8-1-1982
The University of Iowa General Catalog 1982-84
University of Iowa

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The University of Iowa Bulletin, n.s. no. 2149

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The University of Iowa
General Catalog 1982-84

New Series 2142 (USPS 651-400)
August 1, 1982
Issued five times during the year in
April, May, and December, and twice in
August. Published by the University of
Iowa, Iowa City, Iowa 52242. Second-
classes postage paid at the post office in
Iowa City, Iowa 52240. Postmaster: Send
changes to The University of Iowa,
Cabinet 410, Iowa City, Iowa 52242.

Copies of this Catalog are available for
examination in Iowa high schools, offices of the county superintendents of
schools, public libraries, and junior and
community colleges; at the major state
government offices in Des Moines; and
in each office of the University. Copies
may be requested from the bookstore at
the Iowa Memorial Union at a cost of $3.
Reprints of individual sections of the
Catalog are available without charge.

This Catalog is published for
informational purposes and should not be
construed as the basis of a contract
between a student and The University of
Iowa. Every effort is made to provide
information that is accurate at the time
the Catalog was prepared. However,
information concerning regulations,
policies, fees, curricula, courses, and
other matters contained in this Catalog
is subject to change at any time during
the period for which the Catalog is in
effect.

Current information regarding fees,
important dates, and the availability of
courses can be found in the Schedule of
Courses that is available before each
term. The brochure, Information for
Prospective Students, and the pamphlet,
Information for Prospective Graduate
Students, also include information on
admission, fees, scholarships, student
aid, research, and student personnel
services.
# University Calendar

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<td>1983</td>
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The University of Iowa is one of Iowa’s three state universities. The core of the University is the College of Liberal Arts. Within the college there are departments of Art and Art History, Journalism and Mass Communication, Letters, Library Science, Music, Religion, and Social Work. The College of Liberal Arts is closely linked with the professional colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy, and with the Graduate College, all located on a single campus in Iowa City. Some faculty members from the University’s professional colleges also teach undergraduate courses in the College of Liberal Arts, including a number of interdisciplinary courses. Total undergraduate enrollment during 1961-62 was about 25,400 students.

Founded on February 26, 1847, the University of Iowa is the state’s oldest institution of higher education. It established the first law school west of the Mississippi. It was the country’s first state university to admit women and man on an equal basis, which it did from its opening in 1855. It was the first state university to accept creative work in lieu of the traditional academic thesis for graduate degrees in the arts and sciences, and pioneered the now world-recognized UI writers workshops. It is recognized as the place where the science of speech pathology originated. It has earned recognition for the quality and vitality of its teaching and research programs in many physical sciences, and the teaching of composition, and in graduate programs in speech, dramatic art, and communication, to cite just a few recent examples.

The UI faculty includes some 1,500 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is enhanced by their involvement in scholarly and scientific research. The University seeks to foster faculty vitality by maintaining a healthy balance between teaching and research, and between undergraduate and graduate or professional instruction.

The University’s undergraduate enrollment is made up equally of men and women students. Approximately four out of five undergraduates are Iowa residents. The rest are students from all other 48 states and more than 80 foreign countries.

About 65 percent of the University’s entering freshmen had a B average or above in high school. Approximately 88 percent ranked in the upper half of their high school classes and about 32 percent ranked in the upper tenth. The University of Iowa offers a comprehensive program of student financial aids. Half of the University’s students have some form of employment. One-fifth have education loans. One out of ten undergraduates and one out of five graduate students have scholarships. Most UI scholarships are awarded on the basis of demonstrated financial need and academic excellence, with a small number of grants awarded solely for scholarly achievement.

Reflecting a growing trend toward lifelong learning, the University in recent years has substantially expanded educational programs both on and off campus for individuals who cannot enroll as regular full-time students. These “nontraditional” learning opportunities range from mini-courses, conferences, workshops, and continuing education programs for professionals to Saturday and evening classes offered on campus and credit courses taught off campus. In 1977 the University, in cooperation with Iowa’s other two state universities, introduced a new Bachelor of Liberal Studies (B.L.S.) degree program geared especially to adults who wish to earn a college degree but are unable to enroll in traditional on-campus study.

Degrees Offered

The University offers the following degrees. The major fields are listed in the various college sections of the Catalog:

- Bachelor of Arts
- Bachelor of Science
- Bachelor of Music
- Bachelor of Fine Arts
- Bachelor of General Studies
- Bachelor of Liberal Studies
- Bachelor of Business Administration
- Bachelor of Science in Engineering
- Bachelor of Science in Chemistry
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Industrial Engineering
- Bachelor of Science in Mechanical Engineering
- Bachelor of Science in Pharmacy
- Bachelor of Science in Nursing
- Doctor of Dental Surgery
- Juris Doctor
- Doctor of Medicine
- Master of Arts
- Master of Business Administration
- Master of Fine Arts
- Master of Social Work
- Master of Arts in Teaching

Education Specialist
Doctor of Musical Arts
Doctor of Pharmacy
Doctor of Philosophy
Accreditation and Associations

The University of Iowa has been accredited by the North Central Association of Colleges and Secondary Schools since the association's organization in 1910. The University is a member of the Association of American Universities. It is associated with Northwestern Indiana, Purdue, Ohio State, and Michigan State universities, and the universities of Illinois, Wisconsin, and Michigan in the Western (Big Ten) Conference. It is associated with these universities and The University of Chicago in the Committee for Institutional Cooperation (CIC). Various colleges and schools of the University are members of accrediting associations in their respective fields, as follows:

