisfactory score on both the GRE aptitude test and the GRE subject test in computer science. English language competency must be established by earning a minimum score of 500 on the TOEFL (Test of English as a Foreign Language) Examination or by earning a minimum score of 400 on the verbal portion of the GRE aptitude test. Although neither the MCS nor the MS program requires that the prior bachelor's degree be in computer science, both programs require the following minimum background in the computer science area:

Background Course Work

The equivalent WSU course work is given in parentheses.

Associate Professors:

Mary Edgington (chairperson), Viswanathan Senthilman (graduate coordinator), Zbigniew Wojcik, Jan M. Zytkow

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Admission Requirements

Candidates seeking to pursue graduate study in computer science are expected to meet the usual requirements for admission to the Graduate School, including the completion of a baccalaureate degree with a minimum GPA of 2.750 in the last 60 hours of course work. All candidates must earn a satisfactory score on both the GRE aptitude test and the GRE subject test in computer science. English language competency must be established by earning a minimum score of 500 on the TOEFL (Test of English as a Foreign Language) Examination or by earning a minimum score of 400 on the verbal portion of the GRE aptitude test. Although neither the MCS nor the MS program requires that the prior bachelor's degree be in computer science, both programs require the following minimum background in the computer science area:

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Associate Professors:

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Master of Computer Science (MCS)

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Master of Science (MS)

This program offers the more traditional graduate degree intended primarily for candidates with an undergraduate degree in computer science. Through a combination of coherent electives and a research requirement segment, the MS program seeks to provide a level of concentration suitable for advanced professional work and/or further graduate study in computer science.

Admission Requirements

Candidates seeking to pursue graduate study in computer science are expected to meet the usual requirements for admission to the Graduate School, including the completion of a baccalaureate degree with a minimum GPA of 2.750 in the last 60 hours of course work. All candidates must earn a satisfactory score on both the GRE aptitude test and the GRE subject test in computer science. English language competency must be established by earning a minimum score of 500 on the TOEFL (Test of English as a Foreign Language) Examination or by earning a minimum score of 400 on the verbal portion of the GRE aptitude test. Although neither the MCS nor the MS program requires that the prior bachelor's degree be in computer science, both programs require the following minimum background in the computer science area:

Background Course Work

The equivalent WSU course work is given in parentheses.

Assistant Professors:

Zhi-Xi Fang, Bruce W. Keohan, Robert Neufield, James Temayo
The Department of Computer Science may be recommended in one of three categories depending upon the candidate's interests and background.

I. Degree Category

All candidates seeking the MCS or MS degree must be admitted to this category. The extent of deficiency in the basic requirements determines the initial status, as follows:

A. Full-standing

Must meet all the requirements with no more than six hours of deficiency in the background course work, (a)-(g), with a minimum GPA of 3.000 in all CS-related courses.

B. Conditional

Must meet all the requirements with no more than 12 hours of deficiency in the background course work, (a)-(g), and with a minimum GPA of 3.000 in all CS-related courses. The conditional status normally must be removed within one year of admission.

C. Probationary

Candidates fulfilling the requirements for full-standing or conditional status except for the minimum GPA requirements may be recommended for probationary admission in this category. Each candidate's case is evaluated on the basis of other merits it may have to justify admission.

II. Nondegree Category

Nondegree candidates must have completed two of the four core courses toward the graduate degree. Full or partial waiver is given to those students earning above-median scores on the GRE advanced test in computer science.

(a) Mathematics

1. Two semesters of calculus (Math. 242-243)

2. Two semesters of linear algebra and discrete mathematics (statistics) (Math. 211 and Math. 331)

(b) Programming

1. Introductory knowledge of computer programming including documentation practices (CS 200)

2. The knowledge of a programming language, such as PL/I (CS 202), PASCAL (CS 212) or ALGOL

(c) Assembly Language Programming

One semester of programming in an assembly language (CS 216)

(d) Basic Data Structures

Introductory knowledge of computer algorithms and elementary data structures (CS 300)

(e) Computer Organization

Introductory knowledge of the functions and interplay of the components of a digital computer (CS 340)

(f) Basic File Structures

Introductory knowledge of computer file organization and processing techniques (CS 405)

Requirements (b)-(f) are prerequisites to graduate-level course work in computer science. They may be met by (1) completing the equivalent WSU courses, (2) equivalent course work from another accredited institution, (3) passing proficiency tests administered by the department or (4) satisfactory score on the GRE advanced test in computer science.

(g) Foundation Courses

In addition to the prerequisite course work, all master's candidates must complete four foundation courses:

1. Programming Languages (CS 510)

2. Operating Systems and Architecture I (CS 540)

3. Data Structures (CS 550)

4. Software Engineering (CS 580)

For admission to candidacy, MCS candidates must have completed two of these courses and MS candidates must have completed all four.

If taken for graduate credit, MCS candidates may count two of these courses toward the graduate degree. MS candidates cannot apply any credit from these courses toward the graduate degree. Full or partial waiver is given to those students earning above-median scores in the GRE subject test.

Requirements by Category

Admission to graduate study in the Department of Computer Science may be recommended in one of three categories depending upon the candidate's interests and background.

I. Degree Category

All candidates seeking the MCS or MS degree must be admitted to this category. The extent of deficiency in the basic requirements determines the initial status, as follows:

A. Full-standing

Must meet all the requirements with no more than six hours of deficiency in the background course work, (a)-(g), with a minimum GPA of 3.000 in all CS-related courses.

B. Conditional

Must meet all the requirements with no more than 12 hours of deficiency in the background course work, (a)-(g), and with a minimum GPA of 3.000 in all CS-related courses. The conditional status normally must be removed within one year of admission.

C. Probationary

Candidates fulfilling the requirements for full-standing or conditional status except for the minimum GPA requirements may be recommended for probationary admission in this category. Each candidate's case is evaluated on the basis of other merits it may have to justify admission.

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Nondegree candidates must have completed two of the four core courses toward the graduate degree. Full or partial waiver is given to those students earning above-median scores on the GRE advanced test in computer science.

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1. Two semesters of calculus (Math. 242-243)

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(b) Programming

1. Introductory knowledge of computer programming including documentation practices (CS 200)

2. The knowledge of a programming language, such as PL/I (CS 202), PASCAL (CS 212) or ALGOL

(c) Assembly Language Programming

One semester of programming in an assembly language (CS 216)

(d) Basic Data Structures

Introductory knowledge of computer algorithms and elementary data structures (CS 300)

(e) Computer Organization

Introductory knowledge of the functions and interplay of the components of a digital computer (CS 340)

(f) Basic File Structures

Introductory knowledge of computer file organization and processing techniques (CS 405)

Requirements (b)-(f) are prerequisites to graduate-level course work in computer science. They may be met by (1) completing the equivalent WSU courses, (2) equivalent course work from another accredited institution, (3) passing proficiency tests administered by the department or (4) satisfactory score on the GRE advanced test in computer science.

(g) Foundation Courses

In addition to the prerequisite course work, all master's candidates must complete four foundation courses:

1. Programming Languages (CS 510)

2. Operating Systems and Architecture I (CS 540)

3. Data Structures (CS 550)

4. Software Engineering (CS 580)

For admission to candidacy, MCS candidates must have completed two of these courses and MS candidates must have completed all four.

If taken for graduate credit, MCS candidates may count two of these courses toward the graduate degree. MS candidates cannot apply any credit from these courses toward the graduate degree. Full or partial waiver is given to those students earning above-median scores in the GRE subject test.
B. Computer theory (3 credit hours)—CS 720, Theoretical Foundation of Computer and Information Sciences. No computer science graduate student will be admitted to 800-level courses until they have completed CS 720.

C. Core courses (12 credit hours)—All candidates must complete at least four 800-level computer science courses below 890.

D. Electives (9 credit hours)—Each MS candidate must complete a coherent block of technical electives from computer science or a closely-related field, as approved by the candidate's graduate adviser. Computer science electives must be at the 600 level or above.

E. Research/Thesis (6-8 credit hours)—All MS candidates must complete six hours of concentrated study involving selected research in a specialized area of computer science. This research activity must be carried out under the supervision of a computer science graduate faculty member. At the discretion of the student's research adviser, this segment of the program may be satisfied by eight credit hours of additional graduate-level course work, including two credit hours of CS 890 (Graduate Seminar), specifically approved for this purpose.

F. Final Examination—(1) Each MS candidate writing a thesis must pass a final examination by an ad hoc faculty committee. This examination will pertain to, but is not limited to, the subject matter of the thesis. (2) MS candidates opting for additional course work in place of thesis must pass a final comprehensive written examination. This examination will cover a smaller number of topics which are normally addressed in the foundation, theory, and core course work or in the background course work.

Examinations

See "Admission Requirements" above for entry examinations. See the category marked "Final Examinations" under each degree for exit examinations.

Courses for Graduate/Undergraduate Credit

501. Numerical Programming Techniques. (3) 2R, 2L. A study of the programming techniques used to solve nonlinear equations, interpolate, integrate and solve systems of linear equations. The implications of finite precision floating point arithmetic are discussed. Techniques for initial and boundary value problems in ordinary differential equations, partial differential equations, and specialized algorithms are presented on the computer. Prerequisite: Math 243 and CS 300 with grades of "C" or better. A 34 501 1 0704

510. Programming Languages. (3). Formal definition of programming languages, including syntax and semantics. Also examined are underlying concepts of algorithmic languages, including scope of declarations, storage allocation, grouping of statements, binding to local and global variables, and function parameters. The sections of the language may use different styles. A grade of "C" or better is required. A 34 510 0 0704

512. Systems Programming. (3) 2R, 2L. A study of the programming of system software including libraries, device drivers, operating system, links, etc. Computer science electives must be at the 600 level or above.

515. Compiler/Interpreter Techniques. (3) 2R, 2L. Review of programming language theories, translation and implementation. Compilers of simple expressions and statements. Overall design and organization of compilers and interpreters, including lexical and syntactic scan, construction of symbol tables, object code generation, diagnostic error messages and optimization techniques. Prerequisite: CS 510 A 34 515 1 0704

527. The History of Computing. (3). Cross-listed as Hist. 527. Cross-listed as Hist. 527. This course is a study of the development of computing machines and computer language and programming. Topics covered include early mechanical computers, digital electronic computers, and software development. A 34 527 0 0701

540-541. Operating Systems and Architecture I and II. (3-3). Design of computer systems with emphasis on computer architecture. Basic concepts and their operating characteristics are reviewed, including addressing techniques, computer system management, file design and systems accounting. Concurrent processes are discussed for the software and hardware. Prerequisites: CS 405 or equivalent.

560. Data Structures. (3). Formal specification of data structures. Linear lists and arrays, orthogonal lists and multilinked structures are studied and represented via trees and graphs and searching and sorting techniques. A grade of "C" or better. A 34 560 0 0702

565. Data Base Design. (3). Principles of data base design and management for computer information systems. Family of logical organization and file design techniques are examined. The similarity of the design of file organization and file design techniques is examined for database systems. A grade of "C" or better. A 34 565 0 0702

574. Artificial Intelligence and Philosophy. (3). Cross-listed as Phil. 574. Transfer of intellectual concepts between artificial intelligence and philosophy: concepts and techniques of artificial intelligence and their application to problems in philosophy (search, heuristic, problem solving, knowledge representation, learning, discovery). Sources of insight for artificial intelligence in different branches of philosophy. The analogy between minds and computers is considered. The potential features not accessible to computation. The relevance of Goedel's theorem and of other results in the field of computability are discussed. Prerequisites: 300-level course in computer science or philosophy. Math 243, five hours toward the major in any of the physical or biological sciences, or departmental consent. A grade of "C" or better must be earned in each prerequisite. A 34 574 1 0701

585. Introduction to Software Engineering. (3) 2R, 2L. An introduction to the body of knowledge, presently available tools and current theories and conjectures regarding the program development. These topics are studied from several different viewpoints, ranging from the individual program statement to a large programming project. Prerequisites: CS 405 and 406 and three core courses numbered 401 through 213. A 34 585 1 0704

611. ADA and Software Engineering. (3) 2R, 2L. An in-depth study of the programming language ADA, with emphasis on understanding the software engineering principles on which it is designed. Focus is on the novel features the language has to offer such as packages, generics, separate compilation and multitasking languages. Laboratory sessions provide hands-on programming experience to reinforce textbook knowledge of the language. Prerequisite: CS 510 A 34 611 1 0704

540. VLSI Systems Design. (3) 2R, 2L. Topics include an introduction to VLSI system synthesis, and integrated system design, fabrication, and control flow in systematic structures, including integrated system design, overview of an LSI computer system, architecture and design of system controllers, and system timings and highly concurrent systems. Prerequisite: CS 340 or equivalent. A 34 640 1 0702

641. Small Systems Architecture. (3). A course on minicomputers and microcomputers and on how small computers are used to construct larger ones. Includes general concepts of computer architecture and operating system. Emphasis is placed on the differences between large computers and small computers and the special features of small computers, microprocessors, and small computers. Study of computer architecture and operating system topics. Prerequisites: CS 405 or equivalent. A 34 641 1 0702

562. Computer Communication Networks. (3) 2R, 2L. An introduction to computer communication networks, including topics such as network goals, data transmission, network topologies, connectivity analysis, delay analysis for networks of M/M/1 queues, network architecture, protocol hierarchies, design issues for the layers and the ISO reference model and protocol descriptions for present computer communication networks. Prerequisite: CS 340 or equivalent. A 34 642 1 0701

644. On-Line Computer Systems. (3). Characteristics of dedicated, business-oriented computer systems, as contrasted with general purpose, time-sharing systems. Study of processes and transaction handling systems. Prerequisites: CS 340, or consent of instructor. A 34 644 1 0702
340 and 425 and Math 3310 of equivalent. A 34 664 0 0702

673. Numerical Methods. (3). A continuation of CS 501 emphasizing the theoretical aspects of the algorithms introduced. The course includes the solution of the eigenvalue problem, approximation and numerical solution of differential equations. Prerequisites: CS 501 and Math 511. A 34 675 0 0704

684. Applications Systems Analysis. (3). A study of the methods for analyzing business systems problems and other large-scale applications of the computer. At the crossroads of computer technology, management science and human relations, systems analysis is the cornerstone in the education of the well-trained computer applications analyst. Topics include systems design, cost benefits, data base, distributed processing, project management, and documentation. Pre-requisite: CS 405 or substantial programming experience with departmental consent. A 34 684 0 0703

697. Selected Topics. (1-3). Selected topics in computer and information sciences. A 34 697 0 0701

720. Theoretical Foundations of Computer and Information Sciences. (3). This course provides an advanced level introduction to the theoretical bases of computer science and related concepts in information science. Computer science theory includes the various models of computation, languages, logics, determinism and nondeterminism, plus the concepts of decidability, computability and formal language theory. Topics in information science include basic coding theory, cybernetics and models of the human brain and their relevance to machine intelligence. Pre-requisite: CS 420 or graduate standing. A 34 720 0 0701

750. Workshop in Computer Science. (1-5). Short-term courses with special focus on individual computer software concepts. Repeatable for credit. Prerequisite: departmental consent. A 34 750 2 0701

771. Artificial Intelligence. (3). Heuristic versus algorithmic methods: principles of heuristic and cognitive processes. Also covered are objective methods and methods of artificial intelligence research and simulation of cognitive behavior. A survey of appropriate examples from various areas of artificial intelligence research is included. Pre-requisite: CS 300. A 34 771 0 0704

773. Pattern Recognition. (3). An introduction to pattern recognition and image processing, including clustering algorithms, classifier design, Bayes decision theory, parameter estimation, discriminant functions, synchronous pattern recognition, image enhancement, image registration, FFT, texture and application in various fields. Prerequisites: CS 212 and 320 and Math 311. A 34 773 0 0701

774. Expert Systems. (3). Planning, construction and application of expert systems. Major expert systems are discussed and illustrated with various examples, including data representation, knowledge bases, inference engines, explanatory facilities, defeasibility, and dealing with uncertainty. Basics of a production system language are introduced. Prerequisite: CS 580 or instructor's consent. A 34 774 0 0799

798. Individual Projects. (1-3). Allows beginning graduate students and mature undergraduates to pursue individual projects of current interest in computer science. Graded S/U only. Prerequisite: departmental consent. A 34 798 3 0701

Courses for Graduate Students Only


810. Programming Languages: Advanced Concepts. (3). An advanced study of programming language structures and design. Data and control structures and their abstraction to higher level programming structures. Formal specifications of syntax and semantics, including models for establishing program correctness criteria. Design and implementation of computer languages. Prerequisites: CS 510 and 720. A 34 810 0 0704

821. Analysis of Algorithms. (3). Introduction to the techniques used to analyze both generic algorithms and classes of algorithms. Popular models, including Knuth's Mix and random access machine, are covered. Specific techniques, such as divide-and-conquer, recurrence equations and dynamic programming, are studied. Applications to set operations, hashing, graph searching, transitive closure and partitioning are analyzed. Prerequisites: CS 660 and either 420 or graduate standing. A 34 821 0 0702

841. Advanced Computer Architecture. (3). A study of advanced topics in computer architecture like parallel processing, microprocessors, computer performance evaluation and reliability of computing systems. Architectures of typical systems belonging to the IBM, CDC and Burroughs families of computers are studied. Prerequisite: CS 540. A 34 841 0 0702


843. Distributed Computing Systems. (3). A study of hardware and software features of on-line multiple computer systems with an emphasis on network design and telecommunication. Topics include distributed data bases, inter computer communication and centralization versus distributed. Study of the use of microcomputers in representative configurations is also included. Prerequisite: CS 540 or 541 or EE 681. A 34 843 0 0702

852. Principles of Data Base Design. (3). An advanced treatment of the principles of data base design. The following issues are addressed: logical design, including relational model; physical design, including new

The following abbreviations are used in the course descriptions: R = required, S = selective, L = laboratory. For example, 26, 2L means 2 hours lecture and 2 hours laboratory.
English

Graduate Faculty
Professors: James Lee Burke, Frank S. Kastor, James D. Merriman, Robert R. Meyers, Helen J. Throckmorton (chairperson)
Associate Professors: Sarah B. Daugherty (graduate coordinator), James P. Erickson, Gerald B. Hoag, Philip H. Schneider (director, creative writing), Anita J. Skeeke, Anthony G. Sobin, Frances C. Stephens, Donald Wienieke, William F. Woods, Peter T. Zoller
Assistant Professors: Tina Bennett-Kastor, Anthony P. Gythiel, Jeannine M. Hathaway, W. Stephen Hathaway, Diane Quantic

Both the Master of Arts (MA) degree in English and the Master of Fine Arts (MFA) degree in creative writing are offered by the English department at The Wichita State University.

Master of Arts
The Master of Arts (MA) program in English is designed to equip graduate students with the knowledge and skills necessary both to the outstanding teacher and to the well-prepared candidate for further graduate study. The graduate committee of the department accordingly requires its master's candidates to follow a course of advanced study that leads to a comprehensive knowledge of English and American literature rather than a course that develops specialization in one or two areas. Candidates also are given training in the principles of literary criticism and in the use of bibliographical tools so that they will have a general competence in criticism and research, although they may not be professional critics or research experts.

Admission Requirements
Applicants must meet the general requirements of the Graduate School, with the additional requirement that they have a 3.00 grade point average in their previous work in English courses. The coordinator of graduate studies in English will then evaluate the applicant's transcript, prescribing additional undergraduate hours for those who have fewer than 24 credit hours in English and American literature or in other work acceptable to the Department of English. Courses in freshman composition, grammar, teaching methods, journalism, speech, etc., may not be included in the required 24 hours. Exceptions may be made for outstanding students who have mapped in related fields.

Applicants who earned their undergraduate degrees more than ten years before the time of application for admission must be interviewed by the graduate coordinator before admission to the degree program.

Applicants who have earned degrees at institutions in countries in which English is not the native language must score at least 600 on the TOEFL (Test of English as a Foreign Language) Examination before being admitted to the MA degree program in English.

Counseling
All MA candidates in English are advised by the coordinator of graduate studies in English. The coordinator and the student establish a Plan of Study that takes into account the student's interests and future vocational plans.

Transfer of Credit
Students must complete 24 hours of credit at Wichita State within the English department. Students may transfer up to nine hours of credit on the Plan A program and up to six hours of credit on plans B and C. If the credit to be transferred comes from a program in which the student took a graduate degree, the time limits imposed by the Graduate School on other transfer of credits will not apply.

Language Requirement
Master's degree candidates in English may fulfill the department's foreign language requirement in any one of the following ways:

1. By submitting a transcript showing the successful completion of at least 15 hours of undergraduate work in a single foreign language or the equivalent as defined by Fairmount College of Liberal Arts and Sciences.
2. By completing the required 15 hours of undergraduate work in a single foreign language.
3. By taking the Graduate School Foreign Language Test (GSFLT) in the elected foreign language, with a successful score determined by the English department.
4. By submitting a transcript showing successful completion of six hours of linguistics.

Master's candidates with a creative writing emphasis (Plan C) have the additional choice of successfully completing six semester hours of foreign literature in translation in courses approved by the department's graduate committee as a substitute for the language requirement.

Degree Requirements
Eng. 800 (Introduction to Graduate Study in English) must be included in the student's first semester of graduate study.

All work to be counted toward the MA degree in English must be in courses numbered above 700—with the exception of 680 (Theory and Practice in Composition)—and the following courses in linguistics and in literature: Eng. 515, 521, 522, 524, 526, 527, 610, 665, 667, and 672. English 515 may be taken to fulfill in part the major author and/or optional course requirements of the degree plans. Eng. 521, 522, 524, 526, and 527 may be taken to fulfill the period and/or optional course requirements of the degree plans. Candidates offering 500-, 600-, or 700-level English courses for graduate credit must satisfy a higher differential of performance relative to undergraduate students in the same courses, with the nature of this differential set by professors.

There are four programs leading to the degree. Plan A allows for a wider range of teaching and is intended for teachers and others who are interested in extending their acquaintance with the whole body of English and American literature. Plan B, which requires the student to submit a master's essay, places more emphasis on research and independent study. It is especially recommended for those who intend to pursue the PhD degree, but teachers may also find it particularly suitable. Plan C emphasizes creative writing. Plan D emphasizes composition and rhetoric and is especially designed for teachers. Students are assumed to be following Plan A unless they declare another plan.

Plan A requires the completion of 11 courses for a total of 33 semester hours distributed as follows: Eng. 800 (Introduction to Graduate Study in English), two genre courses; two major author courses; one optional course; and five period courses in the Eng. 817-823 series and/or 521-527 series, with a minimum of two of these courses in American literature (Eng. 821, 822, or 823) and a minimum of one course in English literature before 1700 (Eng. 521 or 522). Upon petition by the student and approval by the graduate coordinator, Eng. 855 or 860 may be used to meet one genre, major author or period course requirement. Neither a separate master's essay nor a final comprehensive examination is required under Plan A, since equivalents for both of these are incorporated into the student's coursework. Students must specify two semi-
nars (Eng. 830-845 and/or 515) in which the term papers will be submitted as the equivalent of the student's master's essay. For this purpose, both essays must then be read and approved by a second member of the department's graduate faculty in addition to the seminar professor. In like manner, the final examination in three period courses in English and American literature (Eng. 812-823 and/or 521-527) as selected by the student, also will be submitted to the review of a second member of the department's graduate faculty. Approval of a student's performance on the examination by both the course professor and the second reader constitutes the equivalent of a pass in that portion of a comprehensive examination.

Plan B requires nine courses plus a master's essay for a total of 30 semester hours distributed as follows: Eng. 800 (Introduction to Graduate Study in English), two genre courses, two major author courses, two period courses, two optional courses, and Eng. 870 (Master's Essay). Plan B also requires a comprehensive examination on one period or on linguistics, one genre and one author.

Plan C, a program with an emphasis on creative writing, requires the completion of 30 semester hours plus a comprehensive examination and a thesis, which must be original work in fiction, poetry or some other suitable literary form. A student's program, individually designed in consultation with the director of creative writing, must include nine semester hours in the graduate creative writing sequence. The final comprehensive examination will be based on a list of 40 to 50 book-length works that the student will be held accountable for. The list will be drawn up by the student in consultation with the director of creative writing and with the approval of the graduate coordinator. The number of sections of the Plan C comprehensive examination and its length will be equivalent to that given under Plan B, although the content will be based on the list of book-length works described above.

Admission to the Plan C program will be made upon the recommendation of the director of creative writing upon approval of a manuscript or other written evidence of ability to complete the degree. Such recommendation is subject to the final approval of the graduate coordinator.

Plan D, which emphasizes composition and rhetoric, requires the completion of 19 hours of courses, consisting of Eng. 800, two period courses, two genre courses, and one major author course. In addition, Plan D students are required to take one course in writing practice (Eng. 685), two courses in rhetorical theory (Eng. 825 and 826), one course in composition theory and pedagogy (Eng. 880 or 780) and one course in linguistics (Eng. 667, 672, or 740). Like Plan A, Plan D requires the submission of two seminallength papers (one of which must deal with composition, rhetoric or linguistics) and of three final examinations (at least two of which must come from Eng. 825, 826 or, when appropriate, 860).

Master of Fine Arts in Creative Writing

The degree program for the Master of Fine Arts (MFA) in creative writing is a terminal one in which emphasis is placed on the development of attitudes, skills, and understanding in the practice of imaginative writing, along with related academic study. The WSU program is not conceived as a solely skill-oriented program. It places emphasis on the development of fine writers who also are able, as a result of additional course work in English, to demonstrate skills useful in teaching, editing and in pursuing other areas related to creative writing. The program allows for a core of activity in creative writing and for a thesis which will necessitate specialization in poetry, short fiction, the novel or work in some other appropriate form. Flexibility is provided in additional areas of required study to allow for a variety of possible emphases.

Since all MFA students participate in the English department's graduate program, they are required to take Eng. 800 (Introduction to Graduate Study). Teaching assistants are required to take the in-service training course unless specifically exempted.