Colleges

- Business Administration—American Assembly of Collegiate Schools of Business
- Dentistry—American Dental Association
- Education—National Council for Accreditation of Teacher Education; Department of Public Instruction
- Engineering—The Accreditation Board for Engineering and Technology (ABET) of the American Association of Engineering Societies (AAES)
- Law—American Bar Association; Association of American Law Schools
- Medicine—Liaison Committee on Medical Education, representing the American Medical Association (AMA)
- Nursing—American Nurses Association
- Pharmacy—American Council on Pharmaceutical Education

Schools

- Journalism—American Council on Education in Journalism
- Library Science—American Library Association
- Music—National Association of Schools of Music
- Social Work—Council on Social Work Education

Departments and Programs

- Anatomy—American Anatomical Association
- Dental Hygiene—American Dental Association Commission on Dental Accreditation
- Dietetics—American Dietetic Association
- Hospital and Health Administration—Accrediting Commission on Education for Health Service Administration
- Medical Technology—Committee for Allied Health Education and Accreditation of the American Medical Association
- Physician Assistant—American Medical Association Council on Medical Education in collaboration with the Joint Review Committee on Educational Programs for the Assistant to the Primary Care Physician
- Physical Therapy—American Medical Association Committee on Allied Health Education Accreditation and the American Physical Therapy Association
- Nuclear Medicine Technology—Committee for Allied Health Education and Accreditation of the American Medical Association
- Psychology—American Psychological Association
- Speech Pathology and Audiology—American Speech-Language and Hearing Association

Sessions

The University's academic year consists of two semesters of approximately 14 weeks each. The University also conducts an eight-week summer session and, following that, an Independent Study Unit of from one to four additional weeks for students in the Graduate College and the College of Law.

Code of Student Life

As members of the academic community, students are encouraged to develop a capacity for critical judgment and to engage in a sustained and independent search for truth. Freedom to teach and freedom of learning are inseparable facets of academic freedom. The freedom to learn depends upon appropriate opportunities and conditions in the classroom, on the campus, and in the larger community. Students are expected to exercise their freedom to learn with responsibility, and accordingly, the University has developed a Code of Student Life to provide and safeguard the right of every individual student to exercise fully freedom to learn without undue interference by others. This code applies only where a student's misconduct has adversely affected some University process or function or some other distinct and clear interest of the University as an academic community. Students are expected to acquaint themselves with the code and to conduct themselves in accordance with the standards it sets forth.

Human Rights

The University is guided by the precept that in no aspect of its programs shall there be differences in the treatment of persons because of race, creed, color, national origin, age, sex, and any other classifications that deprive the person of consideration as an individual, and that equal opportunities and access to facilities shall be available to all. This principle is expected to be observed in the admission, housing, and education of students; in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff personnel. The University shall work cooperatively with the community in furthering this principle.

Student Complaints Concerning Faculty Actions

Student complaints concerning actions of faculty members are pursued first through the informal mechanism established in each college for this purpose. Although there is some variation among colleges, these mechanisms generally involve the following steps: (1) The student should first attempt to resolve the issue with the faculty member involved. (2) If a satisfactory outcome, the student should turn to the departmental executive officer, if any. (3) If a satisfactory outcome still is not obtained, the student may take the matter to the college dean. In addition, graduate students should consult with the associate dean for academic affairs in the Graduate College concerning mechanisms for resolving complaints. Some colleges (Business Administration, Dentistry, Education, Engineering, Law and Nursing) also have established an ombudsperson system as an alternative mechanism for handling student complaints. Information concerning the informal mechanisms established in a specific college is available in the college dean's office or CAC office. If a student complaint concerning faculty actions cannot be resolved through the informal mechanisms available, the student may file a formal complaint which will be handled under the procedures established for dealing with alleged violations of the Statement of Ethics and Academic Responsibilities as specified in section 2.20 of the University Constitution. A description of these formal procedures can be obtained from each college dean's office, collegiate ombudsperson, the Liberal Arts Advisory Office, the Undergraduate Admissions Center, or the office of the College Associate Dean.

GENERAL INFORMATION
Policy on Sexual Harassment

Under the Regents’ Rules of Personal Conduct, the University of Iowa’s Human Rights Policy, Faculty, staff, and students must be free to be educated without sexual harassment by colleagues, supervisors, or teachers. The University will not condone actions or words which a reasonable person would regard as sexually harassing or coercive.

Individuals who feel that they have been the objects of such harassment should advise their supervisor, dean, or The University of Iowa’s Affirmative Action Officer. In investigating such complaints, the following principles will be observed:

That the person bringing the complaint would suffer no retaliation;
That the complaint would not be discussed with anyone else without the complainant’s permission;
That if permission was given to pursue and investigate the complaint, that such an investigation would be conducted by the head of the major administrative unit in which the complainant was brought or a designee of that administrator;
That in conducting such an investigation, the right to confidentiality, both of the complainant and the accused, would be respected;
That the investigation would be conducted as quickly as possible and the results reported to the complainant;
That in the event the complaint is found to be valid, that the person that has been guilty of sexual harassment will receive appropriate counseling or discipline and that the case in other instances of violation of University policy.

University Marking System

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
(Not used by campus grade-point average)

Recognition of High Scholastic Achievement

The University recognizes high scholastic achievement by awarding degrees “with honors,” “with distinction,” and “with highest distinction,” based on these criteria:

-”HONOR” graduates
-“Distinguished” graduates
-“Highest” graduates

Records

All academic records are maintained by the Office of the Registrar and will not be released without written permission of the student.

Honorary and Professional Societies

Phi Beta Kappa, Sigma Xi, Motor Board, and Delta Kappa Epsilon are some of the many honorary and professional societies in which The University of Iowa has active chapters.

Applying for Admission

Correspondence regarding admission to any college of The University of Iowa should be addressed to the Admissions Office, 1082 Colin Hall, The University of Iowa, Iowa City, Iowa 52242. The first letter should request an application for admission. The letter should briefly describe the prospective applicant’s high school or college background, and outline his or her plans for further study, including the department or general field in which the student expects to major. All applications for admission to all colleges of the University must be submitted to the Admissions Office and must furnish official transcripts and other supporting material as specified.

Application Fee

A $20 application fee must accompany applications submitted by prospective students not previously enrolled for full-time study at the University. A Graduate College applicant must pay the fee, unless he or she has earned a degree from The University of Iowa. Application fees are not refundable, except to Iowa residents who are denied admission.

Application Deadlines

Applicants for admission must submit the required application documents to the Office of Admissions by the deadline dates listed below. Foreign students usually have earlier application deadlines (see “Foreign Students” below).

College of Liberal Arts—Ten days before classes begin at each session
College of Business Administration—April 1 for summer session, March 1 for fall semester, September 1 for spring semester
College of Dentistry—November 30, fall semester only
College of Engineering—Ten days before classes begin at each session
Graduate College—The general Graduate College deadlines: March 1 for the spring semester, July 15 for the fall semester, and December 1 for the spring semester. Some departments may have earlier deadlines. Early submission of materials is advised. To be considered for graduate awards, students must apply by February 1 for the fall semester.
College of Law—March 1, summer or fall semester
College of Medicine—December 1, fall semester only. Early Decision Plan, August 1 for the following year.
College of Nursing—January 15 for fall semester; June 15 for spring semester.
College of Pharmacy—March 1, fall semester only
Dental Hygiene Program—March 1, fall semester only
Physical Therapy Certification Program—February 1, fall semester only

Physician Assistant Program—January 15, summer session only

Teaching Education Program—June 1 for the academic year in which the student plans to enroll in professional education courses

Foreign Students

The University of Iowa encourages foreign students to begin the process of application in the spring of their senior year. Although the University allows applications at least twelve months prior to matriculation, the applications of foreign students must be accompanied with the application procedures and submitted for admission. The Admissions Office will provide the application materials for students who apply during the summer or fall semester.

Graduate College—Students applying to The University of Iowa for financial assistance (scholarships, fellowships, assistantships) must:
February 1 for summer semester or fall semester, October 1 for spring semester
Students who will not require financial assistance:
March 1 for summer session, April 15 for the fall semester, October 1 for the spring semester

Colleges of Business Administration, Engineering, Liberal Arts:
March 1 for the summer session, April 16 for the fall semester, October 1 for the spring semester
Applications to all other colleges and programs must meet the deadlines set forth above.

Foreign applicants whose native language is not English must complete and submit results from the Test of English as a Foreign Language (TOEFL) unless they have received a degree from an accredited college or university in the United States, United Kingdom, English-speaking Africa, Canada (except Quebec), Australia, or New Zealand. A minimum TOEFL score of 460 is required for admission into the Graduate College. Newly admitted graduate students who score less than 550 on the TOEFL exam must complete an English proficiency evaluation prior to their first registration. Together with their academic advisors, graduate students determine whether or not they should enroll in English as a Foreign Language (EFL) coursework.

Undergraduate applicants to all colleges, except the College of Engineering, must submit TOEFL scores of at least 480 prior to their initial registration. The College of Engineering requires TOEFL scores of at least 530 for admission.

All newly admitted undergraduates are required to complete EFL coursework recommended by the Department of Linguistics as a result of the English proficiency evaluation process. Students must complete all required EFL coursework prior to enrolling in the rhetoric course which appears on their admission statement.

ACT Test Scores

The University of Iowa requires all entering students, except those who have transferred from another college, to take the ACT. Students who score below 18 on the ACT Composite score must enroll in College-readiness Mathematics. Students who score below 18 on the ACT Composite score must also enroll in a College-readiness English or College-readiness Reading course.

Medical Information

In the interest of providing optimum health care, Student Health Service strongly recommends that, following their admission, incoming students submit physical examination reports and personal health histories on the forms provided for that purpose. This information does not affect the student's admission and is exclusively for Student Health Service use as necessary background for attending to the student's health needs.

Determining Residence

For admission, tuition, and fee purposes, the University requires that all students enrolling in the University as residents or nonresidents of Iowa, according to criteria established by the Iowa Board of Regents and on the basis of information provided by the student and all other relevant information. The criteria may be found in the "Iowa Administrative Code: Board of Regents" at the back of the Catalog.

Tuition and Fees

The following is the University's breakdown of tuition and fees, per semester, for the academic year 1982-83:

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<th>Ph.D.</th>
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**Note:** All fees are subject to change by action of the State Board of Regents.

Registration

All persons who attend University classes must have been admitted to the University, and are required to register and pay the established tuition and fees. Students in the Graduate College and the colleges of Engineering, Liberal Arts, and Nursing may audit courses with proper approval. Students who audit courses will be assessed fees based on the fewest credits for which the course is available that semester.