Admission Requirements

Applicants must meet the general requirements of the Graduate School, with the additional requirement that they have a 3.000 grade point average in their previous work in English courses. The coordinator of graduate studies in English, in consultation with the director of creative writing, evaluates the applicant's transcript, prescribing additional undergraduate hours for those who have fewer than 24 credit hours in English and American literature and creative writing or in other work acceptable to the English department. Courses in freshman composition, grammar, teaching methods, journalism, speech, etc., may not be included in the required 24 hours.

Exceptions may be made for outstanding students who have majored in related fields. Gifted writers may study in the program as special students with no specific degree intentions.

Applicants who have earned their undergraduate degrees more than ten years before the time of application for admission must be interviewed by the graduate coordinator before admission to the degree program.

Applicants who have earned their degrees at institutions in countries in which English is not the native language must score at least 500 on the TOEFL (Test of English as a Foreign Language) Examination before being admitted to the MFA degree program in creative writing.

Degree Program Status

Applicants who seek to be admitted with full standing in the degree program must submit a sample of original writing (one short story or 20 pages), poetry (four to six poems) or other appropriate form to the coordinator of creative writing at the time they seek admission.

A student may be admitted into the MFA degree program in creative writing on a conditional basis pending approval of a manuscript demonstrating enough talent to suggest successful completion of the degree. Students may submit such a manuscript prior to beginning their course work or may wait until their first semester. In no case may the manuscript be submitted later than the first semester of course work. Students are notified of the dates by which manuscripts are to be submitted.

Counseling

All MFA candidates in English are advised by the coordinator of graduate studies in English, after consultation with the director of creative writing.

The graduate coordinator and the student will establish a Plan of Study that takes into account the student's interests and future vocational plans.

Transfer of Credit

A minimum of 24 of the total 48 semester hours required for the MFA degree in creative writing must be taken at Wichita State. No more than 24 hours of credit may be counted toward the degree from other graduate work taken at Wichita State or at another school. If the credit to be transferred comes from a program in which the student took a graduate degree, the time limits imposed by the Graduate School on other transfer of credit will not apply. 24 hours may be accepted toward the MFA.
Degree Requirements

Course Work. The 48 semester hours of course work are apportioned into two categories: required and elective courses.

A. Required Courses
1. A minimum of three hours per semester in Eng. 801 (Creative Writing: Fiction) or 805 (Creative Writing: Poetry) to a maximum of 12 semester hours.
2. Two hours in Eng. 800 (Introduction to Graduate Study in English) or the equivalent, required of all graduate students. Eng. 800 must be included in the student's first semester of graduate study.
3. Three hours in Eng. 830 (Graduate Studies in Drama), 832 (Graduate Studies in Fiction) or 834 (Graduate Studies in Poetry). With departmental consent, each course may be repeated for a maximum of 12 hours credit.
4. Three hours in Eng. 860 (Graduate Seminar in Special Topics). With departmental consent, seminars may be repeated for a maximum of 12 hours credit.

B. Elective Courses
All candidates must successfully complete a minimum of 15 elective hours in English courses numbered 800 and above, with the exception of English courses numbered 515 through 527, which may be taken for graduate credit. Candidates may take up to 26 elective hours in English courses numbered 800 and above and in the approved 500-level courses. Other exceptions may be made as approved by the director of creative writing and with the consent of the graduate coordinator. Candidates offering 500-, 600- or 700-level English courses for graduate credit must satisfy a higher differential of performance relative to undergraduate students in the same courses, with the nature of this differential performance set by professors. Elective courses may be taken to strengthen areas of weakness; to pursue historical, technical or theoretical studies that candidates find useful; or to enrich their degree program appropriately. As many as nine hours of Eng. 880 (Writer's Tutorial: Fiction), Eng. 881 (Writer's Tutorial: Poetry) and Eng. 885 (Directed Reading) may be offered in open-ended studies related to creative writing.

Comprehensive Examination. All candidates are required to pass a written comprehensive examination in the final semester of their course work. This examination is based on a reading list of 60 books chosen by the candidate's thesis director and the director of creative writing in consultation with the candidate.

Thesis. The MFA thesis in creative writing consists of a body of original work of publishable quality. The manuscript must be of such length as is appropriate to published books in its genre and is to be written under the direction of a member of the program staff. Candidates must preface their thesis with short introductions.

Oral Examination. Once a candidate has submitted the thesis, a committee is appointed to meet with the candidate and examine the work in the manner specified by the Graduate School.

Composition

Courses for Graduate/Undergraduate Credit

510. Peer Tutoring. (2) Explores strategies for using peer tutoring and collaborative learning to teach composition. Special emphasis is given to diagnosis and evaluation of writing abilities, conducting individual and group conferences, the writing process, the basic elements of Standard Written English and theories of second language and dialect acquisition. Concurrent enrollment in Eng. 511 is recommended. This course or equivalent preparation required of those intending to serve as tutors in the writing lab. Prerequisite: instructor's consent. A 14 510 0 1507

511. Tutorial Practicum. (1) Required of all students intending to serve as tutors in the writing lab. This course provides supervised tutoring experience. Prerequisite: previous or concurrent enrollment in Eng. 510. A 14 511 0 1507

520. Theory and Practice in Composition. (3) Introduction to theories of rhetoric, research in composition and writing programs and practices in schools and colleges. Students investigate the process of writing, analyze varieties and samples of school writing and develop their own writing skills by writing, revising and evaluating their own and others' work. The course is designed especially for prospective and practicing teachers and may not be taken for credit by students with credit in Eng. 780. A 14 680 0 1501

600. Theory and Practice in Composition. (3) Explores the relationships among contemporary issues, problem-solving and communication. The first objective of the course is to engage students in interdisciplinary inquiry into some aspect of social policy, inquiry which asks students to apply the analytical approaches of their major fields to current issues of broad, general interest. The second objective of the course is to develop students' abilities to communicate their knowledge and assumptions about this issue to a variety of audiences and for a variety of purposes. Prerequisite: Eng. 101 and 102 and upper-division standing. A 14 685Q 0 1501

780. Advanced Theory and Practice in Composition. (3) Designed for teaching assistants in English. Review of new theories of rhetoric, recent research in composition and new promising developments in composition programs in schools and colleges. Students are given practice in advanced writing problems; situations and techniques and may propose projects for further special study. A 14 760 0 1501

Creative Writing

Courses for Graduate/Undergraduate Credit

515-517. Playwriting I and II. (3; 3). Cross-listed as Speech 515 and 517. Not repeatable for credit. A 14 517 0 1507 5.5. Writer's Tutorial: Prose Fiction. (3). Tutor work in creative writing in prose fiction with visiting writer. Repeatable for credit. Prerequisite: consent of creative writing director. A 14 550 0 1507

586. Writer's Tutorial: Poetry. (3). Tutorial work in creative writing in poetry with visiting writer. Repeatable for credit. Prerequisite: consent of creative writing director. A 14 586 0 1507

604. Writing Seminar: Fiction. (3). An advanced course designed primarily for nontraditional student, both graduate and undergraduate, who desires intensive experience in the conceptualization and writing of prose fiction. Not creditable toward the MFA degree. Prerequisite: six hours of undergraduate creative writing or instructor consent based on submitted manuscript. Departmental consent required for undergraduate enrollment. A 14 604 0 1507

605. Writing Seminar: Poetry. (3). An advanced course designed primarily for nontraditional student, both graduate and undergraduate, who desires intensive experience in the conceptualization and writing of poetry. Not creditable toward the MFA degree. Prerequisites: six hours of undergraduate creative writing or instructor consent based on submitted manuscript. Departmental consent required for undergraduate enrollment. A 14 605 0 1507

Courses for Graduate Students Only

801. Creative Writing: Fiction. (3). Advanced work in creative writing. Repeatable for credit. Prerequisite: consent of creative writing director. A 14 801 0 1507

805. Creative Writing: Poetry. (3). Advanced work in the writing of poetry. Repeatable for credit. Prerequisite: consent of creative writing director. A 14 805 0 1507

875. Master of Fine Arts Essay. (1-9). A 14 875 0 1507

880. Writer's Tutorial: Fiction. (3). S/U grade only. Tutorial work in creative writing in...
prose fiction with visiting writer. A 14 680 9 1507


Linguistics

Courses for Graduate/Undergraduate Credit

685. History of the English Language. (3). Cross-listed as Ling 665. Linguistic and cultural investigation of the development of English. Prerequisite: Eng. 315 or Ling. 577 or departmental consent. A 14 665 0 1506

687. English Syntax. (3). Cross-listed as Ling 667 and Anthro 667. A study of the basic principles of English syntax, covering the major facts of English sentence construction and relating them to linguistic theory. Prerequisite: Eng. 315 or equivalent or departmental consent. A 14 667 0 1505

672. Studies in Language Variation. (3). Cross-listed as Ling 672. An introduction to the study of language variety with special attention to regional and social dialect in America and methods of studying it. May be repeated for credit when content varies. Prerequisite: Eng. 315 or Ling. 577 or departmental consent. A 14 672 0 1505

727. Teaching English as a Second Language. (2-3). Cross-listed as Ling 727 and CSS 727. Current methods of teaching English to non-native speakers are discussed. Students learn to analyze interlanguage patterns and to design appropriate teaching units for class and language laboratory use. D 12 727 0 1220

740. Graduate Studies in Linguistics. (3). Selected topics in theories of language and method of linguistic study. With departmental consent, the course is repeatable for credit. A 14 740 0 1505

Literature

Courses for Graduate/Undergraduate Credit

503. Studies in American Literature I. (3). A course in the major fiction, poetry, and dramatic prose of the classic American period. Discussions may include such topics as the historical evolution of American letters, the development of the novel and romance, the transcendental period and the rise of western and western literatures. A 14 503 0 1502

504. Studies in American Literature II. (3). Fiction, poetry and drama from the late 19th century to World War II. Readings may also include literary criticism and other types of nonfiction prose. Discussions cover themes, topics and literary forms inspired by the social and cultural movements and events of the first half of the 20th century. A 14 504 0 1503

512. Studies in Fiction. (3). Subjects to be announced each semester. Repeatable for credit. A 14 512 0 1502

513. Studies in Poetry. (3). Subjects to be announced each semester. Repeatable for credit. A 14 513 0 1502

514. Studies in Drama. (3). Subjects to be announced each semester. Repeatable for credit. A 14 514 0 1502

515. Studies in Shakespeare. (3). Subjects to be announced each semester. Repeatable for credit, except by students who take Eng. 3400. Prerequisites: junior standing and one college literature course, or instructor's consent. A 14 515 0 1502

521. Readings in Medieval Literature. (3). English and Continental literature, 12th to 15th century. Chaucer, Malory, the Pearl Poet, medieval alliterative verse, romance, and saga. Prerequisites: junior standing and one college literature course, or instructor's consent. A 14 521 0 1502

522. Readings in Renaissance Literature. (3). Sidney, Spenser, Shakespeare (poetry), Donne, Jonson, Milton and their contemporaries. Prerequisites: junior standing and one college literature course, or instructor's consent. A 14 522 0 1502

524. Readings in Restoration and 18th Century Literature. (3). Swift, Pope, Johnson and their contemporaries. Prerequisites: junior standing and one college literature course, or instructor's consent. A 14 524 0 1502

526. Readings in Romantic Literature. (3). Blake, Wordsworth, Coleridge, Byron, Shelley, Keats and their contemporaries. Prerequisites: junior standing and one college literature course, or instructor's consent. A 14 526 0 1502

527. Readings in Victorian Literature. (3). Writers from Carlyle to Yeats studied in relation to political events and social, scientific and religious thought of the age. Prerequisites: junior standing and one college literature course, or instructor's consent. A 14 527 0 1502

532. Studies in Modern British Literature (to 1950). (3). English and Irish literature of the first half of the 20th century. Subjects to be announced each semester. Repeatable for credit. A 14 532 0 1502

533. Studies in Contemporary Literature. (3). Modern literature, primarily British and American, since 1950. Subjects to be announced each semester. Repeatable for credit. A 14 533 0 1502

535. Images of Women in Literature. (3). Cross-listed as WS 535. Women as characters in stereotyped archetypes and as fully developed human beings in the works of various authors. A 14 535 0 1502

536. Writing by Women. (3). Cross-listed as WS 536. The work of major women writers, both British and American, in poetry and prose. A 14 536 0 1502

580. Special Studies. (1-3). Topic selected and announced by the individual instructor. Repeatable for credit. Prerequisite: departmental consent. A 14 580 3 1502

610. Old English. (3). Cross-listed as Ling 610. A 14 610 0 1502

750. Workshop. (2-4). Repeatable for credit. A 14 750 2 1502

Courses for Graduate Students Only

800. Introduction to Graduate Study in English. (3). Especially designed to prepare students to perform effectively in graduate classes in English. The course is concerned with (1) basic bibliographical tools, (2) terminology, both technical and historical, (3) various approaches to the study of literature, such as intrinsic analysis of a literary work, the relationships of biography to literary study, and critical thought; (4) the study of topics in literary theory and criticism. Throughout the semester a balance between critical study and research is maintained. A 14 800 0 1502

817. Graduate Readings in 20th Century British Literature. (3). Yeats, Joyce, Lawrence, Auden, Spender and their contemporaries. A 14 817 0 1502

821. Graduate Readings in American Literature I. (3). From the beginnings to 1870 with emphasis on Emerson, Thoreau, Hawthorne, Melville, Whitman and Dickinson. A 14 821 0 1502

822. Graduate Readings in American Literature III. (3). From 1920 to 1980 with emphasis on James, Twain, Crane, Dreiser, Robinson and Frost. A 14 822 0 1502

823. Graduate Readings in American Literature IV. (3). From 1920 to 1970, including Eliot, Stevens, Hemingway, Faulkner and their contemporaries. A 14 823 0 1502

825. Theories of Rhetoric: Classical. (3). Cross-listed as Speech 850. An intensive study of the rhetorical theories of classical writers such as Plato, Aristotle, Quintilian, Cicero and Longinus. A 14 825 0 1502

826. Theories of Rhetoric: Renaissance to Early Modern. (3). Cross-listed as Speech 850. A study of the emerging patterns of rhetoric from the Renaissance to modern times. Analysis is made of the rhetorical systems associated with such figures as Augustine, Petrarch, Boccaccio, Erasmus, Thomas More, John Adjacent Adams, Birkett and Whately. A 14 826 0 1502

830. Graduate Studies in Drama. (3). Selected topics in the history and nature of dramatic literature. A 14 830 0 1502

832. Graduate Studies in Fiction. (3). Selected topics in the development of the form and content of prose fiction. A 14 832 0 1502

834. Graduate Studies in Poetry. (3). Selected topics in forms, techniques and history of poetry. A 14 834 0 1502

840. Graduate Studies in Criticism. (3). Selected topics in the theory and practice of literary criticism. A 14 840 0 1502

845. Graduate Studies in a Major Author. (3). Critical study of the works of major authors, with readings in secondary sources, reports, discussions and papers. Repeatable for credit with change of content. A 14 845 0 1502

855. Directed Reading. (2-3). Designed for graduate students who want to pursue special research in areas not normally covered in course work. Repeatable for credit with departmental consent. A 14 855 3 1502

860. Graduate Seminar in Special Topics. (3). Intensive study of selected texts, writers or literary problems. Seminar discussions, reports and research projects. Repeatable for credit with new topic. A 14 860 3 1502

The following abbreviations are used in the course descriptions: R stands for lecture and L for laboratory. For example, R 2L 2H means 2 hours of lecture and 2 hours of lab.
The student must be accepted by the Graduate School and by the Department of Geology; this assures all prerequisites have been fulfilled. In general, 30 credit hours are required. One to six of these hours may be thesis credit and at least 15 must be at the 600 level. The department encourages students to take courses relevant to their program outside geology.

Tool Requirement. Although the department does not have a tool requiremen, students are encouraged to obtain proficiency in modern languages (especially French, German and/or Russian), particularly if continuing for a Ph.D. Also it is important to have a certain level of proficiency in statistics and computer programming (FORTRAN, BASIC and/or PASCAL are recommended.)

Examinations. The student is required to present the thesis proposal—Geol. 890-oral before the faculty to obtain approval before initiating work on the project. The proposal must be presented in enough detail to assure the faculty of the student's knowledge of the topic and that the candidate can complete satisfactorily the project in the allotted time. Upon passing the oral examination, the written proposal is approved. After completing the thesis, the student must give a public oral defense. All graduate students are required to enroll in Geol. 701, a one-hour credit seminar, as an introduction to experimental skills in research.

Courses for Graduate/Undergraduate Credit

501. Raw Materials of Antiquity. (3). 2R; 2L. Lab fee. Identification, classification, terminology and intensive study of raw materials used in prehistory and antiquity. Also included are weathering, sedimentation and soil-forming processes; elements of stratigraphy; geologic history of the Pleistocene and Recent Epochs; relative and absolute age dating; mineralogy of clays and ceramics, and mining and metallurgical processes of antiquity. Prerequisite: Anthro. 501 or equivalent or instructor’s consent. A 16 501 1 1914

520. Optical Mineralogy. (3). 1R; 6L. Lab fee. Optical properties of amorphous and crystalline minerals in polarized light. Use of the petrographic microscope in the quantitative determination of rock-forming minerals and mineraloids in thin section. Effects of light are studied and immersion oil methods are introduced. Prerequisite: Geol. 320. A 16 520 1 1914

523. Igneous and Metamorphic Geology. (3). 2R; 3L. The evolution of igneous and metamorphic rocks, their structures and the physical-chemical processes controlling their origin. Petrochemical calculations; systematic petrographic examination and classification of igneous rocks and metamorphic rocks in thin section, in insoluble residues and heavy-mineral analysis. Field trips may be required. Prerequisite: Geol. 520. A 16 523 1 1914

524. Petrography. (3). 1R; 6L. Lab fee. Description, classification and analysis of plutonic and volcanic igneous rocks, granitic and foliated metamorphic rocks, feldspars, clastic and chemical sedimentary rocks, and well-cemented, non-geologic rocks. Use of the petrographic microscope. Prerequisite: Geol. 520 A 16 524 1 1914

525. Sedimentary Geology. (3). 2R; 3L. Lab fee. Origin, classification, primary structures and physical-chemical processes controlling deposition of igneous rocks, especially carbonates. An analysis of modern and ancient depositional environments is included, as is a systematic petrographic study of sedimentary rocks in thin section. Lapsible residues and heavy-mineral analysis. Field trips may be required. Prerequisite: Geol. 524. A 16 525 1 1914

549. Field Mapping Methods. (3). 3L. Lab fee. Field mapping methods with special reference to use of level, compass, barometer, alidade and anemometer. Field trips are required. Prerequisite: Geol. 201 or Geol. 1110. A 16 549 1 1914

554. Structural Geology. (3). 2R; 3L. Lab fee. Stress-strain theory and mechanics of rock deformation, description and genesis of secondary structural features in crystallines resulting from plastic flow. Elements of regional tectonics and laboratory solution of geologic problems in three dimensions and time. Field trips and field problems may be required. Prerequisites: Math 112 or Geol 552 or concurrent. A 16 554 1 1914

552. Physical Stratigraphy. (3). 2R; 3L. Lab fee. Identification and interpretation of the genetic elements of stratigraphic sequence and the processes producing the landforms, including identification of the elements of stratigraphy. Field trips are required at the option of the instructor. Prerequisite: Geol. 560 or instructor’s consent. A 16 552 1 1914

560. Geomorphology. (5). 2R; 3L. Lab fee. Identification and interpretation of the genetic elements of the sequence of landforms, the processes producing them, and the landforms produced in the world. Field trips are required at the option of the instructor. Prerequisite: Geol. 1110. A 16 560 1 1914

562. Regional Geology of the United States. (3). A detailed regional survey of the general geology, geomorphology, stratigraphy and structural geology and their interrelationships. Field trips are required at the option of the instructor. Prerequisite: Geol. 560 or instructor’s consent. A 16 562 1 1914

564. Map and Airphoto Interpretation. (3). 2R; 3L. Lab fee. Elements of map and aerial photograph composition: interpretation and application of maps and photos in geology, geography, urban planning, land-use investigation, and engineering works. Remote-sensing methods are introduced. Field trips are required at the option of the instructor. Prerequisite: Geol. 1110, Geol. 201 or equivalent. A 16 564 1 1914

570. Biogeology. (3). 2R; 3L. Lab fee. Systematic survey of major fossil biogeological systems and modern, recent and ancient trends in life on earth. Use of biological and paleontological data to study earth history. Field trips are required at the option of the instructor. Prerequisite: Geol. 520 or equivalent. A 16 570 1 1914
materials, analysis of the origin and evolution of life and paleoecological interpretation of ancient environments and climates. Hands-on and microscopic examination is made of major fossil biological materials. Application of analyzed fossil data to the solution of problems in biogeochronology, palaeontology, and paleoecology is taught. Field paleontology and photography is included. Examples are cited from fields of invertebrate, vertebrate and micro-paleontology, and palynology. Museum and field trips may be required. Prerequisite: Geol. 312 or 552. A 16 570 1 1918

574. Special Studies in Biogeology. (3).
2R; 3L. Lab fee. A systematic study in selected areas of biogeology and paleontology. Course content differs, upon demand, to provide in-depth analysis in the fields of: (a) invertebrate palaeontology, (b) vertebrate palaeontology, (c) palynology, (d) wilflife palaeontology. Appropriate laboratory instruction is given in the systematic, taxonomy and biogeographical relationships within the selected fields. Field trips may be required. Repeatable for credit. A 16 574 1 1819

581. Numerical Geology. (3). 2R; 3L. Treatment of numerical data in geology, including computer and computer data analysis and elementary programming in FORTRAN. A study of geological data and computer techniques used to analyze them as well as the historical applications of computerization. Prerequisites: Geol. 1110, Math. 370, CS 200/201 or permission of instructor. A 16 581 1 1914

590. Geochemistry. (3). 2R; 3L. The chemistry of earth materials and the important geochemical processes and cycles operating on and within the earth (through time). Prerequisites: Geol. 324 and Chem. 112. A 16 590 1 1913

600. Field Studies in Geology. (2-6). Off-campus, systematic field study in a selected area of geological significance. The course is given upon demand and may be repeated for credit when course facility and consent differ. Where appropriate, travel, lodging and board costs are charged. A 16 600 2 1914

640. Geologic Field Methods. (3). Field investigation of sedimentary, igneous and metamorphic rock structures. The application of mapping methods in solving geologic problems is included. This course is held at an off-campus field camp for five weeks (including weekends). Preparation of geologic column sections, maps and an accompanying professional written report are due on campus during the week prior. Prerequisite: 12 credits of advanced geology, preferably including a field-mapping methods course or instructor consent. Offered on demand. A 16 640 1 914

650. Geohydrology. (3). 2R; 3L. Lab fee. The hydrologic cycle, physical and chemical properties of water, fluid flow through permeable media, exploration for and evaluation of groundwater, water quality and pollution, and water law. Prerequisites: Geol. 552 and Math. 243 or instructor's consent. A 16 650 1 1914

657. Earth Science Instructional Methods. (3). Provides an introductory course in the earth sciences. Developing and presenting the latest scientific laboratory techniques and evaluating their effectiveness in the classroom setting. The goals and objectives differ. Prerequisite: senior standing and permission of the department chairperson. A 16 657 0 1914

660. Geophysics. (3). 2R; 3L. The study of the Earth's fundamental physical properties and their effects on the physical environment. Prerequisite: Geol. 544 and Phys. 214 or equivalent. A 16 660 1 1916

680. Economic Geology. (3). 2R; 3L. Lab fee. Occurrence of metallic and nonmetallic economic minerals and the physical-chemical principles governing their origin. Includes also a laboratory examination of ores of metallic minerals. Prerequisite: Geol. 544 A 16 680 1 1914

682. Petroleum Geology. (3). 2R; 3L. Lab fee. The origin, migration and accumulation of oil and gas in the earth's crust, as well as the distribution and significant features of modern fields, and energy alternatives and impacts. Field trips may be required. Prerequisite: Geol. 544 A 16 682 1 1914

692. Subsurface Geology. (3). 2R; 3L. Lab fee. All subsurface methods, including laboratory, logging, testing and treatment, valuation and marketing of petroleum. Field trips are required at the option of the instructor. Prerequisite: Geol. 552 and Phys. 2140 or equivalent A 16 692 1 1914

701. Seminar. (1). Current topics in geology. Offered on demand. A 16 701 1 914
Geography

Courses for Graduate/Undergraduate Credit

510. World Geography. (3). A general survey of world geography, including an analysis of the physical, political, economic, historical and human geography of the major world regions. A 16 510 0 2206

520. Geography of the United States and Canada. (3). Physical, political, economic, historical and human geography of the United States and Canada. A 16 520 0 2206

530. Geography of Latin America. (3). Physical, political, economic, historical and human geography of Latin America. A 16 530 0 2206

542. Geography of Europe. (3). Physical, political, economic, historical and human geography of Europe. A 16 542 0 2206

550. Geography of Africa. (3). Physical, political, economic, historical and human geography of Africa. A 16 550 0 2206

572. Geography of Asia. (3). Physical, political, economic, historical and human geography of Asia. A 16 572 0 2206

580. Economic Geography. (3). A geographical analysis of the distribution and utilization of basic world resources. A 16 580 0 2206

585. Mineral Resources. (3). Economic geography of the earth's resources and distribution and utilization of metals, industrial and chemical materials, fuels, building materials, fossil fuels and water. A 16 585 0 2206

620. Field Studies in Geography. (2-6). Off-campus, systematic field study in a selected area of geographic significance. The course is given upon demand and may be repeated for credit when the course locality and content differ. Where appropriate, travel, lodging and board costs are charged. A 16 620 2 2206

630. Geography of Mexico. (3). Physical, human, and cultural geography of Mexico, including important archaeological and historical settings. Relations of sources to arts, crafts, industry and architecture. A 16 630 0 2206

670. Urban Geography. (3). 2R; 3L. Lab fee. Geography of cities: origin, growth, functions, characteristics and environmental problems of urban areas; structure and dynamic elements of intraurban space; land-use analysis and approaches to urban planning; and problems of urban ecology. A 16 670 1 2214

681. Mineral Crises of Antiquity. (3). An earth-resource viewpoint of the keystone events of civilization from prehistory through the 19th century. The role of mineral wealth in the affairs of man from prehistorical Grand Prehistory, through the Copper, Bronze and Iron Ages, the Greek, Roman and Danubian Empires and related mineral resources of Europe and Africa; the gold-silver wealth of early Latin America; the mineral resources of revolutionary America; and the development of the American West through copper, silver and gold. Prerequisite: Upper-division or graduate standing. A 16 681 0 2206

695. Special Studies in Geography. (1-3). 3R or 2R; 3L. Lab fee. (Lab is included when appropriate.) Systematic study in a selected area of topical interest in geography. The course is given on demand and is repeatable for credit when course content differs. Field trips may be required. Prerequisite: junior standing. A 16 695 3 2206

750. Workshop in Geography. (1-4). Short-term courses with special focus on geographical problems. Prerequisite: instructor's consent. A 16 750 2 2206

Course for Graduate Students Only

820. Field Studies in Geography. (2-6). Off-campus, systematic field study in a selected area of geographic significance. The course is given upon demand and may be repeated for credit when the course locality and content differ. Where appropriate, travel, lodging and board costs are charged. Prerequisite: instructor's consent. A 16 820 2 2206

History

Graduate Faculty

Distinguished Professor: J. Kelley Sowards


Associate Professors: John D. Born, Jr. (graduate coordinator), Martin Bush, Donald M. Douglas, John E. Diefert (charperson), James Gray, William Harrison Richardson, Richard A. Todd

Assistant Professor: Willard Klunder

Master of Arts and Areas of Specialization

The history department offers courses of study leading to the Master of Arts (MA) degree with specialization in U.S. history or in European history.

Admission Requirements

Admission to the MA program in history requires the completion of an undergraduate major in history, or the equivalent; a grade point average of 2.750 or better, including all undergraduate hours; and a 3.000 grade point average in history. Under unusual circumstances, applicants with less than a 3.000 average in history may be granted a provisional admission.

Degree Requirements

One of two plans may be followed for a graduate degree in history. Plan 1 is a thesis program and Plan 2 is a non-thesis program.

Plan 1, Thesis Program: In Plan 1 students must complete a minimum of 36 hours, including Hist. 725, which must be taken during the first year of enrollment. Nonthesis students must take 21 semester hours numbered 700 or above.

Students following the American history emphasis must take the following:

American history seminars . 6 hours
European history seminars . 6 hours
Special topics in history . 3 hours
Thesis research . 2 hours
Thesis . 1-2 hours

The majority, but not all, of the remaining hours must be taken in European history courses for a total of 30 hours. Students also must satisfy the foreign language requirement, pass a written examination in one comprehensive field and pass an oral examination in defense of the thesis. The written examination must precede the oral examination.

Students following the European history emphasis must take the following:

European history seminars . 6 hours
American history seminars . 6 hours
Special topics in history . 3 hours
Thesis research . 2 hours
Thesis . 1-2 hours

The majority, but not all, of the remaining hours must be taken in European history courses for a total of 30 hours. Students also must satisfy the foreign language requirement, pass a written examination in one comprehensive field and pass an oral examination in defense of their thesis. The written examination must precede the oral examination.

Plan 2, Nonthesis Program: In Plan 2 students must complete a minimum of 36 hours, including Hist. 725, which must be taken during the first year of enrollment. Nonthesis students must take 21 semester hours numbered 700 or above.

Students following the American history emphasis must take the following:

American history seminars . 6 hours
European history seminars . 6 hours
Special topics in history . 6 hours

The majority, but not all, of the remaining hours must be taken in American history courses for a total of 36 hours. Students also must satisfy the foreign language requirement and pass written examinations in three comprehensive fields. One of these fields must be in European history.

Students following the European history emphasis must take the following:
European history seminars (including ancient, medieval and modern European history) 6 hours
American history seminar 6 hours
Special topics in history 6 hours

Students must take 12 hours in history courses numbered 500 or above.

The majority, but not all, of the remaining hours must be in European history for a total of 36 hours. Students must satisfy the foreign language requirement and pass written examinations in three comprehensive fields. One of these fields must be in American history.

Comprehensive Fields
Fields of study included in the comprehensive examinations for the MA are:
- Ancient Greece and Rome
- American Colonial and Revolutionary Period
- Early and Late Middle Ages
- United States to 1665
- United States since 1665
- Early Modern Europe to 1815
- Modern Europe since 1789

Courses for Graduate/Undergraduate Credit

501. The American Colonies. (3). Colonization of the New World with emphasis on the British colonies and their development. A 18 501 0 2205

502. The American Revolution and the Early Republic. (3). Examination of selected phases of the revolutionary, confederation and federal periods. A 18 502 0 2205

503. The Age of Jefferson and Jackson. (3). Political, economic and cultural development of the United States from the election of Thomas Jefferson to the end of the Mexican War with emphasis on the growth of American nationalism. A 18 503 0 2205

504. Civil War and Reconstruction. (3). A 18 504 0 2205

505. America's Gilded Age, 1877 to 1900. (3). Emphasis on roots of urban problems, foundations of dissent, policy toward minority groups and evaluation of imperial expansion. A 18 505 0 2205

506. The United States: the 20th Century, 1900-1929. (3). The Progressive Era, World War I, the postwar period and the twenties. A 18 506 0 2205

507. The United States: the 20th Century, 1932-1945. (3). The Great Depression, the New Deal and World War II. A 18 507 0 2205

508. The United States: the 20th Century, Since 1946. (3). The history of the United States from the Truman through the Nixon administrations. A 18 508 0 2205

515. Economic History of the United States, (3). Cross-listed as Econ 627. A 18 515 0 2205

516. Origins of the Industrial State. (3). Cross-listed as Econ 626. U.S. economic development and policy from the Civil War to the present. Emphasis is on changes in the regulations and influence of business firms in American society. A 18 516 0 2205

517 & 518. Constitutional History of the United States. (3 & 3). 517. The evolution of the American constitutional system from English, and through the Civil War. 518. American constitutional development from Reconstruction to the present. A 18 517 0 2205 & A 18 518 0 2205

519. Social History of the U.S. to 1865. (3). Survey of social and intellectual developments from the end of the Civil War. A 18 519 0 2205

520. Social and Intellectual History of the United States. (3). The significant social and intellectual currents from the middle of the 19th century to the present with special reference to the interaction between ideas and social structure. A 18 520 0 2205

521 & 522. Diplomatic History of the United States, (3 & 3). 521. From independence through World War I. 522. continues to present. A 18 521 0 2205 & A 18 522 0 2205

523. History of Modern China. (3). History of China from the Ch'ing dynasty (Manchus) to present with emphasis on geography, religion, ethics, politics, international relations and the major issues of Chinese society. A 18 523 0 2205

524. History of Modern Japan. (3). The history of modern Japan from the establishment of the Tokugawa Shogunate in 1601 to the present modern period. A 18 524 0 2205


529. Indians of Kansas. (3). History of Indian occupation of the Kansas region from initial white contact to the present. Emphasis is given to Indian-white relations in the 19th century, forced removal of the emigrant tribes, intertribal and intra-tribal relations and resultant legal and cultural problems. A 18 529 0 2205

530. The American Women in History. (3). Cross-listed as WS 530. Examination of the history, status and changing role of women in American society. A 18 530 0 2205

531. Afro-American History. (3). Afro-American life, culture and history from the 18th century to the present. A 18 531 0 2205

532. History of Europe, 1200 to 1500. A 18 532 0 2205

533. The American City: from Village to Metropolis. (3). A study of urbanization and urban life from colonial times to the present—changing life-styles and thought patterns, urban architecture, ethnic assimilation, emergence of the suburb, political and ecological adjustments and the influence of new technology and forms of business organization. A 18 533 0 2205

534. History of the Old South. (3). Examination of Southern civilization prior to the American Civil War. A 18 534 0 2205

5350. History of Kansas. (3). History of the Kansas region from Spanish exploration to the present, with principal emphasis on the period after 1654. A 18 5350 0 2205

537. The Trans-Mississippi West. (3). Spanish, French and Anglo-American penetration west and settlement west of the Mississippi River from the 16th century to about 1900. A 18 537 0 2205

539. Indian-White Relations in North America. (3). Indian life, culture and history from the early 16th century to the present with emphasis upon the impact of federal Indian policy since 1800. A 18 539 0 2205

540. Recent Indian Policy in the United States. (3). History of the American Indian from the General Allotment Act. Emphasis is given to depopulation, revives of the 1930s, the politics of reform, the termination controversy, Native American protest and contemporary legal problems. A 18 540 0 2205

541. Modern France. (3). History of the major events in French politics from Napoleon to de Gaulle with emphasis upon French attempts to adjust politically, socially, economically and internationally to the changing conditions of modern industrial society. A 18 541 0 2205

545Q. Neither War Nor Peace. The World Since 1945. (3). A 18 545Q 0 2205

553. History of Mexico. (3). Pre-Columbian Mesoamerica, the Spanish conquest and the colonial period, the independence movement, Juarez, the Reform and the French intervention, the Porfiriato, the Mexican Revolution. Mexico in recent years. A 18 553 0 2205

558. The Ancient Near East. (3). Political and cultural history of ancient Mesopotamia, Iran, Egypt, Paleolithic, Syria and Asia Minor to the death of Alexander the Great. A 18 558 0 2205

558Q & 560. Greek History. (3 & 3). 558Q: The Hellenic world from prehistoric times to the end of the Peloponnesian War; 560Q: the history of ancient Greece from the generation of Pericles to the fall of Athens. A 18 558Q 0 2205 & A 18 560Q 0 2205

562 & 563. Roman History. (3 & 3). 562Q: the Roman Republic; 563Q: the Roman Empire. A 18 562Q 0 2205 & A 18 563Q 0 2205

565. Byzantine History. (3). Survey of Byzantine history from its origins in the late Roman empire to its fall in 1453 with an investigation of its major institutions and foreign relations. A 18 565 0 2205

566 & 567. Medieval History. (3 & 3). 566Q: the history of Europe from the fall of the Roman Empire through the Carolingians in 800 to 1200; 567Q: the history of Europe from 1200 to 1500. A 18 566Q 0 2205 & A 18 567Q 0 2205

568. Medieval Social and Intellectual History. (2). Survey of the social and intellectual history of Europe from the 4th to the 15th centuries. A 18 568 0 2205

569. Medieval England. (3). An examination of the political, social, economic and intellectual history of the British Isles from the 1st century BC to the 15th century AD. A 18 569 0 2205

574. History of Christianity to the Reformation. (3). The rise of the early church, its development in late antiquity and its growth in the medieval centuries. The emphasis, in the early period, is on the relation between the church and the Roman state and, in the medieval era, on the growth of the papacy and the church's role in society. A 18 574 0 2205

575Q. The Italian Renaissance. (3). Italian history from the 14th through the 16th centuries with emphasis on cultural achievements. A 18 575Q 0 2205

576. The Reformation. (3). Cross-listed as Pol. 476. The great religious changes in the 16th century in the political, social and intellectual contexts. A 18 576 0 2205

579. Europe Under the Old Regime, 1648-1787. (3). The aristocratic Old Regime, so-
Prerequisites: Junior standing and Journ. 200. A 19 510 1 0602

520. Seminar in Journalism. (3). Exploration of problems and controversies involving the press, the nature of news, sources of news and consumers of news. Prerequisite: departmental consent. A 19 520 9 0601

522. Advanced Broadcast News. (3). Prerequisite: Speech 522. A course in advanced techniques of preparing news for radio and television presentation with emphasis on actual work in radio and television newrooms. Lab periods arranged with instructor. Prerequisite: Journ. 322. A 19 522 1 0603

525. Advertising Copywriting. (3). Detailed practice in writing various kinds of advertising copy, including print and broadcast forms. Emphasis is on terse, precise writing that evokes response sought by advertiser. Prerequisite: Speech 120 or departmental consent. A 19 525 0 0604

530. Editorial Writing. (3). A study of editorial judgment, including practice in the writing of editorials and editorial page features and a study of research materials available to editorial writers. Prerequisite: junior standing and Journ. 200. A 19 530 0 0602

560. Law of the Press. (3). Emphasis on the case method in examining laws and court cases applicable to the mass media. Introduces the 1st Amendment and covers such topics as libel, privacy and copyright. Prerequisites: junior standing and Journ. 200. A 19 560 0 0601

570. Magazine Journalism. (3). A course in magazine production, including the choosing of subjects, approaches and illustrations, the shooting and editing of photographic stories; layout, the handling of production and management concerns. Prerequisites: Journ. 200 or departmental consent. A 19 570 0 0602

571. Magazine Writing. (3). A course on writing for magazines with emphasis on analyzing the market and patterning articles to fit the needs of specific magazines. Prerequisite: Journ. 200 or departmental consent. A 19 571 0 0602

611. Media Management. (3). A study of the business and management operations of the mass media designed to give journalism students an understanding of the interrelationships in mass media enterprises. Prerequisites: junior standing or departmental consent. A 19 611 1 0602

622. Practicum in Broadcast Journalism. (3). Cross-listed as Speech 620. Planning and writing about events in the University and community. Story assignment and preparation of copy under the instructor's guidance and will be broadcast over WSU Cable Channel 12. May be repeated for credit with adviser's consent. Prerequisite: Journ. 322 or instructor's consent. A 19 622 2 0603

625. Advertising and PR Campaigns. (3). Instruction and practice in constructing total advertising and public relations campaigns, derived from market analysis and media selection to creation of the completed package. Prerequisite: Journ. 522 or departmental consent. A 19 625 0 0604

645. Special Topics in Journalism. (1-3). Directed individual research in various aspects of journalism and mass communication related topics. Communications theory, news, editorials, advertising and broadcast. Repeatable for credit when topics differ substantially. Prerequisites: junior standing and departmental consent. A 19 645 3 0601

650. Journalism Internship. (2-6). On-the-job experience and training in news, advertising, public relations or radio or television news broadcasting. Prerequisite: departmental consent. A 19 650 2 0601

715. World Press. (3). A comparative study of press and broadcasting systems around the world with emphasis on press freedoms and cross-cultural communication. Prerequisite: senior standing. A 19 715 0 0601

7200. Dimensions of Mass Communication. (3). A detailed study of mass media, their role as social institutions, their control, content and audience and their effects. A 19 7200 0 0601

750. Journalism Workshop. (1-3). A course designed to provide specialized instruction in writing, using a variable format, in a journalistic relevant subject. A 19 750 2 0609

Linguistics

Graduate Faculty
Assistant Professor: Tina L. Bennett-Kastor

Although there is no graduate program in linguistics, the following courses are available for graduate credit.

Courses for Graduate/Undergraduate Credit


680. Linguistics. Comparative Linguistics. (3). Methods of establishing genetic relationships between languages and reconstructing proto-languages. The course includes a survey of the major language families of the world and typological comparisons of languages and the problems of language universals. Prerequisite: Ling. 315 or 577. A 19 680 1 0605

682. Linguistics. Structure of a Selected Non-Indo-European Language. (3). The language offered depends on student demand and availability of staff. The course may sometimes be conducted as a field methods course and is repeatable for credit when different languages are offered. Prerequisite: Ling. 315 or 577. A 19 682 1 0605

Group B—Linguistic Study of Specific Languages or Language Groups

Courses for Graduate/Undergraduate Credit

505. French. Advanced Phonetics and Diction. (2). Cross-listed as Fr. 505. A 19 505 0 1109

505. Spanish. Spanish Phonetics. (2). Cross-listed as Span. 505. A 19 505 0 1109


635. French and Spanish. Introduction to Romance Linguistics. (3). Cross-listed as Fr. 635 and Span. 635. A 19 635 0 1105


Group C—Areas of Contact Between Linguistics and Other Disciplines

Courses for Graduate/Undergraduate Credit

545. Psychology. Psycholinguistics. (3). Cross-listed as Psych. 545. A 19 545 1 1501


727. CDS. Teaching English as a Second Language. (2-3). Cross-listed as CDS 727 and Eng. 727. A 19 727 1 1220


Others

Courses for Graduate Credit

590. Linguistics. Special Studies. (2-3). Topic selected and arranged by individual instructor. Credit is assigned to Group A, B or C depending on credit when content varies. A 19 590 2 1505

595. Linguistics. Directed Readings. (2-3). Credit assigned to Group A, B or C depending on credit. Repeatable for credit. A 19 595 3 1505

Mathematics and Statistics

Graduate Faculty

Professor: Luca Antogna, Dharam V. Chopra (chairperson), Alan R. Elcrat, John J. Hutchinson, William M. Parell

Associate Professors: Prem N. Bhat, Stephen W. Brody, Jeneva Brewer, Gary D. Crown, Bluma Friedman, Kenneth Miller (graduate coordinator), William H. Richardson, Robert C. Wherrett

Assistant Professors: Douglas Burkholder, Matthew H. Fennick, Thomas C. Fanch, James Hung, Leonid Krop, Kirk Lancaster, Russell Mair, Diana Palenz, Phillip Parker

The Department of Mathematics and Statistics offers courses of study leading to the Master of Science (MS) and the Doctor of Philosophy (PhD) degrees in applied mathematics. The Doctor of Philosophy degree is awarded in cooperation with The University of Kansas and Kansas State University.
Master of Science

Admission Requirements

Students will be admitted to full graduate standing if they have the equivalent of an undergraduate major in mathematics and meet Graduate School admission requirements.

Degree Requirements

To complete the MS degree, students must earn 33 semester hours of graduate credit, with a minimum of 24 semester hours in courses in mathematics or statistics offered by the department (exclusive of thesis) numbered 700 or above. The student must satisfy one of the following options:

Option 1: The 33 hours must include the completion of three two-semester sequences in mathematics and/or statistics numbered 700 and above.

Option 2: The 33 hours must include the completion of a two-semester sequence in statistics (771-772), a two-semester sequence in numerical analysis (751-752) and 6 hours to be chosen from among courses in ordinary differential equations (753), partial differential equations (755, 856), complex variables (745, 845), real variables (743, 843), engineering mathematics (752) and applied stochastic processes (Stat. 762). In addition, it is recommended that the student complete a directed project in mathematical modeling supervised by a departmental graduate faculty member who is approved by the chairperson and graduate coordinator. Students not choosing the thesis option should enroll in Math 881 for three hours credit for their directed project.

Generally not more than six hours of approved course work may be transferred from another university. Students may take either a thesis or a nonthesis option. Students electing to write a thesis should enroll in Math 883 for up to six hours credit. A student’s program must be approved by the department. A comprehensive examination is required of all degree candidates.

* Mathematics or statistics courses numbered below 600 do not count toward the 33 hours needed for the MS in mathematics.

The Doctoral Program

The primary emphasis in the doctoral program in applied mathematics are partial differential equations, probability and statistics and computational mathematics.

Admission Requirements

Admission to the doctoral program will be through the Admissions and Exceptions Committee of the department. Students may enter the doctoral program in mathematics and statistics if they have the prerequisites for the initial required courses, have taken the advanced GRE and have satisfied one of the following:

1. The student is entering the graduate program and has a 3.000 overall grade point average and a 3.250 grade point average in mathematics and statistics.

2. The student is in good standing in the MS degree program and has completed 18 hours of course work in the MS program.

3. The student has an MS degree in mathematics or statistics. Students must satisfy the prerequisites for the initial requirements if they have taken three hours of course work in each of the following advanced calculus, modern algebra, linear algebra and numerical methods.

Degree Requirements

All students must complete a minimum of 54 hours in mathematics and statistics beyond the master’s (a total of 84 hours) of which at least 24 hours of dissertation is included. In addition, at least 40 of the above hours must be in courses numbered 800 or above. Furthermore, within the total of 84 hours, each student must complete six hours of graduate credit in each of the following groups:

Algebra and Topology
Real Analysis
Complex Analysis
Computer Science (Computational Mathematics)

The required courses are designed to provide the background needed for the completion of a dissertation in the chosen division.

Each student’s plan of study will be formulated in consultation with the graduate coordinator and will depend upon the student’s background and interest. Each program must satisfy one of the options:

1. Partial Differential Equations Option. Students must complete the following: ordinary differential equations (753), partial differential equations I and II (755, 856), numerical analysis I and II (751, 851) and three additional hours of course work from Option 2 or 3.

2. Probability and Statistics Option. Students must complete the following: probability (661), theory of statistics I and II (771, 772), applied stochastic processes (762) and three additional hours of course work from Option 3.

3. Computational Mathematics Option. Students must complete the following: numerical analysis I and II (751, 851), statistical computing, (NEW), analysis of algorithms (NEW), linear programming (NEW) and three additional hours of course work from Option 1 or 2.

In addition to the required courses and the minimum number of hours required for a doctoral degree, the candidate must:

1. Pass a reading examination in two foreign languages from the following: French, German, Russian.

2. Pass written qualifying examinations in the areas of mathematics necessary for the student to pursue research. These examinations will be given in the fall and spring semesters. A student would normally take these examinations in the second year.

3. Pass an oral and/or written comprehensive examination over the areas of mathematics contained in the student’s option. This examination would usually be taken by the student in the second semester of the third year.

4. Complete a dissertation containing original and significant results of a mathematical inquiry. Typically, the mathematical quality of the dissertation should meet the standards set by a mathematical research journal.

5. Present the contents of the dissertation before an open meeting or seminar.


7. Meet all the requirements for graduation set forth by the Graduate School.

Courses for Graduate/Undergraduate Credit

Credit in courses numbered below 600 is not applicable toward the MS degree in mathematics.

501. Elementary Mathematics. (5). A study of topics necessary to an understanding of the elementary school curriculum, such as set theory, real numbers and geometry. Not for major or minor credit. Prerequisites: elementary education major and Math 111 or equivalent or departmental consent. A 20 501 0 1701

503-504. Topics in Modern Mathematics I and II. (3-3). An investigation of the newer topics in the secondary school curriculum. Repeatable for credit. Prerequisite: departmental consent. A 20 503 0 1701; A 20 504 0 1701

511. Linear Algebra. (3). An elementary study of linear algebra including an examination of linear transformations and matrices over finite dimensional spaces. Prerequisite: or concurrent, Math. 344, A 20 511 0 1701
513. Fundamental Concepts of Algebra. (3) Groups, rings and fields. Prerequisite: Math 511 or departmental consent. A 20 513 0 1701

530. Applied Combinatorics. (3) Basic counting principles, occupancy problems, generating functions, recurrence relations, principles of inclusion and exclusion, the pigeonhole principle. Fibonacci sequences and elements of graph theory. Prerequisite: Math 344 with a grade of "C" or better. A 20 530 0 1703

531. Introduction to the History of Mathematics. (3) A study of mathematics and mathematicians from antiquity to the present, emphasizing how various areas of mathematics evolved. Prerequisites are solved using the methods. The emphasis is to describe how they arose. Requires mathematical skills. Prerequisite: Math 511 and at least six additional hours of mathematics and/or statistics courses numbered 500 or above. A 20 531 0 1701

545. Integration Techniques and Applications. (3) A study of the basic integration techniques used in applied mathematics. Included are the standard vector calculus treatment of line and surface integrals, Green's Theorem, Stokes Theorem and the Divergence Theorem. In addition, the study of improper integrals with application to special functions is included. Prerequisite: Math 344 with a grade of "C" or better. A 20 545 0 1701

547. Advanced Calculus I. (3) A detailed study of the topology and integration. Prerequisite: Math 344 with a grade of "C" or better. A 20 547 0 1701

550. Ordinary Differential Equations. (3) An investigation of integrating factors, separation of variables, solution of linear differential equations with constant coefficients, variation of parameters and existence and uniqueness for initial value problems and systems. Prerequisite: Math 344 with a grade of "C" or better. A 20 550 0 1703

551. Numerical Methods. (3) Approximating roots of equations, interpolation and approximation, numerical differentiation and integration and numerical solution of higher order ordinary differential equations. Some use of the computer. Prerequisite: Math 344 with a grade of "C" or better and a knowledge of FORTRAN, or departmental consent A 20 551 0 1703

553. Mathematical Models. (3) This course covers case studies from the fields of engineering, technology and the natural and social sciences. The emphasis is to describe a problem and then develop the mathematics necessary to solve the problem. The course studies are selected to illustrate several of the topics from among linear algebra, differential and integral equations, stochastic processes, statistics and combinatorics. Each student is required to participate in a term project which is to be the solution of a particular problem approved by the instructor. Prerequisite: Math 344 or departmental consent. A 20 553 0 1703

580. Selected Topics in Mathematics. (3) Topics to be chosen from among those not otherwise represented in the curriculum. May be repeated up to a maximum of six hours credit with departmental consent. Prerequisite: departmental consent. A 20 580 0 1701

585. Elementary Number Theory. (3) Properties of the Integers studied by elementary means. Prerequisite: Math 344 or departmental consent. A 20 615 0 1701

621. Elementary Geometry. (3) A study of the structure of Euclidean geometry. Prerequisite: Math 344 or departmental consent. A 20 621 0 1701

640. Advanced Calculus II. (3) An examination of the calculus of functions of several variables and line and surface integrals. Prerequisites: Math 511 and 547 with a grade of "C" or better. A 20 640 0 1701

651. Engineering Mathematics I. (3) A survey of some of the mathematical techniques most often needed in engineering. The course includes vector analysis, linear algebra, Legendre functions and Bessel functions. No credit given toward a major in mathematics. Prerequisite: Math 550 with a grade of "C" or better. A 20 651 0 1703

657. Optimization Theory. (3) An introduction to selected topics in linear and nonlinear optimization. The interior simplex method is developed along with a careful treatment of duality. The theory is then extended to solve parametric, mixed and integer linear programs. Other topics include additional methods in integer programming and classical methods in nonlinear optimization. Prerequisite: Math 511. A 20 657 0 1703

660. Introduction to Mathematical Logic. (3) A study of symbolic logic including an axiomatic development of propositional calculus and first-order predicate calculus. An introduction to the role of formal languages in mathematics and computer science. Prerequisite: Math 547 or departmental consent. A 20 660 0 1701

713. Abstract Algebra I. (3) A treatment of the standard basic topics in abstract algebra. Prerequisite: Math 513 or departmental consent. A 20 713 0 1701

714. Applied Mathematics. (3) Cross-listed as Phys. 714. Prerequisite: Math 550 or instructor's consent. A 20 714 0 1703

720. Modern Geometry. (3) A study of fundamental concepts of geometry. Prerequisite: Math 513 or departmental consent. A 20 720 0 1701

725. Topology I. (3) An investigation of point set and algebraic topology. Prerequisite: Math 547 or departmental consent. A 20 725 0 1701

743. Real Analysis I. (3) A study of the foundations of analysis and the fundamental results of modern real analysis. Prerequisite: Math 547 or departmental consent. A 20 743 0 1701

745. Complex Analysis I. (3) An investigation of harmonic function theory. Prerequisite: Math 547 or departmental consent. A 20 745 0 1701

750. Workshop. (1-3) Topics appropriate for mathematics workshops that are not in current curriculum. May be repeated up to a total of six hours credit with departmental consent. Prerequisite: departmental consent. A 20 750 2 1701

751. Numerical Analysis I. (3) Numerical linear algebra, interpolation of functions and data, approximation of functions, numerical integration and solutions of one algebraic equation. Prerequisite: Math 511, 547 and 551 or departmental consent. A 20 751 0 1701


753. Ordinary Differential Equations. (3) Existence, uniqueness, stability and other qualitative theories of ordinary differential equations. Prerequisite: Math 547 or departmental consent. A 20 753 0 1703


Courses for Graduate Students Only

801-802. Topics for Mathematics Teachers I and II. (3-3) Topics for secondary school mathematics teachers that relate to the secondary school mathematics curriculum. Topics are chosen according to the needs and interests of individual students. Repeatable for credit with departmental consent. Not applicable toward the MS in mathematics. A 20 801 0 1701; A 20 802 0 1701

813. Abstract Algebra II. (3) A continuation of Math 713. Prerequisite: Math 713 or equivalent. A 20 813 0 1701

818. Selected Topics in Number Theory. (2-3) Repeatable with departmental consent. Prerequisite: departmental consent. A 20 818 0 1701

819. Selected Topics in Algebra. (2-3) Repeatable with departmental consent. Prerequisite: departmental consent. A 20 819 0 1701

825. Topology II. (3) A continuation of Math 725. Prerequisite: Math 725 or equivalent. A 20 825 0 1701

828. Selected Topics in Topology. (2-3) Repeatable with departmental consent. Prerequisite: departmental consent. A 20 828 0 1701

829. Selected Topics in Geometry. (2-3) Repeatable with departmental consent. Prerequisite: departmental consent. A 20 829 0 1701

839. Selected Topics in Foundations of Mathematics. (2-3) Repeatable with departmental consent. Prerequisite: departmental consent. A 20 839 0 1701

843. Real Analysis II. (3) A continuation of Math 743. Prerequisite: Math 743 or equivalent. A 20 843 0 1701

845. Complex Analysis II. (3) A continuation of Math 745. Prerequisite: Math 745 or equivalent. A 20 845 0 1701

849. Selected Topics in Analysis. (2-3) Repeatable with departmental consent. The following abbreviations are used in the course descriptions: A stands for lecture and L for laboratory; for example, 3R 3L means 3 hours of lecture and 2 hours of lab.
Statistics

Courses for Graduate/Undergraduate Credit

Credit in courses numbered below 600 is not applicable toward the MS degree in mathematics.