Procedure for Payment of Student Accounts

Tuition and fees, board, room, and other University residence hall or fraternity/sorority housing expenses, and such incidental University expenses as library and parking fines must be paid in advance on an installment basis, with billing the first of September, October, and November for the fall semester, and the first of February, March, and April for the spring
THE UNIVERSITY OF IOWA DOES NOT DISCRIMINATE IN ITS EDUCATIONAL PROGRAMS AND ACTIVITIES ON THE BASIS OF RACE, NATIONAL ORIGIN, COLOR, RELIGION, SEX, AGE, OR HANDICAP. FOR ADDITIONAL INFORMATION, PLEASE CONTACT THE COORDINATOR OF TITLE IX AND COORDINATOR OF 504 IN THE OFFICE OF AFFIRMATIVE ACTION, 202 JESSUP HALL, THE UNIVERSITY OF IOWA, IOWA CITY, IA 52242. HUMAN (319) 335-4619.
Services for Students

Academic Advising Offices
Faculty Advisers
Each student is assigned an academic adviser to assist with educational planning, academic counseling, and registration. Students with declared majors are assigned advisers in their major departments. Students with open majors or preprofessional program goals may be assigned an adviser from the Undergraduate Academic Advising Center. Students in professional colleges (Business, Education, Engineering, Nursing, Pharmacy, Dentistry, Law, and Medicine) are advised by the college dean or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

In addition to academic advising, advisers serve as general consultants to their advisees and refer those with special needs to appropriate support services.

Undergraduate Academic Advising Center
Advisers of the Undergraduate Academic Advising Center are specifically trained to help students who wish to explore alternative fields of study as they select career paths or plans of study appropriate to their interests. Advisers are conveniently located in student residence halls.

Collegiate Advisory Offices
Each of the undergraduate colleges of the university also maintains an advisory office. These offices are available to all students to assist with questions concerning admissions, academic majors and concentrations, graduation options, career and degree plans, and other items of concern. They assist students who wish to change advisers and/or majors, and they also act on student complaints.

Admissions
Inquiries about admission to any college of the University, applications for admission to any college of the University, transcripts to support transfer applications, and requests for evaluation of transfer credit should be sent to the Office of Admissions.

Campus Information Center
Located in the south lobby of the Iowa Memorial Union, the center provides information about campus and community activities and University services and operations; refers inquiries to appropriate campus and community resources; compiles the Master Calendar of campus events; maintains the Housing Clearinghouse which provides up-to-date listings of available rental units, city and campus maps, lists of restaurants, hotels, motels, and apartment complexes, and coordinates a roommate matching service. The center is open seven days a week.

Campus Programs and Student Activities
The Office of Campus Programs and Student Activities (OCPSA) provides diverse and balanced programs and activities for the Iowa Memorial Union and the campus as a whole, and assists students and student organizations.

Individual students are welcome to seek guidance from professional advisers in OCPSA about how they can become involved and find organizations suited to their interests. Students who wish to form new groups or organizations with special needs can request guidance from OCPSA staff. Workshops and a well-stocked resource center are available to student organizations.

Campus programming and planning special events are ongoing tasks for program advisers and students and include planning traditional events, such as Homecoming and Riverfest, as well as new campus programs.

OCPSA also sponsors the Art Resource Center, the Recreation Area, the Student Activities Center, the Campus Information Center, and the University Box Office, all in the Iowa Memorial Union.

Career Services and Placement Center
Career Planning
Career planning advisers assist students in all stages of the career planning and decision-making process. Individual advising and career planning seminars help students define their interests, abilities, work and life-style preferences, and career goals. Advisers also help
Each semester transfer consultants and peer counselors (former community college transfer students) conduct several programs to assist new transfer students in making smooth, effective transitions to the University. The programs are conducted both at The University of Iowa and at community college campuses at the request of the particular institution. In addition, OCCA develops and distributes several publications useful to transfer students. OCCA also coordinates a computerized information system containing information regarding course articulation agreements. This system contains lists of community college courses that have been approved for academic transfers as meeting the requirements of various baccalaureate majors.

Counseling Service
The University Counseling Service staff of professional psychologists and advanced doctoral students offers vocational, educational, and personal counseling and therapy in individual and group sessions. It also offers a number of programs, workshops, and consultation activities. All services are available to students without cost.

Dental Service
The dental clinics at The University of Iowa College of Dentistry are primarily for educational purposes. All employees of the University and students who are registered in the University may receive dental treatment at the college and will be accorded the same opportunity for treatment as any other patient. However, the College of Dentistry is not affiliated with the University Student Health Service and does not render service under the student health insurance plan. Fees are established for all treatment rendered, and patients are to pay cash.

Evaluation and Examination Service
Each semester transfer consultants and peer counselors (former community college transfer students) conduct several programs to assist new transfer students in making smooth, effective transitions to the University. The programs are conducted both at The University of Iowa and at community college campuses at the request of the particular institution. In addition, OCCA develops and distributes several publications useful to transfer students. OCCA also coordinates a computerized information system containing information regarding course articulation agreements. This system contains lists of community college courses that have been approved for academic transfers as meeting the requirements of various baccalaureate majors.

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The University Counseling Service staff of professional psychologists and advanced doctoral students offers vocational, educational, and personal counseling and therapy in individual and group sessions. It also offers a number of programs, workshops, and consultation activities. All services are available to students without cost.

Dental Service
The dental clinics at The University of Iowa College of Dentistry are primarily for educational purposes. All employees of the University and students who are registered in the University may receive dental treatment at the college and will be accorded the same opportunity for treatment as any other patient. However, the College of Dentistry is not affiliated with the University Student Health Service and does not render service under the student health insurance plan. Fees are established for all treatment rendered, and patients are to pay cash.

Evaluation and Examination Service
Evaluation and Examination Service duplicates, scores, and analyses many course examinations; helps faculty members develop and improve their classroom tests by providing analyses of the results of examinations; helps faculty or student groups with particular project requests, such as teacher or course evaluation and development; conducts institutional research projects and provides consulting services on questionnaires and survey design; administers many of the University's required and optional tests for entering students; and is a center for many national testing programs, including the American College Testing (ACT), Medical College Admission Test
Athletic scholarships are available to qualified athletes in all sports.

Intramural Sports and Recreational Activities
Through the University’s Division of Recreational Services, all interested students have opportunities to participate in more than 20 different intramural sports and recreational activities. (See “Recreational Services” in the “General Services” section of the Catalog.)

International Education and Services
The Office of International Education and Services (OIES) provides services and facilities and organizes extracurricular programs for both foreign and domestic students.

The OIES maintains a library on 1000+ titles for study in other countries, including some information about foreign universities and study-abroad programs open to all students. The office helps students select study-abroad programs to complement their on-campus academic programs and to assure that students receive the correct credits. Students may also obtain information and applications for the Fulbright, Marshall, and Tablange awards at the OIES.

Foreign student advisers in the OIES provide information, counseling, and services in the area of orientation, immigration regulations, financial aid, and liaison with foreign governments and sponsoring agencies. Advisers help with problems that are specific to the 1000+ students enrolled as international except academic advising. They sponsor or support educational programs, such as the Host Family Program and the Conversation Exchange Program, to foster closer interactions between students and scholars from other countries and their domestic counterparts.

The OIES operates the International Center, on the second floor of the Jefferson Building, where students, staff, and community members hold meetings, seminars, and social activities with an international focus.

Iowa Memorial Union
The Iowa Memorial Union is the hub of student activities. It includes the Campus Information Center, the Union Bus Office, and check cashing service, the Office of Campus Programs and Student Life, meeting rooms with live entertainment, the Bijou Cinema, a variety of food services; a recreation area with bowling, billiards, and electronic games; a tobacco shop; an art resource center; a bookstore; rooms for lectures, concerts, and social events, art and sculpture display areas, and, in the adjoining Iowa House, 110 guest rooms for parents, alumni, conference participants, and other visitors to the campus. Also housed in the Union are the Student Activities Center, University Counseling Services, Career Services and Placement Center, the Center for Conferences and Institutes, and a copy center.

Orientation Services
With the aid of representative student, faculty, and staff personnel, Orientation Services designs and conducts a wide variety of year-round programs to help new freshmen, transfer students, and graduate students with their transition to University life. Orientation is intended not only to assist new students with schedule building, academic advising, and registration procedures, but also to acquaint them with the educational facilities, student services, and other available sources of help. In addition, Orientation’s programming is designed to introduce new students to the social, cultural, and recreational opportunities, to familiarize them with the physical layout of the campus, and to make them feel at home in the University community.

Reading Lab
The Reading Lab of the Rhetoric Program provides a variety of individualized instruction for any University student who wishes to improve their reading and test-taking performances. Students are asked to specify what reading problems they have; teachers adapt practical materials and methods to help remedy these problems. Students may work on improving study skills, including library use, test-taking abilities, command of vocabulary, critical reading, and speed and comprehension reading.

The Reading Lab offers one service course, Voluntary Reading Lab, which meets twice a week for 12 weeks. Students may attend more or less often if they wish, and may enroll at any point during that time if they feel they need reading help. The lab service courses carry no credit and assign no grade. Ordinarily, there are no outside assignments. Developmental reading work is restricted to lab hours, and makes extensive use of lab materials and the students’ own texts in other courses.

The lab also offers: 10:8 Rhetoric; a one-semester, two-credit course for students who need exceptional help preparing for college-level reading; and SP:30 Advanced Reading Comprehension, SP:30 Speeded Reading, and SP:40 Practical College Vocabulary. Independent five-credit modular courses for one semester hour of credit each.

Registrar
The Office of the Registrar determines the residence status of each student, issues student identification cards, supervises registration procedures, withholds a record, and maintains all students’ academic records and official transcripts. Issues official transcripts; assists students in determining graduation requirements, processing applications for degrees, and interpreting college and University academic regulations; provides assistance to students concerning Selective Service and military service matters; and helps student veterans with University application and enrollment procedures, and receipt of Veterans Administration benefits.

Services for Handicapped
The University of Iowa is committed to making its facilities, services, and programs fully accessible to people with handicaps. Currently 97 percent of the University is accessible to people in wheelchairs.

The Office of Services for Handicapped works closely with University faculty and staff to ensure that students receive the maximum benefit from their experience at the University of Iowa. The office provides assistance in the areas of admission, orientation, academic and career planning, academic support, housing, transportation and parking, aides and attendant care, and health services. The office helps students locate tutors, personal aides, tape recorders, and emergency loan wheelchairs. The office works with Recreational Services to provide activities ranging from frisbee to bowling and wheelchair basketball, and offers work-study opportunities to help handicapped students realize their career opportunity to social skills. The office works with the University student organization Residence Life (R.L.H.) and students on arranging adaptive transportation, i.e., the Bixi Bus, a bus with a hydraulic lift available to students at no charge.