570. Special Topics in Statistics. (3). Topics of interest, not otherwise available. Prerequisite: departmental consent. A 20 570 1 1702

571-573. Statistical Methods I and II. (3-3). Probability models, points and interval estimates, statistical tests of hypothesis, correlation and regression analysis, introduction to nonparametric statistical techniques, least squares, analysis of variance and topics in design of experiments. Prerequisite: Math 244 or departmental consent. A 20 571 1 1702; A 20 572 1 1702

574. Elementary Survey Sampling. (3). A brief review of basic statistical concepts and simple random, stratified, cluster and systematic sampling. Selection of sample size, ratio and estimation and costs. Applications involve problems from the social and natural sciences, business and other disciplines. Prerequisite: any elementary course in statistics, such as Stat 370, Soc. 501 or Psych. 401. A 20 574 1 1702

575. Applied Nonparametric Statistical Methods. (3). Assumptions and needs for nonparametric tests, rank tests and other nonparametric inferential techniques. Applications involve problems from engineering, medicine, education, social and natural sciences and other disciplines. Prerequisite: any elementary statistics course such as Stat 370, Soc. 501 or Psych. 401. A 20 575 1 1702

661. Probability. (3). A study of axioms of probability, discrete and continuous random variables, expectation, examples of distribution functions, moment generating functions and sequences of random variables. Prerequisite: Math 344 or departmental consent. A 20 661 1 1701

671. Probabilistic Models and Statistical Methods. (3). A study of independent and dependent random variables, probability distributions, such as Gamma, Weibull, Beta, Normal, Binomial, etc., reliability and life testing, and topics on statistical inference with emphasis on applications to engineering. Prerequisite: Math 344 with a grade of "C" or better. A 20 671 1 1702

672. Applied Stochastic Processes. (3). A study of random variables, expectation, limit theorems, Markov chains and stochastic processes. Prerequisite: Stat. 551 or 771 or departmental consent. A 20 752 1 1702

771-772. Theory of Statistics I and II. (3-3). An examination of stochastic independence, distributions of functions of random variables, sampling distributions, order statistics, theory of statistical inference, nonparametric tests and analysis of variance and covariance. Prerequisite: Math 545 or 547 with a grade of "C" or better or departmental consent. A 20 771 1 1702; A 20 772 1 1702

Courses for Graduate Students Only

678. Special Topics. (2-3). Repeatable with departmental consent. A 20 678 1 1702

679. Individual Reading. (1-5). Prerequisite: departmental consent. A 20 679 1 1702

Minority Studies

Graduate Faculty

Associate Professor: John C. Gaston (chairperson)
Assistant Professor: Patricia Washington

Although a graduate program is not currently available in minority studies, the Department of Minority Studies participates extensively with other departments in the multidisciplinary Master of Arts in Communications (MA) program. See requirements for the MA program in the Communications section of the Graduate School Bulletin.

Courses for Graduate/Undergraduate Credit

512. Issues in Minority Aging. (3). Addresses the needs and interests of students who are interested in (1) providing services to the minority elderly; (2) exploring the issues of concern to minority elderly; (3) becoming familiar with the rights of older minority Americans; (4) learning the legal procedures for resolving many of the specific problems of the minority elderly; and (5) offering varied and tested solutions to the problems encountered by minority elders. Cross-listed as Geront 512. Prerequisite: Min Stud 100, Geront 10, Soc. 2110 or instructor's consent. P 15 512 0 4999

Modern and Classical Languages and Literatures

Graduate Faculty

Professors: Pedro Bravo-Elezondo, Allan Cress, Lynn W. Winget

Associate Professor: Ginette Adamson (chairperson), Anthony J. Cardenas, Eun- lime D. Myers (graduate coordinator), Gi Baseball, Dieter Saalmann, Michael Vincent

Assistant Professors: Carl Adamson, Wilson Boldridge, Patrick E. Kehoe, John Koppenhaver, E. Miguel Munoz

French

Although a complete graduate program is not available currently in French, the
following courses may apply toward a master's degree if approved in advance of enrollment by the student's advisor, the chairperson of the Department of Modern and Classical Languages and Literatures and the dean of the Graduate School.

Courses for Graduate/Undergraduate Credit

Upper-division courses are given on a rotating basis. Fr. 300 is a prerequisite for all upper-division literature and civilization courses, unless otherwise indicated. All literature courses, including Fr. 220 and 300, may fulfill the general education literature requirement.

505. Advanced Phonetics and Diction. (3). Cross-listed as Ling. 505.

515. Major Topics. (1-4). Special studies in (a) language, (b) literature, (c) commercial French, (d) the language laboratory, (e) music, (f) composition, (g) problems in teaching French, (h) civilization, (i) translation (a), conversation and (m) phonetics. Repeatable for credit. Prerequisite: departmental consent. A 26 515 0 1102.

525. Advanced Conversation. (3). A course designed to increase fluency in speaking French. Assignments include oral reports, dialogues and work in the language laboratory. Prerequisite: Fr. 225 or equivalent. A 26 525 0 1102.

526. Advanced Composition and Grammar. (3). Emphasis on theme writing, original compositions and detailed study of modern French grammar. Prerequisite: Fr. 220 or departmental consent. A 26 526 0 1102.

540. French Literature in English Translation. (3). Topic varies. May be used to satisfy the general education literature requirement and may count toward a French major or minor if readings and papers are done in French. A 26 5400 0 0312.

541. French Literature of Africa and the Caribbean in English Translation. (3). A study of the concept of Négritude through the works of major contemporary African and Caribbean writers. No knowledge of a foreign language is necessary. This course may count toward a French major or minor if readings and papers are done in French. A 26 5410 0 0312.

551. French Civilization: The Middle Ages to the Restoration. (3). Emphasizes key aspects of the civilization of France as seen in its art, architecture, political structure and history, social evolution and intellectual traditions. The course is interdisciplinary in nature and is designed to complement studies in French language and literature. Includes side demonstrations, guest speakers on special topics and films. Most classes and required readings are in French. Prerequisite/concurrent: Fr. 300. A 26 551 0 1105.

552. Contemporary French Civilization. (3). Emphasizes the major events, themes, ideals and movements in French civilization since the Revolution. The course is interdisciplinary in nature and is designed to complement courses in French language and literature courses. Classwork and readings are in French. Prerequisite/concurrent: Fr. 300. A 26 552 0 1105.

529. Seminar in French. (3). Seminar in French literature, language or civilization. Prerequisite: two literature courses in French numbered above 300. Repeatable for credit. A 26 623 9 1102.

530. Medieval and Renaissance French Literature. (3). Prerequisite: Fr. 300 A 26 630 0 1102.

531. 17th Century French Literature. (3). Prerequisite: Fr. 300 A 26 631 0 1102.

532. 18th Century French Literature. (3). Prerequisite: Fr. 300 A 26 632 0 1102.

533. 19th Century French Literature. (3). Prerequisite: Fr. 300 A 26 633 0 1102.

534. Contemporary French Literature. (3). Prerequisite: Fr. 300 A 26 634 0 1102.

535. Introduction to Romance Language Linguistics and Syntax. As Span. 635 and Ling. 635. An introduction to the historical phonology and morphology of the romance languages with particular emphasis on French and Spanish. Prerequisite: departmental consent. A 26 635 0 1102.

750. Workshop in French. (2-4). Repeatable for credit. A 26 750 2 1104.

815. Special Studies in French. (3). Prerequisite: departmental consent. Repeatable for credit. A 26 815 0 1102.

German

Although a complete graduate program is not available currently in German, the following courses may apply toward a master's degree, if approved in advance of enrollment by the student's advisor, the chairperson of the German department and the dean of the Graduate School.

Courses for Graduate/Undergraduate Credit

524. Advanced Conversation and Composition. (3). Prerequisites: Ger. 324 or instructor's consent. A 26 524 0 1103.

531. Practicum in German-English Translation. (3). Supervised individual reading and translation from German into English of material in the student's area of interest: humanities, social sciences, natural sciences or current affairs. A 17 531 0 1103.

577. Introduction to Linguistics. (3). Cross-listed as Ling. 577 and Anthro. 577. Principles of descriptive and historical linguistics, phonetics and phonology, morphology and syntax, the phonological and grammatical structures of Modern Standard German and its development from Proto-Germanic. This course is required for a German major. Prerequisite: Ger. 112 or equivalent of any foreign language. A 17 577 0 1505.

579. Linguistics in the Teaching of German. (3). Cross-listed as Ling. 579. Principles of linguistics applied to the problems of teaching German with a contrastive analysis of the phonological and grammatical structures of English and German. Prerequisite: Ger. 577 or instructor's consent. A 17 579 0 1505.

641. German Literature in Translation. (3). Consideration of the works of one major author, literary movement, trend or specific genre. Repeatable once for credit. Prerequisite: upper-division standing. A 17 641 0 0312.

550. Directed Study. (1-3). Enrollment in any of the areas listed takes place only upon consultation with the department and agreement with the instructor concerned: (a) introduction to the study of German literature; (b) survey I from the medieval period through the Age of Goethe; (c) survey II from the 14th century to 1945; (d) contemporary literature: the literature of both Germanies since 1945; (e) special topics in literature, repeatable once for credit; (f) special topics in language, repeatable once for credit. Prerequisite: Ger. 244 or instructor's consent. A 17 650 0 1103.

750. Workshop in German. (2-4). Repeatable once for credit. A 26 750 2 1104.

Greek (Ancient Classical)

There is no major in Greek. A minor consists of 11 hours beyond the 111-112 level.

Greek

Although a complete graduate program is not available currently in Greek, the following courses may apply toward a master's degree.

Courses for Graduate/Undergraduate Credit

515. Special Studies. (1-4). Topic announced by instructor. Repeatable for credit. Prerequisite: Ger. 224 or instructor's consent. A 26 515 0 1110.

531. Advanced Greek. (3). Sophocles and Euripides. Prerequisite: Greek 224. A 26 531 0 1110.

532. Advanced Greek. (3). Thucydides. Prerequisite: Greek 531. A 26 532 0 1110.

Italian

Although a complete graduate program is not available currently in Italian, the following courses may apply toward a master's degree.

Courses for Graduate/Undergraduate Credit

515. Major Topics. (2-4). Special studies in Italian language, literature and civilization. Repeatable for credit. Prerequisite: departmental consent. A 26 515 0 1104.

531. Introduction to Italian Literature. (3). Prerequisite: Ital. 224 or departmental consent. A 26 531 0 1104.

540. Medieval and Renaissance Italian Literature in Translation. (3). Representative selections in English translation from Italian medieval and Renaissance literature. The works of Dante and other writers in their medieval context: Boccaccio and the Waring of the Middle Ages; Petrarch and the formation of a new humanistic civilization—reflections and divergences in the 14th, 15th and 16th centuries are all included. A knowledge of Italian is not a prerequisite and the course does not count toward an Italian minor. A 26 540 0 0312.
Latin
Although a complete graduate program is not available currently in Latin, the following courses may apply toward a master's degree.

Courses for Graduate/Undergraduate Credit
Latin 210 or 224 or departmental consent is the prerequisite for all upper-division courses.

541. Roman Lyric Poetry. (3). The lyric poems of Catullus and Horace with emphasis on imagery, symbolism, structure, diction and meter. A 26 541 0 1109

542. Vergil's Aeneid. (3). Selected books of the Aeneid in the original and the rest in translation. Study of imagery, symbolism, structure, meter and diction. Consideration is given to the place of the Aeneid in the Augustan Rome and in the epic tradition. A 26 542 0 1109

543. Roman Drama. (3). A study of Roman comedy and tragedy, their Greek background and their influence on European literature. Included are selected plays of Plautus, Terence and Seneca; same in the original and some in translation. A 26 543 0 1109

544. Love in Ancient Rome. (3). The relationship between love and war and the use of myth in the poetry of Ovid, Propertius and Tibullus. A 26 544 0 1109

545. The Roman Novel. (3). Reading of the Satyricon of Petronius and the Golden Ass of Apuleius. The portions that are not read in Latin are read in English. Consideration is given to the development of the novel from its Greek beginnings up to the time of Apuleius and beyond. A 26 545 0 1109

546. Advanced Latin. (3). Directed reading of Latin literature may be combined with Latin prose composition at the option of the students. Repeatable for credit when content varies. A 26 546 0 1109

551. Roman Historians. (3). A study of the development of Roman historiography. Readings from Sallust, Caesar, Livy and Tacitus. A 26 551 0 1109

562. Cicero. (3). The orations, letters and essays of Cicero. The study concentrates on Cicero as the master of Latin prose and as one of the most important political figures of the fall of the Roman Republic. A 26 652 0 1109

563. Lucretius and Epicureanism. (3). Reading of Lucretius' De Rerum Natura and study of Epicureanism, the atomic theory and Democritan materialism. Consideration is given to the place of Lucretius in Latin poetry. A 26 653 0 1109

380. Workshop in Latin. (2-4). Repeatable for credit. A 26 750 2 1109

Spanish
Master of Arts and Areas of Specialization
The Department of Modern and Classical Languages and Literatures offers courses of study leading to the Master of Arts (MA) degree in Spanish. This degree program allows for specialization in Spanish language and literature or in Spanish-American literature.

Admission Requirements
Admission to the program requires the completion of 24 hours of undergraduate Spanish, eight hours of which have been on the junior-senior level.

Degree Requirements
The MA degree in Spanish requires the completion of 32 semester hours beyond the BA degree, including at least two seminars—Span. 625, 831 or 832—that require research papers. Of these hours, 12 must be in courses numbered 600 or above. Each program must include 23 hours of Spanish, including Span. 526, 531, 532 and 621 if they or their equivalents have not been taken as undergraduate courses, and nine hours in related fields.

A candidate for a degree must pass Span. 526 or an equivalent course with a grade of "B" or better at either the undergraduate or graduate level.

Related fields typically include another foreign language, art, English, American and foreign literatures, Latin American history, or geography. All related field courses must be approved by the chairperson of the Department of Modern and Classical Languages and Literatures and the coordinator of the graduate program.

Special recommendation is strongly made that all MA candidates in Spanish earn a minimum of four hours of transferable credit in a university located in a Spanish-speaking country.

Examinations
Before the MA degree in Spanish is granted, all candidates must pass written and oral comprehensive examinations over reading lists in three areas of specialization of their choice and prove by written examination a reading knowledge of a second foreign language.

Courses for Graduate/Undergraduate Credit

505. Spanish Phonetics. (2). Cross-listed as Ling. 505. Prerequisite any 200-level course or departmental consent. A 26 505 0 1105

515. Major Topics. (1-4). Special studies in (a) language, (b) literary reports, (c) commercial Spanish, (d) the language laboratory, (e) music, (f) composition, (g) problems in teaching Spanish, (h) advanced conversation. Repeatable for credit. Prerequisite: departmental consent. A 26 515 0 1109

525. Spanish Conversation III. (2). Prerequisite: Span. 325 or departmental consent. A 26 525 0 1105

526. Advanced Grammar and Composition. (3). Prerequisite: Span. 505 or departmental consent. A 26 526 0 1105

531. Survey of Spanish Literature. (3). Main currents of Spanish literature from 1700 to the present. Prerequisite: Span. 300 or departmental consent. A 26 531 0 1105

532. Survey of Spanish Literature. (3). Spanish literature from the beginning to 1000. Prerequisite: Span. 300 or departmental consent. A 26 532 0 1105

533. Contemporary Spanish Theater. (3). Prerequisite: Span. 300 or departmental consent. A 26 533 0 1105

534. Contemporary Spanish Novel. (3). Prerequisite: Span. 300 or departmental consent. A 26 534 0 1105

540. Contemporary Spanish Literature in English Translation. (3). Course content may vary from semester to semester, including Spanish and/or Latin American literature. No knowledge of a foreign language is necessary. The course may count towards a Spanish major or minor with departmental consent. Prerequisite: Span. 300 or departmental consent when counted towards a Spanish major or minor. A 26 540 0 1105

552. Business Spanish. (3). This course provides students the opportunity to learn and practice commercial correspondence, basic vocabulary, translation and interpretation of business texts. Prerequisite: Span. 652 A 26 552 0 1105

557. Literary and Technical Translating. (3). Expansive translation of literary works and technical and legal documents from Spanish into English and Spanish to Spanish. Prerequisite: Span. 526 or departmental consent. A 26 557 0 1105

560. Spanish Play Production. (1-3). Independent study of a play as a work of literature, followed by the actual production of the work for the general public. Repeatable for credit. Prerequisite: Span. 300 or departmental consent. A 26 560 0 1105

562. Survey of Latin-American Literature. (3). Main currents of Latin-American literature from 1500 to 1820. Prerequisite: Span. 300 or departmental consent. A 26 562 0 1105

567. Survey of Latin-American Literature. (3). Main currents of Latin-American literature from 1820 to the present, Prerequisite: Span. 300 or departmental consent. A 26 567 0 1105

622. Special Studies. (1-4). Topic for study chosen with aid of instructor. Repeatable for credit. Prerequisite: Instructor's consent A 26 622 0 1105

623. Seminar in Spanish. (1-5). Special studies in (a) language, (b) Latin and Spanish literature, (c) Spanish and Latin American language and civilization and (d) methods of teaching Spanish in the elementary and secondary schools. Repeatable for credit. Prerequisite: Instructor's consent. A 26 623 0 1105

625. Contemporary Latin-American Novel. (3). Prerequisite: Span. 526 or departmental consent. A 26 625 0 1105

656. Spanish Civilization. (3). Intensive study of Spanish culture, including historical and geographical factors in its development and its contributions to world civilization. Spanish civilization also is considered. A 26 656 0 1105

670. Advanced Grammar and Composition. (3). Prerequisite: Span. 505 or departmental consent. A 26 670 0 1105

671. Survey of Spanish Literature. (3). Main currents of Spanish literature from 1700 to the present. Prerequisite: Span. 300 or departmental consent. A 26 671 0 1105

672. Survey of Spanish Literature. (3). Spanish literature from the beginning to 1000. Prerequisite: Span. 300 or departmental consent. A 26 672 0 1105

673. Survey of Spanish Literature in English Translation. (3). Course content may vary from semester to semester, including Spanish and/or Latin American literature. No knowledge of a foreign language is necessary. The course may count towards a Spanish major or minor with departmental consent. Prerequisite: Span. 300 or departmental consent when counted towards a Spanish major or minor. A 26 673 0 1105

674. Business Spanish. (3). This course provides students the opportunity to learn and practice commercial correspondence, basic vocabulary, translation and interpretation of business texts. Prerequisite: Span. 674 A 26 674 0 1105

675. Literary and Technical Translating. (3). Expansive translation of literary works and technical and legal documents from Spanish into English and Spanish to Spanish. Prerequisite: Span. 575 or departmental consent. A 26 675 0 1105

678. Spanish Play Production. (1-3). Independent study of a play as a work of literature, followed by the actual production of the work for the general public. Repeatable for credit. Prerequisite: Span. 300 or departmental consent. A 26 678 0 1105

682. Special Studies. (1-4). Topic for study chosen with aid of instructor. Repeatable for credit. Prerequisite: Instructor's consent A 26 682 0 1105

683. Seminar in Spanish. (1-5). Special studies in (a) language, (b) Latin and Spanish literature, (c) Spanish and Latin American language and civilization and (d) methods of teaching Spanish in the elementary and secondary schools. Repeatable for credit. Prerequisite: Instructor's consent. A 26 683 0 1105

685. Contemporary Latin-American Novel. (3). Prerequisite: Span. 526 or departmental consent. A 26 685 0 1105

686. Spanish Civilization. (3). Intensive study of Spanish culture, including historical and geographical factors in its development and its contributions to world civilization. Spanish civilization also is considered. A 26 686 0 1105
Courses for Graduate/Undergraduate Credit

505. Philosophy of Education. (3). An examination of educational concepts with an emphasis on the implications of such concepts with respect to the nature of teaching, social, political and religious education in a secular, democratic society. A 24 505 0 1509

518. Recent British-American Philosophy. (3). Examination of philosophical ideas and movements in recent British and American philosophy. Movements such as logical positivism, pragmatism, ordinary language philosophy and analytic philosophy are discussed. Readings are selected from figures such as Russell, Wittgenstein, Pierce, Dewey and Quine. A 24 518 0 1509

519. Empiricism. (3). A study of the philosophical views that emphasize sensory experience rather than reasoning as a source of knowledge with particular attention paid to the philosophies of Hobbes, Locke, Berkeley, Hume and Mill. A 24 519 0 1509

540. Theory of Knowledge. (3). A critical examination of the nature of knowledge, the problems of philosophical problems concerning skepticism, knowledge of the self, material objects, other minds, the past, present and future, universals, and necessary truths. Selections from both historical and recent writings are included. Prerequisite: one course in philosophy. A 24 540 0 1509

546. Rationalism. (3). A study of the philosophical views that emphasize reasoning rather than sensory experience as the source of knowledge with particular attention paid to the philosophies of Descartes, Spinoza and Leibniz. A 24 546 0 1509

549. Topics in Ancient Philosophy. (3). In each offering, this course explores one decisive issue in philosophy from the time of Thales through the Stoics. The examination of an issue may confine itself to one period within the total span of ancient philosophy or it may span the entire period of the subject, indicating its contemporary treatment. Some of the issues treated are: the nature of what is, the concept of the sacred, the meaning of truth, the relation of invariant and process, the existence of universal standards of thought and conduct, the problem of knowledge, skepticism, and the character of philosophical inquiry. A 24 549 0 1509

550. Metaphysics. (3). An exploration of some basic topics in the theory of reality. Issues include such notions as space, time, substance, causality, particulars, universals, appearance, essence and being. Prerequisite: one course in philosophy. A 24 550 0 1509

555. Philosophy of the Social Sciences. (3). A study of such topics as the relations of social science with natural science and philosophy, methodological problems peculiar to the social sciences, the nature of social science, concepts and constructs and the roles of mathematics and formal theories in social science. A 24 555 0 1509

567. Contemporary European Philosophy. (3). An exploration of a theme, issue, philosopher or movement in contemporary European philosophy. Philosophers considered include such figures as Hegel, Nietzsche, Heidegger, Jaspers, Gadamer, Habermas, Marcuse, Adorno, Bergson, Sartre, Merleau-Ponty, Bachelard, Lacan, Derrida, Foucault and Ricoeur. Philosophical movements examined include such tendencies as phenomenology, idealism, existentialism, structuralism, process philosophy, hermeneutics and Marxism. A 24 567 0 1509

574. Artificial Intelligence and Philosophy. (3). Cross-listed as CS 574. Transfer of ideas between artificial intelligence and philosophy, concepts and techniques of artificial intelligence and their application in philosophy, search, heuristic, problem solving, knowledge representation, learning, discovering; sources of error, exploring artificial intelligence in different branches of philosophy. The analogy between minds and computers, "cognition is a computation and the mind is a computer." is contrasted with "there are mental features not accessible to computation." The relevance of Godel's theorem and of other results in the domain of computability are discussed in this context. Prerequisites: At least one 300-level course in computer science or philosophy, Math 243 and five hours toward the major in any one of the physical or biological sciences with grades of "C" or better or departmental consent. A 24 574 0 1509

585. Studies in a Major Philosopher. (3). A concentrated study of the thought of one major philosopher announced by the instructor when the course is scheduled. Repeatable for credit. Prerequisite: instructor's consent. A 24 585 0 1509

590. Special Studies. (3). Topic for study announced by instructor. Repeatable for credit. Prerequisite: instructor's consent. A 24 590 0 1509

595. Directed Readings. (2-3). A course designed for the student interested in doing independent study and research in a special area of interest. May be repeated for credit. Prerequisite: departmental consent. A 24 595 3 1509

596. Directed Readings. (2-3). Designed for the graduate student desiring independent study and research in an area of special interest. May be repeated for credit. Prerequisite: departmental consent. A 24 596 3 1509

599. Directed Readings. (2-3). A course designed for the student interested in doing independent study and research in a special area of interest. Repeatable for credit. Prerequisite: departmental consent. A 24 599 3 1509

Physics

Graduate Faculty
Professors: John B. Breazeale, James C. Ha, Henry Unruh, Jr.
Associate Professors: Robert Feleipe, A. J. Mandt, Gerard H. Paske, Ben F. Rogers, Deborah H. Soles (chairperson)
Assistant Professors: Karen Bell, J. W. Matl, David Soles

Although there is no graduate degree in philosophy, the following courses are available for graduate credit.
Degree Requirements

The MS degree in physics requires the successful completion of a program approved by the student's advisor and the department chairperson. Two options are available to the student: (1) the thesis option requires the completion of 30 semester hours of graduate coursework, which includes the presentation of a thesis, and (2) the non-thesis option requires the completion of 36 semester hours of graduate work. In both options at least 12 hours must be in courses numbered 800 or above. The department recommends that each Plan of Study include Phys. 621, Classical Mechanics; Phys. 871, Statistical Mechanics; and Phys. 611-612, Quantum Mechanics I and II.

An MS degree in physics with a chemical physics option is available. Requirements are those listed above, with six of the required hours chosen from Chem. 511, 795, 741, 742, 745, 746 or other approved chemistry courses. Students should take Phys. 642 unless they took it for undergraduate credit.

The major Program of Study must be approved by the student's advisor. Other program options are available which provide the possibility of combining the study of physics with interests in other fields such as astronomy, engineering, geology, computer science, biological sciences and education.

Examinations

During the first semester, students are given a diagnostic entrance examination. A qualifying examination must be passed at least one semester before graduation and an oral defense of the thesis also is required.

Courses for Graduate/Undergraduate Credit

501. Special Studies in Physics for Educators. (1, 3L) A series of courses covering basic physical concepts which provide physical science background for the elementary educator. Prerequisite: inservice elementary teacher. A 21 501 1 1902

516. Advanced Physics Laboratory. (2, 4L) Experiments in classical and modern physics designed to stress scientific methods and experimental techniques. The experiments are open-ended projects requiring individual study. Repeatable up to a maximum of eight credit hours. Corequisite: Phys. 551. A 21 516 1 1902

517. Electronics Laboratory. (2, 1R, 3L) Experiments in electronics that treat some of the applications of electronics in scientific research. Experiments cover the use of vacuum tubes, transistors, IC and digital circuits. Prerequisite: Phys. 3140 A 21 517 1 1902

551. Topics in Modern Physics. (3) An introduction to selected areas of modern physics with emphasis on the features of atomic, nuclear and solid state physics that require modifications of classical physics for their explanation. Prerequisite: Phys. 2140 or 3140 or departmental consent. Corequisite Math. 344. A 21 551 1 1902

555. Physical Optics. (3) Electromagnetic waves, diffraction and lenses. Prerequisites: Math 550 and instructor's consent. A 21 715 1 1902

601. Individual Readings in Astrophysics. (1-2) Several topics in astronomy and astrophysics are studied in depth. Lectures, independent readings and student projects may be assigned. May be repeated up to six hours. Prerequisites: Phys. 1956 and 551. A 21 601 3 1912

611. Modern Physics I. (3) Introduction to quantum mechanics, the Schroedinger equation, wave mechanics, energy, parity, and the hydrogen atom. Prerequisites: Phys. 551 A 21 611 1 1902

612. Modern Physics II. (3) A continuation of Phys. 611. Identical particles, multielectron atoms and molecular physics. Prerequisites: Phys. 611 A 21 612 1 1902

621. Elementary Mechanics I. (3) Motion of a particle in one and several dimensions, control forces, the harmonic oscillator and the Lagrangian and Hamiltonian formulations of mechanics. Prerequisites: Phys. 2140 or 3142 and Math. 344 with grades of "C" or better. A 21 621 1 1902

625. Electronics. (2, 1R, 4L) Provides a working knowledge of electronic devices and circuits for the student or research worker who has little or no background in electronics. Prerequisite: instructor's consent. A 21 625 1 1902

631. Electricity and Magnetism I. (3) Direct and alternating current, electromotive force, magnetic field theory, including an introduction to Maxwell's electromagnetic wave theory. Prerequisites: Phys. 2140 or 3140 and Math. 344 with grades of "C" or better. A 21 631 1 1902

632. Electricity and Magnetism II. (3) A continuation of Phys. 631. Prerequisite: Phys. 631 or instructor's consent. A 21 632 1 1902

641. Nuclear Physics I. (3) Elementary concepts of atomic structure and nuclear interaction theory, skin theory, nuclear reactions, nuclear decay processes. Prerequisites: Math 850 and Math 621 A 21 641 1 1902

642. Chemical Physics. (3) Topics in areas of overlapping interests for students of chemistry and physics, such as thermodynamics, kinetics, quantum mechanics, solids and various types of spectroscopy. Standard experimental and theoretical techniques used in research in chemical physics are discussed and molecular physics. Prerequisite: Phys. 611 or Chem. 641 or instructor's consent. A 21 642 1 1902

671. Thermodynamics. (3) The laws of thermodynamics, distribution functions, Boltzmann equation, transport phenomena, fluctuations and an introduction to statistical mechanics. Prerequisites: Phys. 2140 or 3140 and Math. 344 A 21 671 1 1902

701. Advanced Topics in Physics. (3) A course on an advanced, current topic of interest in physics. The topic may be chosen from nuclear physics, solid state physics, astrophysics, biophysics or other areas. Prerequisite: Phys. 611 or departmental consent. A 21 701 1 1902

714. Theoretical Physics. (3) Cross-listed as Math. 714. A study of mathematical techniques that may be applied to physics and other sciences. Topics typically include power series methods, WKB method, contour integration, integral transforms, Laplace equation, special functions and solutions of partial differential equations. Prerequisites: Math 550 and instructor's consent. A 21 714 1 1902


Courses for Graduate Students Only

801. Individual Readings. (1-3, Repeatable for credit up to six hours. Prerequisite: departmental consent. A 21 800 1 1902

807. Seminar. (1) Review of current periodic literature, reports on student and faculty research. Repeatable for credit up to two hours. Prerequisite: 20 hours of physics. A 21 807 1 1902

809. Research. (1-3) Repeatable for credit up to six hours. A 21 809 1 1902

811. Quantum Mechanics I. (3). The Schroedinger and Heisenberg formulation of quantum mechanics and perturbation theory with applications. Additional topics may include two-body problems, elementary perturbation theory, the WKB method, wave functions, and symmetry. Prerequisites: Phys. 611 and Math 550 A 21 811 1 1902

812. Quantum Mechanics II. (3) A continuation of Phys. 611. Prerequisite: Phys. 611 A 21 812 1 1902


831. Classical Electricity and Magnetism I. (3). Maxwell's equations with application to static electricity and magnetism. Additional topics may include electromagnetic fields, vectors, potentials, elementary perturbation theory, variational principles, optics and magnetohydrodynamics. Prerequisites: Phys. 632 and Math 550. A 21 831 1 1902

841. Nuclear Physics I. (3). The nuclear two-body problem and nuclear forces, models of the nucleus and nuclear decay. Prerequisite: Phys. 611. A 21 841 1 1902

871. Statistical Mechanics. (3) An introduction to the basic concepts and methods of statistical mechanics as applied to simple physical systems. Prerequisites: Math 550 and Phys. 621. A 21 871 1 1902
881. Solid State Physics I. (3). The basic knowledge of the nature and properties of the solid state, including the structural, thermal, mechanical, magnetic, and optical properties. Also studied are the relation of metals and band theory of solids. Prerequisite: Phys. 651 or departmental consent and Math 330. A 21 881 0 1902.


Political Science

Graduate Faculty

Professors: David N. Farnsworth, Kathryn F. Grifith, Melvin A. Kahn

Associate Professors: Kenneth Giboski, James W. McKenney (chairperson and graduate coordinator), John E. Stanga, Jr.

Assistant Professor: Michael J. Broadway

Master of Arts and Areas of Specialization

The political science department offers the Master of Arts (MA) degree with specializations in political science and public administration. A joint emphasis in either health administration and education or urban studies is also available.

Admission Requirements

All applicants are expected to meet Graduate School standards for admission. In addition, the department requires students to have a “B” average in their major field and a “B” average over their last 60 hours of academic credit. Students who fail to meet these requirements may be admitted if the department's Graduate Studies Committee is satisfied that previous grades do not reflect the student's present capability for graduate study. One source of evidence to that effect is scores on the aptitude portion of the Graduate Record Examination (GRE). GRE scores are required only of those who are applying for departmental assistantships, however.

In addition to satisfactory undergraduate grades, all students are expected to have previously earned credit in Pol. Sci. 121 or its equivalent. Students entering the political science specialization must also have earned three hours of credit in upper-division (300 or higher) political science and three additional hours in any social science. Students who plan to specialize in public administration must have earned credit in Pol. Sci. 321 and Econ. 201-202 or their equivalents.

Degree Requirements

The MA degree requires 30 or 33 hours of credit, depending upon the completion option selected. All students must complete Pol. Sci. 701, 702 and 703 (with departmental approval, an alternative research tool may be substituted for Pol. Sci. 702). At least six hours of credit must be earned in political science courses at the 800 level. Up to nine hours of credit in courses outside of political science may be applied toward the degree with the advisor’s approval, and up to nine hours of graduate credit earned at other universities may be transferred into this program with the approval of the department's Graduate Studies Committee.

Political Science Specialization. Students in the political science specialization should choose a major field from these alternatives: American government and politics, comparative politics, international relations and political philosophy. Students are strongly encouraged to earn credit in fields other than their major.

Public Administration Emphasis. In addition to courses required of all students, students in the public administration emphasis must complete Pol. Sci. 820. They also must take one seminar from Pol. Sci. 841, 851 and 856 and two optional courses from Pol. Sci. 560, 564, 580, 587, 655, 821, 842 and 855. These students should choose one of the following tracks to complete degree requirements. Only the general track can be completed within the 30-33 hour minimum required for the MA degree.

1. General Track. Students must complete three hours of electives and appropriate hours to complete the thesis, intern or nonthesis option (nine additional hours of electives in the latter case).

2. Social Service Track. Students must take three of the following: HAE 503, 505, 506; Eco 488, Soc. 512 and 518 or 833. These students should complete the thesis, intern or nonthesis option. Courses should constitute a structured area, and other courses may be substituted with adviser's approval.

3. Health Administration and Education Track. Students may substitute HAE 605 for Pol. Sci. 702. HAE 503 and 505 are required, as is HAE 507 or Pol. Sci. 560. Completion of the thesis, intern or nonthesis option with appropriate courses is also required. Students choosing the latter must choose six hours in health administration and education and three hours in political science.

4. Urban Studies Track. Pol. Sci. 841 is required, as is either Pol. Sci. 580 or 655. Students must elect three of the following: UA 700, UA 761, Econ. 888, Soc. 524 and Soc. 834. Students must complete the thesis, intern or nonthesis option with appropriate courses.

5. Finance Track. Pol. Sci. 655 and 821 are required. Students must choose three of the following: Econ. 653, Econ. 853, Acctg. 690 and Pol. Sci. 855 and complete the thesis, intern or nonthesis option.

6. Gerontology Track. Pol. Sci. 506 and Geron. 800 are required. Students must choose two of the following: Geron. 513, 514, 518, 731 or 801. Students enrolled in this program must have a minimum of nine undergraduate hours in gerontology as a prerequisite for admission.

Completion Options

Students may complete their degree programs using any one of the following options:

1. Thesis Option. This option is designed for students planning graduate work beyond the MA degree or careers in research. Students must complete 30 hours for the degree, six of which relate to writing an acceptable thesis (Pol. Sci. 875-876). Candidates must pass an oral defense of a thesis prospectus and theses.

2. Nonthesis Option. This option is appropriate for students not planning further graduate work or research careers. It requires completion of 33 hours of credit and passing a written examination in the major field of study.

3. Intern Option. This option is for students seeking an intensive, applied learning experience. The MA degree requires 33 hours, up to six of which may be earned in the process of completing an internship (Pol. Sci. 874). Students must write and orally defend an internship report before being granted internship credit. Intern positions are awarded on a competitive basis and thus cannot be guaranteed.

Courses for Graduate/Undergraduate Credit

505. The Politics of Health. (3). A course designed to show how governments in the United States make decisions in the health field. Describe the political forces shaping governmental policy in health and analyze the arguments for and against an increased governmental role in health. A 22 505 0 2207.

506. Politics of Aging. (3). Cross-listed as Geron. 501. This course focuses on the role of the elderly as competitors in the political arena. In assessing the elderly's strengths and weaknesses, the course analyzes the effects of aging on political behavior, strategies of the aging—both individual and collective—and the responses of the political sysytem. A 22 506 0 2207.

523Q. Government and Politics of Latin America. (3). An examination of the political institutions and processes that currently exist in the Latin American republics. Emphasis is on the social, economic, and psychological factors affecting these institutions and processes. A 22 523Q 0 2207.
524. Politics of Modern China. (3). Emphasis is on study of China's political system since 1949 in terms of non-Western goals and ideas of social organization. Themes of political integration and political development are used to minimize distortion or cultural bias. Study encompasses the roots of the political system, the system as it is now and the goals China is striving to realize. Some assessments are made about the future development of communism in China. Topics include Chinese communism and the ideological heritage, political culture, political leadership, leadership succession, political participation, the Chinese Communist Party, political communications and socialization, legal development, policy choices, and major events, such as the Hundred Flowers Campaign, Great Leap Forward and the Proletarian Cultural Revolution. A 22 524 0 2207

525. Postindustrial Politics. (3). An examination and analysis of political systems and postindustrial politics in highly industrialized nations, such as the United States, Britain, and Japan. Emphasizes cleavage patterns, stability-instability, party systems and comparative political analysis. A 22 525 0 2207

533. Policy Development in Foreign Relations. (3). The process of U.S. foreign policy making, international structure of government. Particular attention is given to institutional conflict. A 22 533 0 2207

534. Problems in Foreign Policy. (3). Examines domestic and international problems associated with U.S. foreign policy. A 22 534 0 2207

535. The Comparative Study of Foreign Policy. (3). An examination of foreign policy on a cross-national basis. Emphasis is placed upon conceptual approaches for explaining foreign policy behavior which are applicable cross-nationally. A 22 535 0 2207

540. American Political Behavior. (3). An intensive examination of the patterns of political behavior in the United States through primary and secondary analysis of existing data. Emphasis is given to the development and presentation of an original research paper. A 22 540 0 2207

547. Contemporary Political Theory. (3). The purpose of this course is to introduce students to the radically new ideas that emerged in the last century as a result of Darwin's theory of evolution, the doctrine of historicism and the growth of modern science and to explore their impact upon political theory. The multiple perspectives that political philosophers makes generalization difficult, most of them draw strength from common sources. Philosophers such as Hans Kelsen, William Barrett, Franz Nieztsche and John Dewey are studied. Attention is given to the importance of these new philosophies upon political structures and issues. A 22 547 0 2207

549. Approaches to the Study of Political Science. (3). Comparative study of representative conceptual frameworks to the undergraduate student of politics an appreciation of the work of the professional scholar and an understanding of methodology. An emphasis is placed on critical evaluation of such approaches. A 22 549 0 2207

551. Public Law. (3). An analysis of the role of appellate courts—especially of the U.S. Supreme Court—in the American political system. Emphasis is placed upon judicial review of state and federal legislation, the separation of powers, federalism, the taxing power and the commerce clause. A 22 551 0 2207

5520. Civil Liberties. (3). An analysis of the role of the appellate court—especially of the U.S. Supreme Court—in the American political system. Emphasis is placed upon the constitutional status of the Bill of Rights and the 14th Amendment. A 22 5520 0 2207

556. The Planning Process. (3). This course is to use to students desiring to work in an urban planning agency or who will be involved in planning issues as an administrator at the city, county, state or federal level. It is also of value to students seeking an understanding of the complex process of urban-related life. The role of planning in solving human and environmental problems is examined. Emphasis is given to the relationship between specialists, citizens and elected officials as participants in the planning process. A 22 560 0 2207

561. Public Management of Human Resources. (3). The course surveys the major areas of human resource management in the public sector. These include hiring, training, evaluation and pay promotion policies. Special emphasis is given to the laws governing public personnel management and to the unique, equal opportunity, productivity, unionization and collective bargaining problems found in the public sector. A 22 561 0 2207

564. Comparative Public Administration. (3). A study of the administrative system of selected developed and developing countries with special attention to the various methods and approaches of comparative analysis and to the relationship between administrative institutions and their environmental settings. A 22 564 0 2207

580. Administration and the Policy Making Process. (3). The problems of government encountered in the administration of public policy. The approach is analytical rather than descriptive. Repeatable for credit. A 22 580 0 2207

587. Administrative Theory and Behavior. (3). A study of administrative organization theory and the various approaches to the study of organization. A 22 587 0 2207

655. Urban Government Finance. (3). Cross-listed as Econ. 655. Analysis of urban government expenditure and revenue systems. Introduction to urban financial administration. A 22 655 0 2207

687. Introduction to Urban Affairs. (3). Cross-listed as Econ. 687 and Soc. 687. An introduction to the study of the metropolis as a social, political and economic system. Prerequisites: Econ. 202 and a course in sociology or political science or instructor's consent. A 22 687 0 2207

700. Advanced Directed Readings. (3). Repeatable for credit. Prerequisite: departmental consent. A 22 700 0 2207

701. Method and Scope of Political Science. (3). Theoretical—philosophy of science and methodology (as distinguished from method and technique) and exposure to the student to recent works of methodological importance in the various subfields within the discipline. Prerequisite: departmental consent A 22 701 0 2207

702. Statistical Applications. (3). Emphasizes applications of data in political science. Prerequisite: departmental consent. A 22 702 0 2207

703. Seminar in Political Science. (3). An examination of predominant concepts, theories and ideas of the discipline and its constitution, future demands, required of degree-status graduate students upon enrollment. Prerequisite: departmental consent. A 22 703 0 2207

710. Scope of Public Administration. (3). Cross-listed as Urban Affairs 710. Review of the scope of the field of public administration including a survey of key concepts and schools of thought underlying the field and identification of issues shaping the future development of the field. A 22 710 0 2214

750. Workshop. (2-4). Prerequisite: instructor's consent. A 22 750 0 2207

Courses for Graduate Students Only

810. Seminar in Comparative Government. (3). The comparative study of selected aspects of the politics and institutions of foreign governments. Prerequisite: departmental consent. A 22 810 0 2207

820. Seminar: The Administrative Process. (3). Consideration of the process and environment of administration with special attention given to the role of the executive in policy formulation, organization, planning, budgeting, staffing, coordination, communications and administrative responsibility. Prerequisite: departmental consent. A 22 820 0 2207

821. The Budgetary Process. (3). Analysis of the development and utilization of the budgetary process in government administration with special attention given to the role of the legislature in relation to its role in policy formulation. Prerequisite: departmental consent. A 22 821 0 2207

835. Seminar in International Relations. (3). Analysis of special problems in, and approaches to, the study of international relations. Prerequisite: departmental consent. A 22 835 0 2207

841. Seminar in Urban Politics. (3). An intensive analysis of urban politics with emphasis on independent research projects. Prerequisite: departmental consent. A 22 841 0 2207

842. Administration in Local Government. (3). Examination of administrative processes and problems in local government, including the role of the professional chief executive. Problems examined are drawn from the following: labor-management relations, program evaluation, county government decentralization, citizen participation, grant-in-aid programs, interlocal cooperation, affirmative action requirements and service contracting. Prerequisite: Pol. Sci. 317. A 22 842 0 2214

845. Seminar in Political Theory. (3). Detailed study of the relevant works of a major political philosopher and his/her contribution to contemporary thought. Prerequisite: departmental consent. A 22 845 0 2207

851. Seminar in Public Law and Judicial Behavior. (3). Analysis of special problems
in and approaches to the study of legal systems. Emphasis is given to developing the student's awareness of research in the field. Prerequisite: departmental consent. A 22 851: 9 2207

855. Seminar in Public Finance Systems. (3). An analytical study of selected topics in the politics and administration of revenue, expenditure and borrowing policies of governmental organizations. Prerequisite: departmental consent. A 22 855 9 2207

856. Seminar in American Politics and Institutions. (3). Analytical study of selected topics in American political behavior with emphasis on individual research. Repeatable for credit when content differs substantially. Prerequisite: departmental consent. A 22 856 9 2207

874. Internship. (3-6). S/U grade only. An intensive applied learning experience supervised by a University department or committee. To receive credit, a student must secure approval of a written report from his/her own department. Prerequisite: departmental consent. A 22 874 4 2207

875. Research Design. (3). S/U grade only. Requires the development of a research design for the thesis. The design must be submitted to a departmental committee for evaluation and approval. Prerequisite: departmental consent. A 22 875 4 2207

876. Thesis. (1-3). A 22 876 4 2207

Psychology

Graduate Faculty

Professors: Charles A. Burdasil, Jr. (chairperson), Jackson O. Powell (emeritus), N. H. Shumway (emeritus), Charles A. Burdasil, Jr.

Associate Professors: C. Robert Borrisen, Gary Greenberg (graduate coordinator), Robert K. Knapp, C. J. Meisner, Donald W. Nance, James J. Snyder

Assistant Professors: Paul D. Ackerman, M. J. Kingspon, Else R. Shore, R. D. Zatta

Master of Arts and Areas of Specialization

The psychology department offers courses of study leading to the Master of Arts (MA) degree. The degree is in one of three programs: (1) general-experimental psychology, (2) clinical-experimental psychology and (3) community psychology.

Admission Requirements

Applications for admission should be filed with the dean of the Graduate School by March 1 for enrollment the following fall. In addition to the usual application information, the following are required: (1) three letters of reference from persons acquainted with the applicant's academic background and potential, and (2) a brief autobiographical statement describing particular interests, experiences and goals related to academic and professional work in psychology.

Applicants are evaluated with respect to (1) undergraduate grade point average, (2) type and scope of undergraduate preparation and (3) reference letters. Applicants are informed of admission or rejection by approximately April 1. Applications received after March 1 are acted on periodically until fall enrollment, with acceptances depending upon the department's graduate teaching capacity.

Prerequisites

Regardless of the program to which the student is applying, for full graduate standing, the student must have undergraduate courses in general psychology, psychological statistics, experimental psychology, and history of psychology. In addition, depending upon the intended area of study, the following courses are required:

General-Experimental: Three from the following—Physiological Psychology, Psychology of Learning, Comparative Psychology, Psychology of Motivation, Psychology of Perception.

Clinical-Experimental: Psychology of Learning, Abnormal Psychology and one of the following—Psychology of Motivation, Physiological Psychology, Psychology of Perception.

Community: Two from the following—Psychology of Learning, Psychology of Motivation, Psychological Statistics, Psychology of Consciousness, Comparative Psychology, Psychology of Personality, Psychology of Aging, Psychology of Illness, Psychology of Work, Abnormal Psychology, Developmental Psychology

Degree Requirements

All graduate students in degree programs are required to complete a thesis with enrollments in Psych. 875 and 876. In addition to regular course examinations, all students must pass an oral examination over their thesis and program area. The thesis will ordinarily be a major contribution to the subject field, must be preceded by approval of a formal written proposal by the student's thesis committee. Also, students must take Univariate Research Design and Multivariate Research Design. Additional requirements are determined by the program in which the student is enrolled. Students should be aware of the Graduate School's six-year limit for completing degree programs. The psychology department expects degree-bound students to make satisfactory progress toward the completion of their degree programs.

General-Experimental: Each student must take four of the following—Advanced Social Psychology, Seminar in Behavioral Development, Seminar in Learning, Seminar in Comparative Psychology, Seminar in Motivation and Emotion and Seminar in Perception. In addition, the student must take 12 hours of electives determined in consultation with an adviser. The elective hours may be used to produce a subspecialty tailored to the student's needs and interests. Those students interested in the Human Factors Psychology subspecialty will take as their elective hours Computer Applications to the Behavioral Sciences, Aerospace Psychology, R&D Procedures and Practices in Human Factors and Human Factors in Engineering.

Clinical-Experimental: The following courses are required of each student enrolled in the clinical program—Seminar in Psychotherapy, Seminar in Clinical Psychology, Seminar in Behavioral Assessment, Clinical Research and Practice (taken twice) and Seminar in Behavior Therapy. In addition, each student must take six hours of electives determined in consultation with an adviser.

Community: Each student must take the following—Seminar in Community Psychology, Research in Community Psychology, Practicum in Community Psychology (taken twice). Psychological Service Agencies and Seminar in Consultation and Counseling. In addition, 9-9 hours of electives (a minimum of three courses) must be taken. One of the courses must be in the psychology department, one must be outside the psychology department and the third may be either. All electives are determined in consultation with the student's adviser.