Special Support Services
The Office of Special Support Services (SSS) was established to make it possible for more students, particularly economically and educationally disadvantaged or colorfully different backgrounds to receive a higher education at The University of Iowa. Special Support Services provides academic, financial, and personal assistance programs.
Special Support Services is made up of the following subprograms: The Howard Bland Project; the Undergraduate Educational Opportunities Program; New Dimensions in Learning; The Educational Opportunities Professional and Graduate Programs; the Afro-American Cultural Center; and the Chicano-Native American Cultural Center.

Speech and Hearing Clinic
The University of Iowa Speech and Hearing Clinic provides services for speech, language, and hearing problems. Any University student may receive most services without charge. Services include diagnostic examinations, consultations, individual clinic sessions, small group sessions, and referrals to other clinics as needed.

Sponsored Programs
The Division of Sponsored Programs maintains a resource center which contains information on federal and nonfederal sources of funding for study and research projects by faculty and graduate students. Graduate students may inquire about funds for advanced study, either in the United States or abroad.

The division also publishes Research and Graduate News, a section in a weekly newsletter called FYI which contains program and deadline information and carries a special section devoted to sources of funds for graduate study and research. The newsletter is available at departmental offices; further inquiries about graduate opportunities are welcome at the resource center.

Transcripts
Students who have completed work at The University of Iowa may obtain an official transcript of that work upon request to the Office of the Registrar. Fees are $3 for the first copy, $1 for each additional copy on the same order. An official transcript cannot be issued for a student who has a past-due University account.

Veterans Services
The Office of Veterans Services is part of the Office of the Registrar, and serves veterans, dependents of veterans, servicemen, and service women in matters relating to veterans administration educational benefits, University registration, and study at the University.

Women’s Resource and Action Center
The Women’s Resource and Action Center (WRAC) provides services to meet educational, cultural, social, and personal needs of University and community women. The WRAC provides a resource for many women’s organizations; sponsors a Brown Bag Luncheon program; offers evening and weekend workshops, lectures, films, and classes; provides a wide variety of support groups for women; offers women one-to-one problem-solving sessions; and publishes a newsletter nine times a year. The WRAC houses the Solóterter Truth Women’s Resource Library of books and periodicals on a wide range of women’s topics, and maintains an extensive information and referral service. The WRAC’s Rape Victim Advocacy program provides a 24-hour crisis line for victims of rape, attempted rape, sexual harassment, and incest. WRAC also maintains information and resources bureaus.

Writing Lab
The Writing Lab provides individualized writing experiences for any University student who feels inadequately prepared for college writing. Lab students discuss their work in personal conferences with teachers who offer comments and suggestions to help them become perceptive, critical readers of their own writing as they learn how to develop their ideas clearly and cogently.

Students may enroll for no-credit work in the Lab throughout the semester, or register for the credit course (109 Rhetoric) before or after taking a required rhetoric course, or transfer to 109 Rhetoric from another rhetoric course after discussing their writing problems with their rhetoric teacher and the director of the Writing Lab.
Housing

Fair Housing Policy
The following is the University's statement on fair housing practices: "It is and shall be the firm policy of the University that housingsshall be rent to all students on the basis of their individual merits as persons, without exclusion or discrimination on the basis of race, creed, color, or national origin." Iowa City has a fair housing ordinance providing for equal opportunity to secure housing without discrimination due to race, religion, or nationality, except in certain instances involving owner-operator dwelling units. A Human Relations Commission is responsible for the observance of this ordinance and for the initiation of redress for violations of it.

University Residence Halls
Residence halls programs, policies, procedures, and employment practices are consistent with the University human rights policies, the State Board of Regents nondiscrimination policy, and, where appropriate, with the State of Iowa civil rights and federal regulations on equality of opportunity and affirmative action.

University residence hall furnishings, facilities, and services are designed to provide a pleasant atmosphere conducive to effective study.

Single, double, triple, and quadruple rooms with full or partial board are available in the Grand Avenue Residence Halls (west side of the campus), which include Hilgard, Quadrangle, Westlaw, South Quadrangle, Rienow, and Slater halls, and in the Clinton Street Residence Halls (east side of the campus), which include Burge, Currier, Daum, and Stanley halls. There are lounges, study areas, game rooms, coin laundry facilities, and small stores in or available to each residence hall.

Computer terminals, reference book collections, browsing libraries, and private rooms for group study sessions are available in two monitored learning centers.

Each residence hall is divided into small living units. Each hall has a live-in head resident, and there is a student resident assistant in each living unit. All students are encouraged to participate in residence hall government to plan programs and discuss issues.

Student and staff-initiated programs and activities provide opportunities to pursue social, recreational, cultural, and educational interests. Several classes are taught in residence halls. Academic advising centers and tutorial sessions are also available. Students not living in residence halls may purchase hall or partial board contracts.

Applications and Assignments
With their admission application forms, prospective undergraduate students receive separate forms on which to apply for residence hall accommodations. A student applying for residence hall accommodations should read the terms and conditions of the contract, provide all information requested on the application form, sign the contract portion, and return the completed application contract with a check for $20 to the University Housing Assignment Office, Burge Hall.