Courses for Graduate/Undergraduate Credit

5020. Comparative Psychology. (3). Psychological and ethological analyses of behavior are compared and contrasted. The evolution and development of behavior are stressed. Major topics include a critique of the instinct doctrine and sociobiological interpretations of behavior. Lectures are supplemented with field trips. Prerequisite: one course from Group One. A 23 5020 C 2001

509. Psychology Tutorial. (3). Selected topics in psychology. Repeatable for a maximum of six hours of credit. Instructor's consent may be required. Check Schedule of Courses. Prerequisite: Psych. 111G. A 23 509 B 2001

The following abbreviations are used in the course descriptions: R stands for lecture and L for laboratory. For example, 2R, 2L means 2 hours of lecture and 2 hours of lab.
512. Primatology. (3). A survey of the primates (including humans) and their behavior. Topics include principles of evolution and taxonomy, the evolution of prehension, the evolution of language, learning in the primates and the concept of species. Prerequisite: Psych. 1110. A 23 512 9 2002

514. Psychology of Health and Illness. (3). A survey of the relationships between psychological behavior and physical health and illness. Topics include stress and coping, health habits, symptom perception, health care provider-client relationships, hospitalization and prevention. A self-study of lifestyle and behavior in relation to health and illness may be included. Prerequisite: Psych. 1110. A 23 514 9 2001


522. Biological Psychology. (3). A review of the fundamental concepts of behavior, genetics, and neurobiology. Topics include the evolutionary basis of behavior, behavior genetics, and the role of the human genome and neurophysiological correlates of behavior. Prerequisite: Psych. 1110. A 23 522 9 2010

524. Advanced Psychology of Personality. (3). An in-depth treatment of the topics of personality psychology with special emphasis on contemporary theories, research and application of the psychological study of personality. Prerequisite: 3240. A 23 524 9 2001

525. Psychological Testing and Measurement. (3). A critical analysis of the psychological foundations of tests and the interpretation of test findings. Several tests representing the areas of intelligence, personality, normal and abnormal psychology, industrial and educational, and aptitude are surveyed to illustrate general principles of psychological testing. Prerequisite: Psych. 401. A 23 526 9 2006

532. Psycholinguistics. (3). Cross-listed as WS 334. A cross-disciplinary course examining the linguistic and informational analyses of language. Topics include the performance-competence distinction, child development of speech, animal communication systems and the relation of language to thought. Prerequisite: Psych. 1110. A 23 532 9 2001


536. Behavior Modification. (3). A study of the basic assumptions, principles and issues of behavioral approach to helping persons with psychological problems. Demonstration and practice of behavioral techniques in general hospital skills as well as individual projects in applying these skills are included. Prerequisites: Psych 1110 and instructor's consent. A 23 536 9 2003

544. Abnormal Psychology. (3). An introductory survey of abnormalities of behavior. Definitions, causes, types and classifications of abnormal behavior are examined. Attention is given to various theories of abnormality. Types and forms of abnormal behavior are viewed from the perspective of diagnostic and therapeutic treatment. Prerequisites: Psych 1110 and instructor's consent. A 23 544 9 2001

556. Introduction to Clinical Psychology. (3). A survey of current ethical, conceptual and research issues involved in the assessment and treatment of psychopathology. Contemporary psychotherapies are reviewed with an emphasis on the relative efficacy of each and the therapeutic mechanisms through which they initiate behavioral change. Prerequisite: Psych. 3240, A 23 556 9 2003

568. Computer Applications to the Behavioral Sciences. (3). Intensive study of computer applications to the behavioral sciences. Included are 1) techniques of analyzing experimental data, 2) statistical applications, 3) interactive computing, 4) " canned" statistical programs, 5) word processing and 6) other current computer applications. Five hours in the social sciences. A 23 568 9 2007

601. Systems and Theories in Psychology. (3). An intensive review of systems and theories of psychology including behaviorism, psychoanalysis, structuralism, and others. An attempt is made to develop the logical relations of these theories to each other as well as to consolidate modern viewpoints and practices into a comprehensive system. Prerequisite: 15 hours of psychology or instructor's consent. A 23 601 0 2001

608. Special Investigation. (1-3). Upon completion of 30 hours of psychology or instructor's consent with adequate preparation may undertake original research or directed readings in psychological problems. Repeatable for a maximum of six credit hours. Consultation with and approval by an appropriate adviser are required prior to registration. Prerequisites: nine hours in psychology and instructor's consent. A 23 608 4 2001

622. History of Psychology. (3). Traces the development of philosophical and empirical concepts of psychology from the ancient Greeks through the 19th century. The origins and various views of the mind-body relationship are examined. The influences of naturalistic assumptions and research methods on 20th century psychology are emphasized. Prerequisites: nine hours of psychology or instructor's consent. A 23 622 0 2001


728. Seminar in Psychotherapy. (3). A seminar in psychotherapy designed to provide an in-depth overview of current models of psychotherapy, an examination of the efficacy of these therapeutic approaches and a survey of common issues in psychotherapy, such as process and outcome, and client and therapist variables in the therapeutic process. Prerequisite: Psych. 1110 and instructor's consent. A 23 728 9 2003

734. Research and Development in Applied Settings. (3). A seminar in research and development activities in industry. Lectures cover sources of research ideas, funding sources, use of company resources, technical communications, assembling literature, research design and publishing practices. Lab work involves participation in preparing industry-type proposals and presentations, schedules and budgets and analysis of industry research proposals. Prerequisites: 15 hours of psychology or instructor's consent. A 23 734 9 2008

750. Psychology Workshop. (1-3). A course of specialized instruction, using various formats in selected topics and areas of psychology. A 23 750 9 2001

756. Aerospace Psychology. (3). Exploration of the many roles of scientific psychology in aviation and space science. Surveys the research and literature in areas such as psychophysiological aspects of flight, environmental effects on human performance in aviation, selection methods and training, pilot workload, cockpit control and design, and flight safety. Prerequisites: 15 hours of psychology or instructor's consent. A 23 756 0 2008

Courses for Graduate Students Only

802. Seminar in Clinical Psychology. (3). Intensive study of clinical theory, research and practice, including research methods and research design and case study of theories as applied to clinical therapy. Prerequisites: 401. A 23 802 0 2003

804. Seminar in Behavioral Development. (3). A critical analysis of the concept of development and of theories of behavioral development. Course begins with a review of the concept of development and proceeds to a discussion of modern evolutionary thought. The concept of development is examined from biological, psychological, sociological, and anthropological perspectives. Finally, various theories of human development are critically evaluated. Prerequisites: instructor's consent. A 23 804 9 2001

811. Seminar in Cognitive-Behavioral Assessment. (4). A 3-3L. Surveys issues of reliability and validity; provides description, critical analysis, and practical use in clinical use of such psychological assessment methods as interviewing, observation, self-report and standardized intelligence and personality tests. Focus is upon comprehensive clinical assessment, including rating, and reporting of assessment data for treatment planning. Prerequisite: instructor's consent. A 23 811 9 2003

815. Clinical Research and Practice. (3). Designed to give the student further experience in clinical skills and clinical research methods in their clinical work with individuals seen through the departmental clinic. May be taken for a maximum of six credit hours. Prerequisite: instructor's consent. A 23 815 2 2003
Community Psychology from the Perspective of Community Psychology from the Perspective of Types of Research that lead to discovery of management techniques and aversive behavior. The interface between behavioral assessment and clinical practice will be discussed. Prerequisite: instructor's consent. A 23 820 9 2001

826. Seminar in Behavior Therapy. (4). SR: 3L. A review of the theoretical and empirical support for specific behavior therapy approaches. Approaches may include systematic desensitization, flooding, contingency management techniques and aversive therapies. Prerequisite: instructor's consent. A 23 826 9 2003

830. Seminar in Community Psychology. (3). Comprehensive overview of theory, research and practice in emerging fields in community psychology from the perspective of general systems theory. Topics include prevention, consultation, community mental health and a community vs. individual perspective to human and social problems. Prerequisite: instructor's consent. A 23 830 9 2005

831. Research in Community Psychology. (3). An examination of the perspective of community psychology specifically concerning the application of methods of needs assessment, program evaluation, program development, and research to community organizations. Special emphasis on how to use applied research methods to precipitate planned community change and organizational change. Prerequisite: instructor's consent. A 23 831 2 2005

832. Practicum in Community Psychology. (3). Supervised practice in such areas as psychological consultation, program evaluation, program development, paraprofessional training and preventative programs in community agencies and organizations. Repeatable for a maximum of six credit hours. Prerequisite: instructor's consent. A 23 832 2 2005

833. Psychological Service Agencies. (3). An in-depth examination of psychological service agencies with regard to structure, functions, financing, goals, planning, development, evaluation and accountability. Prerequisite: instructor's consent. A 23 833 5 2005

834. Seminar in Consultation and Counseling. (3). Theories and techniques of consultation, counseling and interviewing are examined and applied to individuals, organizations and systems. Prerequisite: instructor's consent. A 23 834 9 2005


844. Seminar in Personality and Psychosocial Disorders. (3). Relationship of normal behavior development and maladjustment and a review of the theory and research. Prerequisite: instructor's consent. A 23 844 9 2003

845. Development of Abnormal Behavior. (3). A consideration of the descriptive strategies and theoretical orientations from the developmental perspective. The ecological, social-environmental, familial and genetic-biological contents and causes of such behavior are considered. Implications for preventative and clinical interventions will be discussed. Prerequisite: instructor's consent. A 23 845 9 2003

852. Univariate Research Design. (3). Analysis of variance for single and multivariate designs, analysis of covariance, multiple comparisons and other selected topics. Also included is the use of computer program packages for the analysis of data. The course emphasizes psychological research in laboratory and applied settings. Prerequisite: Psych 826 or instructor's consent. A 23 852 9 2001

853. Multivariate Research Design. (3). Multivariate methods, techniques and designs in psychological research including multiple regression, discriminant analysis, profile analysis, analysis of variance and covariance, analysis of variance for various single and multivariate designs. Also included are the use of multiple computer program packages for the analysis of data. The course emphasizes research in laboratory and applied settings. Prerequisite: Psych 842 or instructor's consent. A 23 853 9 2001

865. Seminar in Psychology of Learning. (3). Intensive study of theory and research in learning processes. Included are the study of principles of individual behavior and some of the variables of which it is a function as illustrated by respondent and operant conditioning, along with some areas of application. Prerequisites: Psych 302 and instructor's consent. A 23 865 9 2002

870. Seminar in Current Developments. (3). Intensive study of current issues, techniques, research, and application. Repeatable for different topics for a maximum of six hours. Prerequisite: instructor's consent. A 23 870 9 2001

872. Seminar in Comparative Psychology. (3). Intensive study of psychological and ethological research and theories of behavior. The course is oriented around the current methods and development of behavior. Topics include a review of the concept of integrative levels in psychology (co-evolution, Panoptica, Panoptics, and Panoptics). Prerequisite: instructor's consent. A 23 872 9 2002


888. Seminar in Perception. (3). Intensive study in the area of perception in psychological research. Prerequisite: Psych 383 or equivalent, and instructor's consent. A 23 888 9 2001

Religion

Graduate Faculty

Associate Professor: Paul Wiebe
Assistant Professors: Michael Kalton (Chairperson), Howard Michel

Although there is no graduate program in religion, the following courses may be taken for graduate credit.

Courses for Graduate/Undergraduate Credit

750. Workshop in Religion. (2-4). A 15 750 0 1510

790. Independent Study. (1-3). Designed for the student who is capable of doing graduate work in a specialized area of the study of religion that is not formally offered by the department. Repeatable for credit. A 15 790 0 1510

Sociology/Social Work

Graduate Faculty

Professor: John J. Hartman (Graduate Coordinator)

Associate Professors: William C. Hays (Director of Gerontology Center)

Assistant Professors: Robert L. Allegrucci, Elwin M. Barrett, Elena Bastida, Nancy Brooks, John Cochran, Louis Eiffe, Dobyns, Hitchen, Bernard, Timothy W. Lause, Ronald R. Matson (Chairperson), Kathleen M. O'Flaherty, James L. Tanner

Master of Arts

The Sociology Department offers courses of study leading to the Master of Arts (MA) degree with options for thesis and nonthesis programs, as well as an emphasis in gerontology.

Admission Requirements

Applicants are evaluated for admission with respect to their undergraduate record, Graduate Record Examination scores (optional) and three letters of reference from professors who supervised their undergraduate work. For consideration for admission to degree status, applicants are expected to have at least 15 hours in sociology including courses in social statistics, social theory and research methods. Specific course prerequisites may be made up after admission by students with otherwise adequate backgrounds. Final recommendation on a candidate's admission to the MA program in sociology is made by the Graduate Committee of the Department of Sociology.

Degree Requirements

Students pursuing the MA degree in sociology may follow either a thesis or a non-thesis program.

Thesis Program. Students in the thesis program must take a total of 32 hours, including Soc. 800, Research Methods in Sociology, and 845, Seminar in Sociological Theory, and two 800-level graduate seminars as well as completion of their thesis hours.

Nonthesis Program. Students in the nonthesis program must take a total of
Degree Requirements for the MA with Gerontology Emphasis

Students may complete the MA degree in sociology with an emphasis in social gerontology under either the thesis or nonthesis program as described below.

**Thesis Program.** Students must complete the sociology core, Geron. 800 and three of the gerontology courses listed below.

**Sociology Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc. 510, Introduction to Methods, or 511, Applied Quantitative Research</td>
<td>3</td>
</tr>
<tr>
<td>Soc. (Geron.) 513, Sociology of Aging</td>
<td>3</td>
</tr>
<tr>
<td>Soc. 800, Research Methods in Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Soc. 845, Seminar in Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>Soc. 851, Directed Research*</td>
<td>3</td>
</tr>
</tbody>
</table>

*Seminar electives (3 seminars above 800) are needed to fulfill this requirement.

**Gerontology Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geron. 800, Seminar I and three of the following courses</td>
<td></td>
</tr>
<tr>
<td>Geron. (Soc.) 502, Older People and Organizations</td>
<td>3</td>
</tr>
<tr>
<td>Geron. (Anthro.) 514, Anthropological Perspectives in Aging</td>
<td>3</td>
</tr>
<tr>
<td>Geron. (Biol.) 518, Biology of Aging</td>
<td>3</td>
</tr>
<tr>
<td>Geron. (Phys.) 661, Developmental Psychology, or Geron. (IS) 731, Growth and Development IV: Adults and Aging</td>
<td>3</td>
</tr>
<tr>
<td>Geron. (Econ.) 663, Economic Insecurity</td>
<td>3</td>
</tr>
<tr>
<td>Geron. 801, Seminar II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours** 39

*Directed research must be aging related.

**Nonthesis Program.** Students must complete the sociology core, Geron. 800 and four of the gerontology courses listed below.

**Sociology Core Courses**

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>Soc. 510, Field Research Methods, or 511, Applied Quantitative Research</td>
<td>3</td>
</tr>
<tr>
<td>Soc. (Geron.) 513, Sociology of Aging</td>
<td>3</td>
</tr>
<tr>
<td>Soc. 800, Research Methods in Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Soc. 845, Seminar in Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>Soc. 851, Directed Research*</td>
<td>3</td>
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</tbody>
</table>

*Seminar electives (3 seminars above 800) are needed to fulfill this requirement.

**Gerontology Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geron. 800, Seminar I and four of the following courses</td>
<td></td>
</tr>
<tr>
<td>Geron. (Soc.) 502, Older People and Organizations</td>
<td>3</td>
</tr>
<tr>
<td>Geron. (Anthro.) 514, Anthropological Perspectives in Aging</td>
<td>3</td>
</tr>
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<td>Geron. (Biol.) 518, Biology of Aging</td>
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<td>Geron. (Phys.) 661, Developmental Psychology, or Geron. (IS) 731, Growth and Development IV: Adults and Aging</td>
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<td>Geron. (Econ.) 663, Economic Insecurity</td>
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</tr>
<tr>
<td>Geron. 801, Seminar II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours** 39

*Directed research must be aging related.

**Examinations**

Students electing the thesis program in sociology must pass an oral defense of the thesis.

**Sociology Courses for Graduate/Undergraduate Credit**

**501. Sociological Statistics.** (3) Generally offered only in the fall semester. Application of descriptive and inferential statistics to sociological problems. Topics include measures of central tendency, dispersion and association, simple linear regression, hypothesis testing and analysis of variance. Prerequisites: Soc. 1110 and Math. 3310, Math. 111 or equivalent. A 25 501 0 2208

**502. Older People and Organizations.** (3) Cross-listed as Geron. 502. This course examines the agencies and organizations that deal with or are comprised of the elderly. The relationship between various social networks and the participation of the elderly as they develop new roles are examined. Prerequisite: Soc. 1110 or instructor's consent. A 25 502 0 2208

**510. Field Research Methods.** (3) An examination of various qualitative research tools and techniques used by sociologists. As part of the learning experience students are involved in direct field observation in natural social environments. Prerequisite: Soc. 1110. A 25 510 0 2208

**511. Applied Quantitative Research.** (3) An examination of the survey as a tool used to address sociological questions. Topics include survey design, sampling, data collection techniques, and interpretation of results. Students gain experience in designing and administering surveys. Prerequisite: Soc. 212. A 25 511 0 0 2208

**513. Sociology of Aging.** (3) Cross-listed as Geron. 513. Analysis of the social dimensions of old age, including changing demographic structure and role changes and their impact on society. Prerequisite: Soc. 1110. A 25 511 0 2208

**514. Anthropological Perspectives in Aging**

**515. Sociology of the Family.** (3) Analysis of American family behavior, including the selection of marriage partners, the husband-wife and parent-child relationships, and the relation of these patterns of behavior to other aspects of American society. Prerequisite: Soc. 1110. A 25 515 0 2208

**516. Sociology of Sex Roles.** (3) Cross-listed as WS 516. A course analyzing the institutional sources of men's and women's roles, the sources of changes in these roles, the consequence of roles, and changes in the social roles. Prerequisite: Soc. 1110. A 25 516 0 2208

**537. The Social Consequences of Disability.** (3) An analysis of the social consequences of disability, showing the impact of social values, institutions and policies upon adults with disabilities. Appropriate for both students of sociology and the service professions. Prerequisite: Soc. 1110. A 25 537 0 2208

**538. Medical Sociology.** (3) An analysis of social and cultural factors related to physical and mental illness. Also included are the dynamics of communication and role relationships among patients and medical personnel and social research and theory relevant to the
health professions. Prerequisite: Soc. 111Q. A 25 538 0 2208

539. Juvenile Delinquency. (3). The factors related to juvenile delinquency and the measures of treatment and prevention. Prerequisite: Soc. 111Q.* A 25 539 0 2208

540. Criminology. (3). The extent and nature of criminal behavior in a social setting and its reactions to it. Prerequisite: Soc. 111Q.* A 25 540 0 2208

541. Contemporary Corrections. (3). Historical and contemporary programs for the treatment of offenders. Prerequisite: Soc. 111Q. A 25 646 0 2208

598. Internship. (1-6). A course used to supervise persons involved in internships or placements in the community where credit can be given. Prerequisite: departmental consent. A 25 598 2 2208

600. Selected Topics in Sociology. (3). Study in a specialized area of sociology with emphasis on student research projects. Prerequisites: A 25 646 0 2208

645. History of Sociological Theory. (3). Analysis of emergence of sociological theory. Prerequisite: nine hours of sociology. A 25 645 0 2208

646. Principles and Concepts of Sociology. (3). Critical evaluation of major principles and concepts, their derivation and relationship to systematic theory. Prerequisite: nine hours of sociology. A 25 646 0 2208

651. Directed Research. (3). Designed to give the student further research skills in an area of special interest. All students are under the direction of a member of the graduate faculty who guides them in developing research skills. Prerequisites: Soc. 510 or 511 and instructor's consent. A 25 651 4 2208

670. Independent Reading. (1-3). Designed for the advanced student capable of doing independent research in an area of special interest. Prerequisite: 15 hours of sociology and instructor's consent. A 25 670 3 2208

687. Introduction to Urban Affairs. (3). Cross-listed as Pol. Sci. 687 and Econ. 687. An introduction to the study of the metropolis as a social, political and economic system. Prerequisites: Econ. 201 and Soc. 111Q or a course in political science. A 25 687 0 2208

750. Sociology Workshop. (1-3). A course designed to provide specialized instruction in courses in sociology. A 25 750 2 2208

Courses for Graduate Students Only

800. Research Methods in Sociology. (3). The application of research methods to sociological data. Topics include research design, sampling, data collection techniques, computer-based analysis of data, scaling and report writing. Students are expected to design their own research projects. Prerequisite: Soc. 510 or 511 and departmental consent. A 25 800 9 2208

805. Seminar in Qualitative Methodology. (3). An in-depth examination and practical application of various field research methods in sociology. Includes participant observation, in-depth interviewing, disguised observation and unobtrusive measures. Prerequisite: Soc. 510 or departmental consent. A 25 685 9 2208

815. Seminar in the Family. (3). Review of recent research on the family and the theoretical implications thereof. Prerequisite: Soc. 515 or departmental consent. A 25 615 9 2208

820. Seminar in Social Movements. (3). Analysis of the elements in social movements as factors in social and cultural change. Prerequisite: departmental consent. A 25 500 0 2208

822. Seminar in Deviant Behavior. (3). An in-depth examination of recent theory and research in the area of deviance. Implications of future theory development are included as part of the course. Prerequisite: departmental consent. A 25 622 9 2208

825. Seminar in Organizational Analysis. (3). Exploration of selected problems in organizational theory based on major theoretical approaches, both classical and contemporary. Prerequisite: departmental consent. A 25 825 9 2208

830. Seminar in Stratification and Power Structure. (3). Analysis of the forms and dynamic processes of social inequality as a sociopolitical phenomenon. Class, status and power segments of contemporary urban society are examined with reference to their spheres of influence and structural persistence and change. Prerequisite: Soc. 526 or departmental consent. A 25 830 9 2208

834. Seminar in Urban Sociology. (3). Independent research projects in urban sociology. Prerequisite: departmental consent. A 25 634 9 2208

839. Seminar in Juvenile Delinquency. (3). A study of juvenile delinquency from a number of theoretical frameworks, accentuating the conventional and nonconventional aspects of the subject matter. The course covers topics of academic and practical interest related to delinquency, e.g., causes of delinquency, recent research, delinquency vis-à-vis the justice system, juvenile law and juvenile corrections. Special interest is given to the changing face of delinquency in America today. Student research, through utilization of community resources, is encouraged. Prerequisite: Soc. 539 or departmental consent. A 25 899 9 2208

841. Advanced Seminar on Theories of Correctional Treatment. (3). Evaluation of the range of contemporary theories of individual and group techniques of correctional treatments with special emphasis upon the literature related to process research and outcome research. Prerequisite: Soc. 541 or departmental consent. A 25 841 9 2208

845. Seminar in Sociological Theory. (3). A course emphasizing continuities between European and American social theory. The perspectives include historical and analytical spanning the 18th, 19th and 20th centuries, and concluding with the work of representative contemporary theorists. Prerequisites: Soc. 645 or 646 or departmental consent. A 25 845 9 2208

847. Seminar in Recent Developments in Sociology. (3). Major issues, new theories, new techniques of research, new areas of research and new applications. Repeatable for credit but not to exceed six hours. Prerequisite: 15 hours of sociology and departmental consent. A 25 847 9 2208

851. Directed Research. (1-3). Designed for the advanced student who wants to achieve research competence in a specific area. Each student is directed by a member of the graduate faculty in the development and a project in research not leading to thesis research. Prerequisites: Soc. 800 and instructor's consent. A 25 851 4 2208

860. Proseminar—Teaching Sociology. (1). This course focuses on the teaching of sociology. Emphasis is placed on teaching techniques, course organization and evaluation. Prerequisite: graduate student status. A 25 860 0 2208

870. Independent Reading. (2-3). Advanced systematic reading in a topical area under the tutelage of a member of the graduate faculty. Repeatable for credit not to exceed six hours. Prerequisite: departmental consent. A 25 870 3 2208

875-876. Thesis. (3). A 25 875 4 2208; A 25 876 4 2208

Social Work

Although a complete graduate program is not available currently in social work the following courses may apply toward a master's degree.

Courses for Graduate/Undergraduate Credit

500. Social Welfare Policy and Services I. (3). Descriptive and analytical approach to the social welfare system, emphasizing its historical, structural and value bases. Alternative program strategies of meeting individual and group needs are included. Prerequisites: SW 200Q and Soc. 212. A 25 500 0 2104

502. Strategies and Techniques in Interventive Skills. (4). This course introduces students to the study and practice of interpersonal professional interaction skills within the framework of a social work helping process. The course focuses on developing skills in professional observation, communication, interviewing, recording and reporting. The course is didactic as well as interactive and includes an integrated laboratory component which focuses on experimental learning. Required for social work majors and open to nonmajors. Prerequisite: SW 201 for social work majors, departmental consent for nonmajors. A 25 502 0 2104

550. Social Welfare Policy and Services II. (3). Analytical approach to social welfare problems, policies, programs and issues, including an analysis of the influence of values on the formation of social welfare policy. In-depth examination of selected issues in public and voluntary areas and alternative methods of new needs are included. Prerequisite: SW 500. A 25 550 0 2104

551. Independent Studies. (1-3). Individual projects designated for social work students who are capable of doing independent work in areas of special interest. Repeatable for credit not to exceed six hours. Prerequisite: instructor's consent. A 25 551 3 2104

* Prerequisite may be waived with departmental consent.
560. Personal Human Interaction within Society. (3). This course provides students with a theoretical framework within which the integration of prior knowledge can be made regarding physical, mental and social development of the human being. Focuses on American culture and subcultural variations and their effect on human interaction. Prerequisites: SW 200 and departmental consent. (1-5). Specialized instruction using a modular format in a social welfare relevant subject. This course may be offered together with SW 150. Prerequisite: instructor's consent. A 27 750 2 2104

570. Internships in Social Work. (3-6). To provide a specially designed field experience for students who need or desire training that will enhance their professional abilities and for whom academic credit is appropriate. It is also designed to meet experiential learning needs of special designated students for whom academic credit is appropriate. Repeatable for credit not to exceed a total of six hours. Prerequisite: instructor's consent. A 25 560 0 2104

601. Advanced Social Work Practice. (5). Advanced practice theory with special emphasis on becoming both knowledgeable and skillful in applying theory to practice. Focus of the course is on developing a clear understanding of concepts, principles, techniques and processes of social work methods as they relate to individuals, families and groups in the community. Course is to be taken concurrently with SW 602 except by departmental consent. Prerequisites: SW 502 and departmental consent. A 25 601 0 3104

602. Practicum I. (4). Placement in community social welfare agencies for supervised periods of observation and direct service assignments with special emphasis on performance of basic practice skills and understanding of the social welfare agency and its role in the community service network. This course is to be taken concurrently with SW 601 except by departmental consent. Prerequisites: a grade of "B" or better in SW 502 and departmental consent. A 25 602 2 2104

603. Seminar on Research in Practice. (3). Advanced practice theory with special emphasis on research and professional issues, using social work research. The course analyzes current social work practice as well as its future direction. SW 605 is to be taken concurrently except by departmental consent. Prerequisite: SW 601. A 25 603 9 2104

605. Practicum II. (5). Placement in community social welfare agencies for supervised direct service assignments with emphasis on formulation of appropriate goals. The selection of various social work roles and in-depth development of techniques and skills common to practice in the social welfare field are included. SW 604 is to be taken concurrently except by departmental consent. Prerequisite: SW 601. A 25 605 2 2104

610. Aging: Personal, Social and Professional Perspectives. (3). Cross-listed as Geron 610. A realistic look at the comprehensiveness of social work practice and the helping professions in work with the aging. Provides a focus on work with individuals, groups, families and communities. Introduces the social with economic and political factors. Highlights current and future developments in social policy, human service practice and demography at the total life cycle is conceptualized. Prerequisite: departmental consent. A 27 610 0 2104

750. Social Work Workshops. (1-5). Specialized instruction using a modular format in a social welfare relevant subject. This course may be offered together with SW 150. Prerequisite: instructor's consent. A 27 750 2 2104

Speech Communication

Graduate Faculty
Professor: Bela Kiralyiav
Associate Professors: Joyce Cavazzozzi, Robert M. Smail
Assistant Professors: Francis L. Kelly, Laurel Klinger-Vartabedian, Judith Pier, Robert A. Vartabedian (graduate coordinator), L. Keith Williamson (chairperson)

Master of Arts in Communications

The speech communication department participates extensively with other departments in the multidisciplinary Master of Arts (MA), in communications programs. The graduate coordinator in the department is also the program coordinator of the MA in Communications Program. (See requirements for the MA program in General Programs, Communications section of the Graduate School Bulletin.)

Master of Education

The following courses may apply toward a Master of Education (MEd) degree with intensive study in secondary education and content specialization in speech and drama, offered by the Department of Instructional Services, College of Education. Prospective candidates are advised jointly by representatives of the Department of Instructional Services and the Department of Speech Communication. (See requirements for the MEd degree in the College of Education section of the Graduate School Bulletin.)

065. Instructional Communication. (3). The study and practice of communication concepts, processes, technologies and strategies related to formal instruction and learning outcomes. By means of structured experiences, students develop competencies in (1) determining appropriate instructional goals; (2) designing instructional programs to achieve learning outcomes; (3) using visual, vocal and verbal communication skills to implement instructional strategies and (4) assessing the proficiency of communication skills used for instruction. Course flexibility in planning and emphasis for the utilization of instructional communication across disciplines and educational levels as well as in traditional educational and training settings. A 27 650 0 1599

660. Seminar in Speech. (2-3). Special seminars designed to treat current areas of interest or problems in: (a) rhetoric and communication; (b) theory; (c) radio-television production or (d) speech education. Repeatable for credit in different topics only. A 27 660 9 1599

661. Directing the Forensics Program. (3). A study of the methods and procedures in coaching and directing the high school and collegiate forensics programs (debate and individual events). The future teacher is made aware of the literature and professional organizations in the field. A 27 661 0 1599

665. Communicative Disorders. (3). Cross-listed as CDS 705. A survey of speech, language and hearing disorders: their identification and treatment, and consideration of the roles of rehabilitation specialists in the total rehabilitative process. Background in normal communicative structures, processes and acquisition is provided for understanding communicative disorders. Areas introduced include language disorders, speech disorders, deafness, stuttering, neurological disorders, hearing disorders. A 27 665 0 1220

675. Directed Study. (2-4). Cross-listed as for related individual study or projects. Repeatable for credit with departmental consent. Prerequisite: departmental consent. A 26 775 3 1599

750. Workshops in Speech. (2-4). A 27 750 2 1599

Radio—Television—Film

Courses for Graduate/Undergraduate Credit

500. Documentary and Propaganda Films. (3). An investigation into the evolution, theories and techniques of documentary and propaganda film making. Emphasis placed upon the role of the propagandist and analyzing public opinion and attitudes in modern society. A 27 500 0 0603

509. Directed Projects in Instructional Television. (2). Practical assignments in instructional television and cablecast television that include six hours per week in campus television exercises. Prerequisites: Speech 504 and instructor's consent. A 27 509 0 0603

522. Advanced Broadcast News. (3). Cross-listed as Journ. 522. A course in the techniques of preparing news for radio and television presentation with emphasis on actual work in radio and television newsrooms. Prerequisites: Speech 504 and instructor's consent. A 27 522 1 0603

532. Advanced Broadcast News. (3). Cross-listed as Journ. 532. A course in the techniques of preparing news for radio and television presentation with emphasis on actual work in radio and television newsrooms. Prerequisites: Speech 504 and instructor's consent. A 27 532 1 0603

550. Media Performance: Radio. (3). This course provides experiences in the various areas of radio performance: from newscasts to radio drama, commercials to PSA's. It is designed to extend, through simulated experiences as well as on-air work, student performance skills. Course work is presented in the public communication medium. Prerequisites: Speech 111 or 117 and Speech 221, 222 or 243. A 27 550 0 1599
531. Media Performance: Television. (3). This course provides experiences in the various areas of television performance, from newscasts to interviews, sports to commericals. It is designed, through simulated experiences, to extend student performance skills, capabilities and knowledge in this public communication medium. Prerequisites: Speech 111 or 112 and Speech 221, 222 or 243. A 27 531 0 1599

604. Advanced Television Production and Direction. (3). Application of television equipment and techniques for expression of ideas and concepts. Execution of visual and audio impression in relation to effective communication. Prerequisite: Speech 504 or instructor's consent. A 27 604 2 0603

605. Radio and Television Station Management. (3). The organization and management of radio and television stations, including administrative, programming, technical and sales problems and physical facilities. Prerequisite: departmental consent. A 27 605 0 0603

606. Broadcasting and the Law. (3). Explores legal forces operating in the broadcast industry emanating from laws, rules and regulations of various federal agencies, industry self-regulation and citizen action. Emphasis is on the underlying philosophy and trends in influencing various events in broadcast regulatory history. A 27 606 0 0603

607. Radio and Television Programming. (3). Planning, developing and scheduling based upon audience and market analysis, program ratings, principles of evaluation and criticism. A 27 607 0 0603

609. Educational and Instructional Broadcasting. (3). Investigation and application of production techniques for educational and instructional broadcasting, with emphasis on television. Prerequisite: Speech 504. A 27 609 0 0603

620. Practicum in Broadcast Journalism. (3). Cross-listed as Journ. 622. Reporting and writing about events in the University and community. Story assignment and preparation will occur under the instructor's guidance and will be broadcast over WSU Cable Channel 13. May be repeated for credit with instructor's consent. Prerequisite: Speech 522, Journ. 522 or instructor's consent. A 27 620 2 0603

Rhetoric and Communication Courses for Graduate/Undergraduate Credit

612. Contemporary Theories of Oral Communication. (3). Conceptual models useful in the scientific study of speech and application from selected areas of psychology, sociology, anthropology and other related fields. A 27 612 0 1506

613. Advanced Theories of Argumentation. (3). Intensive examination of the principles and problems of reasoned discourse. A 27 613 0 1506

615. Language and Symbolic Processes. (3). Application of the theoretical framework of general semantics, linguistics and psycho-linguistics to the analysis of oral language behavior. A 27 615 0 1506

632. American Public Address. (3). Cross-listed as Amer. Stud. 632. A detailed study of notable American speakers and their public utterances. Their impact on the political, economic and social history of this nation from colonial times to the present is assessed. A 27 632 0 1506

635. Leadership Techniques for Women. (3). Cross-listed as WS 635. A course designed to provide the woman student experience in decision making and to improve skills in leadership through role playing and exercise in group dynamics. A 27 635 0 1506

636. Advanced Public Speaking. (3). Theory and practice in the various forms of platform speaking for the academically mature student. Course includes such special forms as the after-dinner speech and speeches of goodwill, tributes and courtesies. A 27 636 0 1506

637. Processes and Effects of Mass Persuasion. (3). An exploration into the effects of mass communication at the individual, social and cultural levels. A 27 637 0 1506

712. Advanced Interpersonal Communication. (3). Advanced exploration of concepts and variables in interpersonal communication through the study of different theories as well as practical experiences in dyadic and small-group communication. Prerequisite: Speech 112 or instructor's consent. A 27 712 0 1506

770. The Audience. (3). Application of research techniques to the measurement of audience behavior with particular emphasis on mass media audiences. Topics include focus group interviews, survey research and radio and television ratings. A 27 770 0 1506

Courses for Graduate Students Only

820. Investigation and Conference. (2-3). Cross-listed as Thea. 820. Directed research and experimentation for graduate students in some phase of (a) public address, (b) theater history and production, (c) radio-television or (d) the teaching of speech. Repeatable for credit up to a total of six hours. A 27 820 3 1506

830. Theories of Rhetoric: Classical. (3). Cross-listed as Eng. 825. An intensive study of the rhetorical theories of classical writers from 466 B.C. to the decline of Roman oratory. Principal emphasis is on Isocrates, Plato, Aristotle, Quintilian, Cicero and Longinus. A 27 830 0 1506

831. Theories of Rhetoric: Renaissance to Early Modern. (3). Cross-listed as Eng. 826. A study of the emerging patterns of rhetoric from the Second Sophistic to modern times. Analysis is made of the rhetorical systems associated with such figures as Augustine, Fellenen, G. W. Leibniz, Steiner, R. H. J. Dewey and Whately. A 27 831 0 1506


860. Seminars in Speech. (2-3). Special seminars designed to treat problems in: (a) public address, (b) drama, (c) radio-television or (d) speech education. Repeatable for credit. A 27 860 9 1506

865. Organizational Communication. (3). Cross-listed as Mgmt. 865. An analysis of communication models with emphasis on their application to communication problems in organizations. Social-psychological processes underlying persuasion in interpersonal relations and through the mass media are explored. Communication systems and techniques within formal organizations are analyzed critically. A 27 865 0 1506

867. Trends in Speech Education. (3). To provide advanced speech students with a background for a philosophy of speech education. Readings and seminar discussion concern the philosophical foundations that underlie speech and drama as academic disciplines. Included are the history of speech education, analysis of theories and methods, comparative study of speech curricula today and projects to the future. A 27 867 0 1506
General Programs

Communications—Robert A. Vartabedian, coordinator
Gerontology—William C. Hays, director
Liberal Studies—Supervisory Committee, Sally Kitch, chairperson
Public Administration—Joseph P. Placiotto, director
Women's Studies—Dorothy Walters, coordinator

Communications

Graduate Faculty
Professors: Bola Kiralyfalvi, Richard C. Weicker
Associate Professors: Joyce P. Cavarozzi, John Gaston, Audrey Needles, Charles Pearson, Robert M. Smith
Assistant Professors: Les Anderson, Judith Babrcek, Francis L. Kelly, Laurel Kiggins-Vartabedian, Judith Pier, Robert A. Vartabedian (graduate coordinator), Pat Washington, Ardell Weaver, L. Keith Williamson (chairperson)

The graduate program in communications at The Wichita State University is designed to provide students with a multidisciplinary foundation in human verbal communication that will serve a broad spectrum of interests and needs in many fields of endeavor. The program is based upon integration and synthesis of academic resources in communications in several departments and disciplines throughout the University.

A program administration committee composed of representatives from participating units provides direction for the Master of Arts degree in communications program.

Master of Arts in Communications and Areas of Specialization

The Master of Arts degree in communications (MA) program permits a generalist or specialist approach to any one of five areas of emphasis: (1) communication theory, (2) cross-cultural communications, (3) mass communication, (4) theater and drama, or (5) general communication. Students are provided with a thesis option (30-hour minimum) or a nonthesis option (24-hour minimum) in each area of emphasis except general communication. The latter provides a nonthesis program only.

Admission Requirements

In addition to the general Graduate School admission requirements, applicants' backgrounds must reflect competence in any one or more of the several communications areas. Such competence, based upon academic training or equivalent professional/vocational experience, will be evaluated by the coordinator of graduate studies and graduate faculty who comprise the Communications Program Admissions Committee. Students may be admitted to the program with deficiencies in background, but these deficiencies must be overcome by coursework not to exceed nine credit hours within the first academic year stipulated by the admissions committee. In no case will courses taken to fulfill deficiencies be counted toward the minimum credit hour degree requirements.

Degree Requirements

Program Core (Required Courses). All students enrolled in the MA degree in communications program must take the courses listed below, except as noted.

Comm. 801, Introduction to Communication Research 2 hours
Comm. 802, Historical and Qualitative Methodologies in Communication Research 2 hours
Comm. 803, Empirical/Quantitative Research Methodology in Communication Research 2 hours
Comm. 870, Directed Research (nonthesis students) 2 or 3 hours
Comm. 875-876, Thesis (thesis students) 2 or 3 hours

Area Core (Required Courses). In addition to the program core courses just listed, students must take certain required courses in their area of emphasis.

Communication Theory
Speech 612, Contemporary Theories of Oral Communication 3 hours
Speech 859, Organizational Communication 3 hours
Both Comm. 802 and 803 (see program core above) 2 hours

Note: All communication theory majors in the nonthesis option will be required to take three hours of Comm. 870 (see program core above)

Cross-Cultural Communications
Min. Stud. 540, Advanced Multiracial Cross-Cultural Communications 3 hours
Min. Stud. 545, Cross-Cultural Communication Theory 3 hours
Min. Stud. 725, Concepts of Cross-Cultural Communications 3 hours

Mass Communication
Journ. 720, Dimensions of Mass Communication 3 hours
Speech 657, Processes and Effects of Mass Communication (nonthesis students) 3 hours
or
Speech 700, the Audience (thesis students) 3 hours

Theater and Drama
Thea. 623, Development of the Theater I 3 hours
Thea. 624, Development of the Theater II 3 hours
Thea. 625, Dramatic Theory 3 hours
or
Thea. 623, History of Dramatic Criticism 3 hours

General Communication
At least one core course in each of the other four areas of emphasis is required.

Other Courses. In addition to the required program and area core courses, students in each area of emphasis, with advice and consent of their graduate faculty adviser, must select courses to complete the Plan of Study, as discussed in the Graduate School section of the Bulletin. The Plan of Study will be individually designed to accommodate a student's background, interests, and needs and must include a minimum of 60 percent of their graduate hours at the 700-899 level (i.e., 18 hours of a 30-hour program or 21 hours of a 36-hour program).

Examinations

Written comprehensive examinations will be administered to all candidates during the final semester of their degree program. In addition, those enrolled in thesis options will present an oral defense of the thesis. Examining committees will consist of the adviser, acting as chairperson, and three or four other members of the graduate faculty in communications, at least one of whom shall be from a discipline or area other than the student's area of emphasis.

Master of Education

The MEd program provides extensive study in secondary education with con-
tent emphasis in speech communication, including rhetoric and public address. Theater, broadcasting, and speech education. The course of study is a 36-hour, nonthesis program. and the Plan of Study includes 18 prescribed hours in the remaining hours may be taken in the communication arts.

Courses for Graduate Students Only

801. Introduction to Communications Research. (2) An integrative approach to an understanding of the nature and scope of communication research. As it applies to the study of media content and cross-cultural communication and the classroom. An overview of the current status of research in each area is provided. Students are instructed in the basic steps of research, including library and other resources, bibliographical search, computer accessing of data resources, organization, style and format of a research report, and citation of sources in footnotes and bibliographies. This course should be taken at the beginning of the graduate program. A 32 801 0 0601

802. Historical and Qualitative Methodologies in Communication Research. (2) Historical and qualitative methodologies in communication research. The course emphasizes qualitative methodology, and the research of other forms of research common to communication studies. Prerequisite: Comm 801. A 32 802 0 0601

803. Empirical/Quantitative Research Methodology in Communication Research. (2) An introduction to empirical research methods in communication. The course emphasizes both experimental and nonexperimental research with particular emphasis on those forms of research common to communication studies. Students study research design, methods, and reporting techniques. Prerequisite: Comm 801. A 32 803 0 0601

870. Directed Research. (2-3) Directed research culminating in a written research paper on a specific investigation, project, or production. Supervised by a committee of three graduate faculty members with the committee chair acting as "instructor of record" and awarding the grade. Required of all Master of Arts in Communications (MAC) degree students who select the nonthesis option. Students study research design, methods, and reporting techniques. Prerequisites: Comm 801 and Comm 802 or 803. A 32 870 0 1699

875-876. Thesis. (2-2) A 32 875 4 0601; A 32 876 4 0001

Gerontology

Graduate Faculty
Professors: Lowell Holmes (anthropology), Flagler Kaster (communication disorder and sciences), Robert McCroskey (communication disorders and sciences), Harry Pounds (biological sciences)
Associate Professors: William Hays (gerontology), Gregory Meissen (psychology), Ram P. Singhal (chemistry), James Snyder (psychology), James Tramill (instructorial services), Samuel Yeager (public administration)

Assistant Professors: Elwin Barrett (social work), Elena Bastida (sociology), Nancy Brooks (sociology), Moe Draper (physician assistant), Helen Hallstead (nursing), Timothy Harshman (counseling and school psychology), Carol Singleton Heerkin (gerontology), Ellen Holm (gerontology), Bernice Hutcherson (social work), Carla Lee (health science), Nancy Snyder (public administration)

The gerontology program offers courses of study leading to the Master of Arts (MA) degree in gerontology. Because gerontology is concerned with gaining and applying knowledge about all aspects of aging in a wide range of professional settings, it is by nature, multidisciplinary. The graduate degree program in gerontology at Wichita State University is a research-intensive program designed to prepare students for work in gerontology, among them professionals in such areas as geriatrics, recreation, physical or occupational therapy, the ministry, counseling, social work, adult education and mental health, where older people make up a significant and increasing proportion of the client population and where professionals with gerontological training are presently scarce.

The specialist option is designed for students who have undergraduate coursework in gerontology. Since employment in the area of aging often demands the combination of knowledge and skills found in a particular discipline such as public administration, social work or mental health, the specialist option combines graduate course work in gerontology with an emphasis in another department or discipline.

Admission Requirements
In addition to the Graduate School admission requirements, applicants must have a grade point average in their baccalaureate major of 3.000 (on a 4.000 scale) and must submit names of three references. Students desiring to pursue the generalist option must have an undergraduate degree in an applied or professional area or have work experience with older persons. Those who wish to pursue the specialist option must have completed course work in each of the following four areas: biology, or physiology of aging, psychology of aging, economics of aging or sociology of aging. They must have maintained a 3.000 average in these courses. These students must also meet the admission requirements of the department in which the area of specialization is being taken.

Degree Requirements
Students must take certain required core courses, as well as courses in the generalist or specialist option, with a minimum total of 30 hours for the thesis and 36 hours for the nonthesis track.

Core (Required) Courses. All students enrolled in the MA program in gerontology must take the following courses:

Geron. 800. Seminar in Gerontology I. 3 hours
Geron. 801. Field Research in Gerontology. 3 hours
Geron, 802. Policy Making for Gerontologists. 3 hours
Geron. 810. Advanced Gerontology Internship. 6 hours
Thesis (if option selected). 3 hours
Written comprehensive exams are required of all students who pursue the nonthesis program.

With the approval of the program director and two members of the Gerontology faculty, any three hours of Geron. 810 may be required with the thesis option.

Generalist Option. In addition to the core courses, students pursuing the generalist option must take the following courses:

Geron. 731. Growth and Development IV: Adults and Aging. 3 hours
Geron. 604. Developmental Psychology (adviser's consent required). 3 hours
The internship and thesis, if specialist option selected, must be related both to gerontology and to the area of specialization. The Plan of Study required by the Graduate School must also be approved by the gerontology program and the outside department.

**Gerontology Emphasis**

The gerontology emphasis is a 12- to 15-hour concentrated core in gerontology taken as part of a master's degree program in another department. Students who wish to pursue the gerontology emphasis must fulfill the requirements in the degree granting department as well as the designated gerontology core.

**Courses for Graduate/Undergraduate Credit**

501. Internship in Gerontology. (3-6). To provide a specially designed field experience for students who need or desire training that will enhance their professional abilities and skills in gerontology and for whom academic credit is appropriate. As part of the internship, students collectively meet one hour a week with the field placement supervisor. Repeatable for credit to a total of six hours. Prerequisite: 12 hours of gerontology credit and instructor's consent. P 15 501 2 2201

502. Older People and Organizations. (3). Cross-listed as Soc. 502. This course examines the agencies and organizations that deal with or are comprised of the elderly. The relationship between various social networks and the participation of the elderly as they develop new roles are examined. Prerequisite: Soc. 110 or instructor's consent. P 15 502 0 2206


512. Issues in Minority Aging. (3). Cross-listed as Min. Stud. 512. Prerequisites: Min. Stud. 100, Geron. 100Q, Soc. 1110 or instructor's consent. P 15 512 0 4999

513. Sociology of Aging. (3). Cross-listed as Soc. 513. P 15 513 0 2209

514. Anthropological Perspectives in Gerontology. (3). Cross-listed as Anthro. 514. P 15 514 0 2202

518Q. Biology of Aging. (3). Cross-listed as Biol. 518. P 15 518Q 0 0410

537. The Social Consequences of Disability. (3). Cross-listed as Soc. 537. P 15 537 0 2208

550. Selected Topics in Gerontology. (1-6). Study in a specialized area of gerontology with the focus upon preprofessional programs and current issues in the field of aging. Emphasis is on knowledge and skills in applied areas of gerontology as they relate to an emerging area of research and application. Repeatable up to six hours. Prerequisite: instructor's consent. P 15 550 0 2201

590. Legal Aspects of Health Care Administration. (3). Cross-listed as HAE 590. P 15 590 0 1202

610. Aging: Personal, Social and Professional Perspectives. (3). Cross-listed as SW 610. P 15 610 0 2204

663. Economic Insecurity. (3). Cross-listed as Econ. 663. P 15 663 0 2201

698. Independent Readings in Gerontology. (1-3). Directed study in a specialized topic in gerontology. Repeatable up to six hours. Prerequisite: 12 hours of gerontology credit and departmental consent. P 15 698 3 2201

731. Growth and Development IV: Adults and Aging. (3). Cross-listed as IS 731. P 15 731 0 0622

750. Workshop in Gerontology. (1-3). A course designed to provide specialized instruction, using a variable format in a gerontologically relevant subject. Repeatable for credit. P 15 750 2 2201

781. Cooperative Education. (3-6). Same as Geront. 810 but offered as part of the Cooperative Education program. Students gain practical experience in an agency or organization engaged in planning, administering, or providing direct services to older people. As part of the internship, the intern is required to submit and be examined upon a comprehensive internship paper. Prerequisite: 12 hours of gerontology credit and instructor's consent prior to registration. P 15 810 2 2201

820. Thesis. (1-3). Repeatable, but total credit hours counted toward degree shall not exceed four hours. P 15 820 4 2201

**Liberal Studies**

Graduate Coordinator: Sally Kitch (women's studies)

Supervisory Committee: Ginette Adamson (modern and classical languages and literatures), Jeneva Brewer (mathematics), Nancy Brooks (sociology), Gayle Davis (women's studies), Vic Eichler (biology), James McKenney (political science), Ben Rogers (philosophy, ex officio)

The Master of Arts in Liberal Studies (MALS) program is designed for persons who wish to pursue a particular topical or interdisciplinary interest at the graduate level, but find the existing programs either too specialized or insufficiently individualized. The liberal studies program offers students an opportunity to design their own program of study to answer their particular needs and interests.

**Admission Requirements**

Applicants should have a baccalaureate degree from an accredited institution and, generally, have a grade point average of 2.750 or better. Usually no more than six hours of graduate credit from another program may be transferred into the liberal studies program.

When submitting an application to the Wichita State Graduate School, students should include a brief essay describing their reasons for selecting the liberal studies program as opposed to a regular master's level program.

At least three graduate faculty represent at least two of the departments in which the student's work will be concentrated should be secured as sponsors and program supervisors. A written statement from one graduate faculty member who has agreed to serve as the student's primary adviser and to chair the student's committee must be submitted to the graduate studies coordinator.
The Liberal Studies Supervisory Committee may request that the applicant submit Graduate Record Examination scores (verbal and quantitative).

Students meeting standards for admission to the program will be admitted on a conditional basis, pending final approval of their Plan of Study.

Before completing the first 12 hours of graduate work in the program, the student must:

1. Complete selection of members of the faculty advising committee and inform the graduate studies coordinator.
2. With the assistance of this committee, prepare a Plan of Study.
3. Secure approval of the Plan of Study from the MALS Supervisory Committee, which will forward its recommendation to the Graduate School.

Once accepted by the Graduate School, the Plan of Study becomes the student’s individualized curriculum, and any changes to it must be approved by the student’s advisory committee and the MALS Supervisory Committee.

Degree Requirements

The structural framework for the degree is a Plan of Study, developed by the student in consultation with faculty in the program. It must include:

1. A minimum of 36 semester hours of credit from at least three disciplines.
2. No more than 12 semester hours from any one department (exclusive of the terminal project).
3. A maximum of 12 hours in a college other than liberal arts and sciences.
4. At least 12 of the 36 total hours in courses numbered 700 or above.
5. Three of the 36 hours must be taken in LAS 1800, Research Goals and Strategies, which should be taken within the first 12 hours of course work in the MALS program.

The terminal project, required of all students, may be a master’s report or a master’s thesis for six credit hours, a practicum or internship for either three or six hours, or a comprehensive examination covering all course work and related activities and carrying no credit hours. The specific nature of the terminal project must be described in the Plan of Study.