Applications for residence hall housing are not considered until the applicant has been admitted to the University. Roommate assignment is made without regard to race, color, nationality, or religion.

Undergraduate students new to the University are given priority in the assignment of residence hall accommodations.

The residence hall application contract and $50 advance payment constitute a contract offer. An application may be withdrawn by notifying the University Housing Assignment Office in writing before the application becomes a binding contract. It becomes binding after June 1, if for the academic year; after December 1, if for the second semester only; after May 15, if for the summer session; or ten days after the University Housing Assignment Office issues notice of the acceptance of the contract and assignment of accommodations. If the notice is made within nine days before the beginning of registration, the contract becomes binding two days before the beginning of registration.

Upon written request, the $50 advance payment will be refunded to applicants who are not admitted to the University, and to those who cancel their residence hall contracts in accordance with the terms and conditions set forth in the contract.
Rates
Basic rates for University residence hall accommodations for the 1981-82 academic year are $1,854 for a double room and $1,883 for a triple, with full board. Rates for the several available room and board options vary according to the accommodations, and all rates are subject to change annually.

Family Housing
There are 789 University-operated apartments available to married students or legally defined family units in the Heweske Drive, Heweske Court, Harveys Park, and Parkesen complexes.

Rents for 1981-82 range from $126 to $137.50 per month for one-bedroom units (there are only 41 available at the lower rate) to $177 for two-bedroom units, not including gas, electricity, and telephone. All units are unfurnished.

Rents are subject to change annually.

Family housing is assigned in the order applications are received. Assignments are contingent on the applicant's meeting all University admission requirements. Applications may be filed before completion of admission, but will not be accepted more than a year in advance.

A $250 advance payment is required for all apartments at the time they are offered for leasing.

Off-Campus Housing
The Housing Clearinghouse, located at the Campus Information Center in the Iowa Memorial Union, maintains and provides accurate up-to-date listings of available rental units in the Iowa City area, including large apartment complexes, smaller complexes, rooms in private homes, and one-, two-, and three-bedroom duplexes and houses. The clearinghouse also suggests other resources to use in looking for housing, and offers a packet of helpful information for prospective residents of the area.

Fraternities
Eighteen undergraduate and six professional fraternities operate chapter houses at Iowa. Houses accommodate 35 to 45 men.

Undergraduate fraternities are Aedica, Alpha Epelon Pi, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Pi Gamma Delta, Phi Kappa Psi, Phi Kappa Sigma, Pi Lambda Alpha, Sigma Chi, Sigma Nu, Sigma Phi Epilon, Sigma Pi, and Tau Kappa Epsilon.

Professional fraternities operating chapter houses are Alpha Chi Sigma (chemistry), Alpha Kappa Kappa (medicine), Delta Sigma Delta (dentistry), Phi Beta Pi (medicine), Phi Rho Sigma (medicine), and Psi Omega (dentistry).

Sororities
The 16 national sororities active at Iowa are Alpha Chi Omega, Alpha Delta Pi, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Delta Tau, Sigma Kappa, and Zeta Tau Alpha.
Financial Aid

All financial assistance available to University of Iowa students from general University sources is administered by the University’s Office of Student Financial Aid. Students may receive aid in the form of scholarships, grants, loans, and/or part-time job placement. Students receiving financial aid must maintain satisfactory academic progress as determined by the Office of Student Financial Aid.

Except for merit awards based solely on achievement, all assistance administered by the Office of Student Financial Aid is awarded on the basis of demonstrated need.

Application Procedures

To be considered for aid, the student must complete all University admission application procedures, must be accepted for admission to the University, and must submit a family financial statement through the College Scholarship Service (Box 386, Berkeley, CA 94701) or ACT Financial Aid Service (Box 1000, Iowa City, IA 52243), requesting that a copy of the statement be sent to the University.

When it receives a copy of the statement, the Office of Student Financial Aid supplies the applicant with instructions and forms for applying for aid at the University.

Except for a few designated aid programs requiring special applications, the student need submit only one application each year to be considered for all forms of assistance administered by the Office of Student Financial Aid.

The application deadline is March 1.

The Presidential Scholars' Program

The University annually awards $1,000 Presidential Scholarships, renewable for a maximum of four years of University enrollment, to ten Iowa high school students in recognition of their outstanding academic achievements. All other nominees for recognition in the Presidential Scholars Program receive $100 Dean’s Scholarships for the freshman year of University enrollment.

National Merit Scholarships

The University sponsors a number of National Merit Scholarships for entering freshmen who have participated successfully in the National Merit Scholarship competition. Based on financial need, these awards range from $250 to $2,000 per year and are renewable for a four-year period.

Freshman Honor Scholarships

Entering freshmen who qualify for participation in the University’s Honors Program by achieving a composite ACT score of 29 or above are recognized as Freshmen Honors Scholars and receive $100 Freshman Honor Awards.

Transfer Honor Scholarships

Iowa community college students transferring to the University with a 3.0 grade-point average or above qualify for $100 Honor Scholarships.

General Scholarships

To qualify for general scholarship assistance, an entering freshman must apply for financial assistance, show a need for assistance, and either achieve an ACT composite score of 28 or above or rank in the upper 10 percent of his or her high school class. An upperclassman or a transfer student must have at least a 3.0 cumulative grade-point average to qualify for an initial scholarship award, and must maintain at least a 3.0 average to continue the scholarship.