Courses for Graduate Students Only

800. Research Goals and Strategies. (3) An introduction to research goals, methods and sources in the humanities, social sciences and natural sciences, with special attention to the opportunities and problems of integrating research activities involving more than one discipline. Required of all students in the Master of Arts in Liberal Studies Program. A 33 885 4 4999

875. Thesis. (1-6) A course for students who are finishing the Master of Arts in Liberal Studies (MALS). The student writing a thesis must be enrolled in the program. The thesis is completed and all these requirements have been satisfied. Prerequisite: consent of student’s degree committee chairperson and instructor. A 33 875 4 4999

885. Terminal Project. (2-6) A course for students who are near the end of their MALS program and involved in a Terminal Project. The terminal project may have many aspects such as field work, practicum, internship, research report, or any other individualized activity, but the scope of the terminal project must be approved by the student’s advisory committee. The student involved in a project must be enrolled in this course until the project is completed and all project requirements have been satisfied. A 33 885 4 4999

Public Administration

Graduate Faculty

Regents Professor of Urban Affairs: Glenn W. Fisher

Professors: Clark D. Ahlberg, H. Edward Fleischer (associate director, Center for Urban Studies), Joe P. Pisciotte (director, Center for Urban Studies)

Associate Professors: George M. Platt, Samuel J. Yesagor

Assistant Professors: Mark A. Glasser, Nancy McCarthy Snyder

Associate Faculty in Public Administration

Professors: Robert D. Alley (education), John J. Hartman (sociology)

Associate Professors: Richard Graham (mechanical engineering), William C. Hays (sociology/gerontology and director, University Gerontology Center), Don E. Malzahn (industrial engineering), Gerald S. McDougal (chairperson, economics), J. T. Yoon (economics)

Master of Public Administration

The Master of Public Administration (MPA) degree at The Wichita State University is designed to prepare students for professional careers in public and quasi-public organizations. The program is interdisciplinary in nature and is structured to respond to the unique clientele of an urban university.

The philosophy underlying the MPA degree is that interdisciplinary approaches are essential for understanding the urban environment and for effective performance in management and staff positions in government. Their program encompasses the methods and perspectives of the social and behavioral sciences, engineering and technology and the humanities. The link between these disciplines and the problems of public management are emphasized through methods which include use of practitioners in the classroom, policy relevant research assignments, public affairs seminars led by successful professionals and internships. Most faculty contributing to the degree program have significant professional experience in state and local government and are involved in research relevant to state and local governments in Kansas.

Graduates of the program have gone on to hold positions ranging from city managers to budget analysts in state government to management analysts in major hospitals. Although the majority are employed in the public sector, some graduates of the program hold positions in the private sector, while still others have pursued additional study in law, doctoral education or other specializations.

Admission Requirements

Applicants for the degree program must meet the requirements for admission to the Graduate School. In addition, students must have completed (or be able to demonstrate equivalent competency in) introductory college professional courses in the areas of computer concepts, economic principles, public administration and statistics. Students may be admitted to the program with deficiencies in background areas but deficiencies must be overcome within the first academic year. Courses taken to fulfill deficiencies will not count toward the 36-hour degree requirement.

Degree Requirements

The Master of Public Administration degree consists of 36 graduate hours, taken over at least three semesters of study. The degree is made up of three elements—the core curriculum, an area of specialization and a completion option.

Core Curriculum All degree candidates are required to complete the live core courses:

UA 700, Urban Affairs. A study of the process of urbanization from a multidisciplinary point of view.

UA 702, Urban Research Methods, or another level of an introductory methodology course relevant to the study of urban and administrative problems.

UA 710, Scope of Public Administration. An examination of the field of public administration and issues shaping the future of the field.

UA 720, Urban Systems. A course focusing on the application of systems analysis to urban and administrative problems.

UA 730, Decision Making. A study of the relationship of political considerations to administrative decision making.
Areas of Specialization. The degree allows students to develop a specialization in areas of career interest through selection of up to 18 hours of course work from related offerings of the University. In the past, students have developed specializations in public finance, health care, administration, gerontology, real estate and land use planning, and program analysis and evaluation, among others.

Completion Options. Students may complete the degree program in one of three ways:

Internship Option—This option is for students without professional work experience, and six credit hours may be earned in the process of completing an internship. Students must write and orally defend an internship paper before being granted internship credit. Intern positions are remunerative and are awarded on a competitive basis; however, they cannot be guaranteed.

Applied Research Option—Students may choose the applied research option for completion of the degree and earn three hours credit. In this option the student conceptualizes and researches a policy relevant question and delivers a limited product with policy application. Students must successfully defend the paper before a faculty committee.

Thesis Option—This option is designed for students planning graduate work beyond the MPA degree or careers in research. Six credit hours may be earned in writing an acceptable thesis. Candidates must pass an oral defense of the thesis.

Financial Assistance

The Board of Trustees of The Wichita State University, through the Graduate School and the Center for Urban Studies, offers a number of graduate assistantships on a competitive basis. Recipients receive a stipend for the academic year plus a partial tuition waiver. Graduate assistants work 20 hours per week with faculty in the center’s teaching, research and public service activities.

The Center for Urban Studies also designates two outstanding graduate assistants as Hugo Wall Fellows. Each fellow is granted a $500 per semester stipend in addition to the regular graduate assistantship remuneration.

Internship positions, while not guaranteed, are remunerative and are awarded on a competitive basis.

Courses for Graduate/Undergraduate Credit

525. Computer Applications for Public Policy. (3). Course familiarizes students with major types of software applications for IBM compatible microcomputers and their use in public policy analysis. Prerequisite: enrollment in MPA program or sponsorship by local government. P 13 625 0 2214

700. Urban Affairs. (3). A study of the process of urbanization from a multidisciplinary point of view. Prerequisite: enrollment in MPA program or instructor’s consent. P 13 700 0 2214

702. Urban Research Methods. (3). This course is designed to acquaint the student with applied policy research methods. Emphasis is on developing an understanding of secondary sources of data of the type used in policy, planning and administrative research. Students must complete several short research projects. Prerequisite: enrollment in urban affairs program or instructor’s consent. P 13 702 4 2214

710. Scope of Public Administration. (3). Cross-listed as Pol. Sci. 710. Review of the scope of the field of public administration including a survey of key concepts and school of thought underlying the field and identification of issues shaping the future development of the field. P 13 710 0 2214

720. Urban Systems. (3). Cross-listed as IE 720. This course develops the principles of systems analysis and the tools by which these principles can be applied. Examples and applications are taken from urban problems. Emphasis is on the formulation of realistic models and solutions. Computer and research techniques are developed in class as necessary. Prerequisite: instructor’s consent. P 13 720 0 2214

750. Decision Making. (3). Course includes theories of decision-making applied under varying degrees of uncertainty. Content and coverage include such materials as theories of decision making, environment for simulating creativity, case studies to problem identification, alternative evaluation techniques, decision implementation and utilization of quantitative tools in decision-making. Prerequisite: instructor’s consent. P 13 750 0 2214

755. Special Topics in Urban Affairs. (3). Provides students with an opportunity to engage in advanced study in urban topics that are of immediate concern and arise only occasionally. The content varies with issues that are of interest and faculty expertise. Directed to Master of Public Administration students. May be repeated if topics are different. Prerequisite: instructor’s consent. P 13 755 0 2214

Courses for Graduate Students Only

875-876. Thesis. (2-3). Prerequisite: advisor’s consent. P 13 875 0 2214, P 13 876 0 2214

880. Urban Affairs Internship. (3). The internship is designed to integrate academic pursuits and practical experience. Students admitted to the internship are assigned to work in an approved government, community or private organization for a period of three to 12 months. P 13 889 0 2214

898. Applied Research Paper. (3). The applied research paper under the direction of a faculty committee is designed to develop and measure competency in the areas of writing, research and policy conceptualization. Each paper addresses a policy relevant question and the delivery of a finished product with policy application. This course is to be taken in the last semester of course work. P 13 898 4 2214

899. Urban Seminar. (3). As a part of the internship experience, the intern is required to submit and be examined upon an internship paper. Prerequisite: completion of all Master of Public Administration core courses and six hours of additional graduate credit courses. P 13 899 9 2214

Women’s Studies

Graduate Faculty

Associate Professors: Anita Skeen (English), Dorothy Walters (director)

Assistant Professors: Elena Bastida (sociology), Gayle Davis (sociology), Gayle Davis, Sally Kitch, Carol Konek, Elsie Shore (psychology), Jacqueline Snyder (continuing education)

Students may earn a master’s degree in gender and women’s studies with an emphasis in women’s studies. These include instructional services, counseling and school psychology, sociology and cross-cultural communications. Women’s studies may be included as one of two or three areas of interest under the MA degree in Liberal Studies, an individually designed graduate program. In other areas, such as the community program in psychology, students may orient course electives and thesis research to accommodate an interest in women’s studies. The following courses are available for graduate credit.

Courses for Graduate/Undergraduate Credit

516. Sociology of Sex Roles. (3). Cross-listed as SOC 516. A 10 516 0 22DB

530. The American Woman in History. (3). Cross-listed as HIST 530. A 10 530 0 22DB

533. Women and the Law. (3). This course is an introduction to the legal aspects of women’s rights, including the equal rights amendment to the U.S. Constitution, right to choose a name, sex discrimination in employment, education and credit, welfare and criminal justice. Consideration also is given to women in the field of law, such as lawyers and legislators. A 10 533 0 4950

534. Psychology of Women. (3). Cross-listed as PSYCH 534. A 23 534 0 2001

535. Images of Women in Literature. (3). Cross-listed as ENG 535. Women chal-
American women to visual arts and crafts, poetry and music from the late 18th century until the emergence of the 20th century women's art movement. A 10 580B 0 4903

580C. Contemporary Women's Art. (3). This course looks at works by women in the visual arts, music and poetry since the 1960s. A 10 580C 0 4903

580D. Theories of Feminism. (3). This course examines various approaches taken by theorists both of the women's movement and of the cultural status of women. A 10 580D 0 4903

589. Seminar in Women's Issues. (3). Designed to give students experiential learning in interdisciplinary skill development related to women's issues in law, psychology, sociology, economics and literature and to offer independent study and field work in the students' area of specialization related to women. A 10 589 0 4903

635. Leadership Techniques for Women. (3). Cross-listed as Speech 635. A course designed to provide the woman student experience in decision making and to improve skills in leadership through role playing and exercise in group dynamics. A 10 635 0 4903

750. Current Concerns of Women. (2-3). Workshop. P 14 750 0 4903

870. Directed Readings. (2-3). Designed for graduate students who want to pursue research in areas not normally covered in course work. Repeatable for credit with department consent. Prerequisite: instructor's consent. A 10 870 0 4903

880. Seminar in Women's Studies. (3). Intensive study of selected women's studies topics. Seminar discussion, reports and research project. Repeatable for credit with departmental consent. Prerequisite: instructor's consent. A 10 880 0 4903
Graduate Faculty 1986-87

Full Membership

Date or dates following title refer to time of initial and successive appointments. Faculty listed have academic rank.


Ahlgren, Clark L, University Professor (1966). BA, The Wichita State University, 1939; MA, Syracuse University, 1942; PhD, 1951. LLD, 1969. LMD, St. Lawrence University, 1976.

Alexander, David R., Associate Professor of Physics and Executive Director of Lake Alvin Public Observatory (1971). BS, Kansas State University, 1967; AM, Indiana University, 1968; PhD, 1971.

Allen, Anneke S., Associate Professor of Chemistry (1964). Candidiate Ryskuniversitet Groningen Netherlands, 1952; PhD, Tulane University, 1955.

Anderson, Donald G., Professor of Secondary Education and Associate Dean of Education (1967). BS, Iowa State University, 1957; ME, University of Missouri, 1960; EdD, Arizona State University, 1967.

Anderson, Robert E., Professor of Educational Administration (1967). BA, University of Iowa, 1952; MA, 1963; EdD, University of Nebraska, 1963.

Arms, Warren B., President and Dean of the College, 1961-1971. BS, University of Michigan, 1956; PhD, 1964.

Arias, Lucio, Professor of Mathematics and Statistics (1969). European University of Zaragosa, Spain, 1942; ME, Dalhousie University, 1959; PhD, University of Saskatchewan, 1964.

Bajaj, Prem N., Associate Professor of Mathematics and Statistics (1960). BA, Punjab University, 1951; MA, 1954; MS, Case Western Reserve University, 1956; PhD, 1968.

Ballenger, Marcus T., Associate Professor of Elementary Education (1970). BS in Ed, Northern Illinois University, 1959; MEd, Texas Tech University, 1963; EdD, 1970.

Bastida, Elena M., Assistant Professor of Sociology (1961). BA, Kansas State University, 1970; MA, 1972; PhD, University of Kansas, 1979.

Bateman, Morita M., Associate Professor of Decision Sciences (1965). BSME, University of South Carolina, 1946; MS, University of North Carolina, 1950; PhD, Oklahoma State University, 1967.

Belt, John A., Associate Professor of Management (1971). BA, University of Southern California, 1966; PhD, Texas Tech University, 1971.


Benningfield, Lloyd M., Professor of Electrical Engineering (1967). BSCE, Oklahoma State University, 1951; MSEE, University of Missouri, 1957; PhD, Purdue University, 1966.

Berg, John Robert, Professor of Geology (1946). BA, Augustana College, 1938; MS, University of Iowa, 1940; PhD, 1942.

Bennett, Walter D., Professor of Aeronautical Engineering (1954, 1964). BSCE, Kansas State University, 1950; MS, The Wichita State University, 1959; PhD, Oklahoma State University, 1959; Licensed Professional Engineer—Kansas.


Biltz, Dorothy K., Assistant Professor of Anthropology (1969). BA, University of Wisconsin, 1955; PhD, University of Sydney, 1972.

Blaschke, William, Assistant Professor of Geology (1964). BA, Drexel University, 1973; MS, Northwestern University, 1982; PhD, 1985.

Blakemore, Donald J., Associate Professor of Anthropology (1976). BA, University of Nebraska, 1969; MA, 1971; PhD, University of Wisconsin-Milwaukee, 1975; MS, 1970; PhD, Michigan State University, 1976.


Born, John D., Jr., Associate Professor of History and Vice President for Academic Affairs (1976). BA, University of Texas, 1952; MA, University of Houston, 1958; PhD, University of New Mexico, 1963.

Borresen, Robert C., Associate Professor of Psychology (1965). BS, Northwestern University, 1963; AM, University of Missouri, 1965; PhD, 1968.

Bourge, M. C., Assistant Professor of Education (1969). BA, University of New Mexico, 1961; MS, 1963; PhD, 1969.

Bourge, M. C., Assistant Professor of Education (1969). BA, University of New Mexico, 1961; MS, 1963; PhD, 1969.

Bourge, M. C., Assistant Professor of Education (1969). BA, University of New Mexico, 1961; MS, 1963; PhD, 1969.

Boyd, John David, Associate Professor of Political Science (1972). BA, California State University, Long Beach, 1968; MFA, Cranbrook Academy of Art, 1970.

Brady, Stephen W., Associate Professor of Mathematics and Statistics (1967). AB, Indiana University, 1963; AM, 1965; PhD, 1968.

Bravo-Elizondo, Pedro, Professor of Spanish (1955). Universidad Tecnica del Estado, Chile, 1957; MA, Education, Catholic University, Valparaiso, Chile, 1964; MA, University of Iowa, 1971; PhD, 1974.

Brenzaele, John B., University Professor and Executive Director, Institute for Aviation Research (1959). BS, Millsaps College, 1947; MS, University of Alabama, 1951; PhD, University of Virginia, 1955.

Britton, Clark V., Jr., Professor of Graphic Design (1957). BA, Auburn University, 1952; MFA, 1968.


Brooks, Nancy F., Assistant Professor of Sociology (1972, 1975). BA, The Wichita State University, 1972; MA, University of Wyoming, 1975; PhD, 1983.

Brown, Karen Lee, Assistant Professor of Biological Sciences (1969). BA, Miami University of Ohio, 1969; MS, 1970; PhD, University of Georgia, 1981.


Burk, Kenneth W., Professor of Communication Disorders and Sciences (1971). BA, University of Iowa, 1953; MA, University of Kentucky, 1955; PhD, Purdue, 1962.


Bush, Martin H., Associate Professor of History and Vice President for Academic Resources (1985). BA, State University of New York at Albany, 1958; MA, 1959; PhD, Syracuse University, 1968.


Cardenas, Anthony J., Associate Professor of Spanish (1975). BA, University of New Mexico, 1968; MA, University of Wisconsin, 1969; PhD, 1974.


Carroll, Jeri Ann, Associate Professor of Elementary Education (1968). BA, University of Kansas, 1965; MS, 1967; PhD, 1988.

Chaffee, Leonard M., Professor of Education and Dean of College of Education (1967). BA, Miami College, 1951; Med, Kent State College, 1952; PhD, Ohio State University, 1963.


Cheng, Da He, Professor of Administration of Justice (1975). BA, Michigan State University, 1956; MA, 1958; PhD, 1962.

Chowdhuri, Jharna, Assistant Professor of Mechanical Engineering (1984). BS, Lady Brabourne College, Calcutta University, 1967; MS, State University of New York, 1975; PhD, Rutgers University, 1982.

Cholak, David T., Associate Professor of Music Theory and Chairperson of Department of Musicology and Composition (1988), BM, Houghton College, 1960; MA, George Peabody College for Teachers, 1961; BD, Vanderbilt University, 1965; PhD, George Peabody College for Teachers, 1971.

Cho, Dong Woo, Professor of Economics (1967). BS, Seoul National University, 1952; MA, University of Missouri, 1957; PhD, 1968.

Chopra, Dharam V, Professor of Physics (1965). BS, University of Edinburgh, 1957; MS, University of Cambridge, 1958; PhD, 1963.


Chung, Kae H., Professor and Chairman

Graduate Faculty 1986-87
History (1963); AB, California State University, Sacramento, 1952; BD, Fuller Theological Seminary, 1955; MA, University of California at Berkeley, 1958; PhD, 1963.

Tork, Susan C., Assistant Professor of Physical Therapy (1983); BS, University of Kansas, 1964; MED, University of Illinois, 1974.

Town, Robert L., Associate Professor of Organ (1965); BM, Eastman School of Music, 1960; MM, Syracuse University, 1962.

Vargo, Albert J., Director of the Intensive English Language Center (1970); AB, Wayne State University, 1964; MA, 1966; MA, University of Michigan, 1969.

Vickery, W. Dean, Assistant Professor of Management and Assistant Dean for Student Affairs in College of Business Administration (1971); BA, The Wichita State University, 1954; MS, 1968.

Vincent, Michael, Associate Professor of French (1960); BA, St John's University, 1972; Diplome de langue et de civilisation francaise, Universite de Paris, 1973; MA, University of Wisconsin, 1974; PhD, 1979.

Wahlbeck, Phillip G., Professor of Chemistry (1972); BS, University of Illinois, 1954; PhD, 1955.

Washington, Patricia, Assistant Professor of Minority Studies (1984); BA; Northeastern Illinois University, 1978; MA, University of Northern Iowa, 1977; MSW, University of Pittsburgh, 1980; PhD, 1981.

Webb, Edgar L., Assistant Professor of Industrial Education (1959); BA, The Wichita State University, 1959; MS, Pittsburg State University, 1961.

Wells, Candace, Assistant Professor of Secondary Education (1980); BA, University of Chicago, 1971; MA, University of Missouri, 1973.

Wherritt, Robert C., Associate Professor of Mathematics and Statistics (1962); BS, Tulane University, 1955; MS, 1961; PhD, New Mexico State University, 1971.

Whitmer, Lionel R., Assistant Professor of Mechanical Engineering (1980); BSME, Kansas State University, 1968; MSME, 1974; Certificate, Baylor College of Medicine, 1974; PhD, Kansas State University, 1980; Licensed Professional Engineer—Kansas.

Whitmore, Abel C., Assistant Professor of Health Administration and Education (1986); BA, Loma Linda University, 1979; MHA, 1982; DBA, United States International University, 1986.

Widener, Russell D., Assistant Professor of Trombone/Low Brass (1981); BM, Baylor University, 1968; MM, Catholic University, 1972.

Ad-hoc Membership

E. T. Blankenship—Journalism
Nancy Conn—Instructional Services
J. Brian Dregger—Computer Science
Suzanne Frenz—Speech Communication
Verne Hamilton—Mechanical Engineering
Gregory Harwood—Musicology/Composition
Molly Horner—Nursing
Eric Howell—Computer Science
Kenneth Johnson—Computer Science
Donna McCoy-Harms—Instructional Services
Janice Rodman—Nursing
Mary Else Robertson—English
Kathryn Ryan—Nursing
Viswanath Subramanian—Computer Science
Marek Suchenek—Computer Science
Mike Taylor—Instructional Services
Pierre Tirsch—Studio Arts
Benjamin Urish—Anthropology
Hazel Walker—Nursing
Jane Washburn—Nursing
Bobby Webster—Medical Technology
Zbigniew Wajnc—Computer Science
Peggy Wright—Computer Science
Hart Zafar—Health Administration

Graduate School Deadlines for Summer 1987-Spring 1988

In addition to course requirements, the following applicable deadlines must be met to insure graduation. Failure to observe them will delay graduation.

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<td>June 12</td>
<td>September 14</td>
<td>February 5</td>
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<td>Last date for oral examinations</td>
<td>July 10</td>
<td>November 20</td>
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<td>Last date for incomplete grades to be removed</td>
<td>July 17</td>
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<td>Bound thesis due in Graduate School office</td>
<td>July 17</td>
<td>December 10</td>
<td>May 6</td>
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<tr>
<td>All financial obligations to the University must have been met</td>
<td>July 17</td>
<td>December 10</td>
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<tr>
<td>All departmental requirements must have been met</td>
<td>None</td>
<td>None</td>
<td>May 21</td>
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<tr>
<td>Commencement</td>
<td>None</td>
<td>None</td>
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These dates may be subject to change.

Deadlines for Summer 1988, Fall 1988 and Spring 1989 can be obtained in the Graduate School office.
Academic Calendar for 1987-88

Summer Session 1987

May 25, Monday .................................. Memorial Day, holiday
May 26-June 12 .................................... Presession and workshops
June 4-8, Thursday-Friday ....................... Summer Session registration
June 8, Monday ..................................... Classes begin
July 2, Thursday .................................... Final day of first four-week term; registration for second four-week term
July 3-4, Friday-Saturday ......................... Independence Day, holiday
July 6, Monday ..................................... Second four-week term classes begin
July 31, Friday ....................................... Summer Session closes

Fall Semester 1987

August 17-22, Monday-Saturday ............... Fall semester registration
August 24, Monday .................................. Classes begin
September 5-7, Saturday-Monday .............. Labor Day, holiday
October 16, Friday .................................. Midterm point
October 30, Friday .................................. Final date for withdrawal with nonpenalty grades
November 11-20 .................................... Preregistration period for spring semester. Exact dates to be published in the Schedule of Courses
November 25-29, Wednesday-Sunday ........... Thanksgiving recess
December 10, Thursday ............................ Last day of classes
December 11, Friday .................................. Study day
December 12-18, Saturday-Friday ............... Final examinations
December 19, Saturday .............................. Semester ends

Spring Semester 1988

January 11-16, Monday-Saturday ............... Spring semester registration
January 18, Monday .................................. Classes begin
March 11, Friday .................................... Midterm point
March 13-19 ......................................... Spring recess
March 21, Monday .................................. Classes resume
April 1, Friday ...................................... Final date for withdrawal with nonpenalty grades
April 13-22 .......................................... Preregistration period for fall semester. Exact dates to be published in the Schedule of Courses
May 9 .................................................. Last day of classes
May 10 .................................................. Study day
May 11-17, Wednesday-Tuesday ............... Final examinations
May 18 .................................................. Semester ends
May 21, Saturday .................................... Commencement

Summer Session 1988 (Tentative)

May 23-June 10 ..................................... Presession and workshops
May 30, Monday ..................................... Memorial Day, holiday
June 2-3, Thursday and Friday ................. Summer Session registration
June 5, Monday ..................................... Classes begin
July 1, Friday ....................................... Final day of first four-week term; registration for second four-week term
July 4, Monday ..................................... Independence Day, holiday
July 5, Tuesday ..................................... Second four-week term classes begin
July 29, Friday ....................................... Summer Session closes
Academic Calendar for 1988-89
(all dates tentative)

Summer Session 1988
May 23-June 10 .................. Presession and workshops
May 30, Monday .................. Memorial Day, holiday
June 2-3, Thursday and Friday .... Summer Session registration
June 6, Monday .................. Classes begin
July 1, Friday .................. Final day of first four-week term; registration for second four-week term
July 4, Monday .................. Independence Day, holiday
July 5, Tuesday .................. Second four-week term classes begin
July 29, Friday .................. Summer Session closes

Fall Semester 1988
August 15-19 (week of registration) ... Fall semester registration
August 22, Monday .................. Classes begin
September 3-5, Saturday-Monday .... Labor Day, holiday
October 14, Friday .................. Midterm point
October 28, Friday .................. Final date for withdrawal with nonpenalty grades
November 14-22 .................. Preregistration period for spring semester. Exact dates to be published in the Schedule of Courses.
November 23-26, Wednesday-Saturday ... Thanksgiving recess
December 8, Thursday .................. Last day of classes
December 9, Friday .................. Study day
December 10-16, Saturday-Friday ... Final examinations

Spring Semester 1989
January 9-14, Monday-Saturday .... Spring semester registration
January 16, Monday .................. Classes begin
March 10, Friday .................. Midterm point
March 12-18, Sunday-Saturday .... Spring recess
March 20, Monday .................. Classes resume
March 31, Friday .................. Final date for withdrawal with nonpenalty grades
April 17-25 .................. Preregistration period for fall semester. Exact dates to be published in the Schedule of Courses
May 8, Monday .................. Last day of classes
May 9, Tuesday .................. Study day
May 10-16, Wednesday-Tuesday ... Final examinations
May 17, Wednesday .................. Semester ends
May 20, Saturday .................. Commencement

Summer Session 1989
May 22-June 9, Monday-Friday ... Presession and workshops
May 29, Monday .................. Memorial Day, holiday
June 1-2, Thursday and Friday .... Summer Session registration
June 5, Monday .................. First four-week term classes begin
June 30, Friday .................. Final day of first four-week session; registration for second four-week session
July 3, Monday .................. Second four-week term classes begin
July 4, Tuesday .................. Independence Day, holiday
July 28, Friday .................. Summer Session closes

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Summer Session 1989
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