LaVerne Noyes Scholarships

Noyes Scholarships, covering basic fees, are the colleges of Business Administration, Liberal Arts, Nursing, and Pharmacy, are available to United States citizens directly descended from any or any veteran of World War I. Awards are based on need and scholastic achievement. Special application forms are available from the Office of Student Financial Aid.
Health Professions Nursing Loans
This program assists United States citizens and nationals of non-English-speaking countries who intend to be doctors of medicine or dentistry, or studying fulltime toward degrees in pharmacy or nursing. Amounts available depend on federal loan. Loan recipients make repayment arrangements with the University's Student Loan Accounting Office when they graduate or terminate fulltime registration. The interest rate is 9 percent on the Health Professions Loans and 5 percent on the Nursing Student Loans.

Part-Time Jobs
More than half the students attending the University have part-time jobs. Most of the students who have part-time jobs secure them through the Office of Student Financial Aid. The most numerous opportunities for part-time work are in University food services, hospitals, and libraries. Hours range from 10 to 20 per week. For beginning students, the recommended maximum is 12 hours per week.

College Work-Study
The federal College Work-Study Program provides part-time work through the Office of Student Financial Aid, to expand employment opportunities for students who must meet part of their educational expenses with their own earnings. As far as possible, College Work-Study jobs are arranged to give students work experience related to their educational goals. College Work-Study employees may work an average of 20 hours per week.

Other Sources of Aid
For information about departmental financial aid, students should inquire at the offices of the academic programs in which they are interested.

The resource room of the University’s Division of Sponsored Programs has information on student aid available from non-University sources such as foundations and professional associations. Most of this aid is for graduate study, but some is available to undergraduate students.

Information about financial assistance for educationally economically, and/or culturally disadvantaged students is available from the University's Department of Special Support Services. Information about financial assistance for physically handicapped students is available from the University's Office of Services for the Handicapped.

Information about financial assistance for veterans of United States military service is available from the University’s Office of Veterans Services.

Information about Social Security educational benefits for children of persons retired, disabled, or deceased is available at all Social Security offices.

Information about Educational Aid to War Orphans is available from the Iowa Bonus Board (Shore House, Des Moines, IA 50316). As authorized by the University’s financial aid sources is available from the Office of Student Financial Aid.
The University of Iowa Health Center

The University of Iowa plays a major role in the preparation of health professionals for Iowa and the nation. Its Health Center is the focus of the academic programs, clinical facilities, and service agencies involved in growing the students and practitioners to serve a wide spectrum of human health needs, ranging from basic first aid to the most advanced diagnostic and treatment procedures, and the search for entirely new knowledge.

As soon as they have acquired basic knowledge in their fields, health profession students begin to learn by doing, following the examples and direction of skilled practitioners who teach while providing health care for thousands of patients from the community, state, and region. The University of Iowa Health Center is thus simultaneously a center of learning and of service. It is one of the most advanced, comprehensive health sciences centers in the United States.

It shares many skills off campus through cooperative programs with other Iowa colleges and community colleges, and through a variety of continuing education programs for health practitioners—many of whom also come to the Iowa campus to update their knowledge through conferences, clinics, and "refreshers.

Programs, faculties, are courses of the colleges of Dentistry, Medicine, Nursing, and Pharmacy are described elsewhere in this Catalog. Other health center-affiliated related programs are described below.

The University of Iowa Hospitals and Clinics

Director: Donald H. Scribner
Assistant Director: Hiroshi W. Byun

Clinical service heads: Dr. Charles J. Maki, Surgery; Dr. Charles H. Nemeroff, Neurology; Dr. John E. Bredas, Gastroenterology; Dr. Robert G. Underkoffler, Internal Medicine; Dr. Henry M. Pfitzer, Ophthalmology; Dr. J.R. Bagby, Ophthalmology; Dr. T.O. Kruse, Radiology; Dr. Warren C. Cooper, Orthopaedics; Dr. John M. McComb, Otolaryngology and Otolaryngology; Dr. William A. Lynch, Otolaryngology; Dr. Edwin G. Lynch, Pathology; Dr. Fred Smith, Pediatrics; Dr. George W. Winship, Psychiatry; Dr. Edward A. Freeark, Radiology; Dr. Robert Carney, Surgery; Dr. David A. Cole, Urology.

Largest university-owned teaching health-care complex in the nation. The University of Iowa Hospitals and Clinics provide the clinical base of graduate and undergraduate students for thousands of students in the health disciplines, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, vocational training, pastoral studies, and social work.

University Hospitals and Clinics sponsor residency programs in which 500 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen to pursue.

There are 1,501 beds in the hospital complex, accommodating some 40,000 admissions annually. In addition, 131 specialty clinics accommodate another 300,000 ambulatory patients each year. Nearly 15,000 major surgical procedures are performed annually in the hospitals' 20 major operating rooms. Approximately 3,000 intents are delivered every year.

Highly specialized health services—for example, the burn unit, heart catheterization facilities, neonatal intensive care unit—are easily accessible to Iowans who reside in communities without such resources. The hospitals' transportation fleet of 15 vehicles travels nearly two million passenger-miles each year, transporting 5,500 Iowans. The All-Care Emergency Helicopter Service carries specially trained medical and nursing teams to all
(SCHS) provides Iowa residents under age 19 with diagnosis and evaluation services in pediatrics, orthopaedics, otolaryngology, speech pathology, audiology, and clinical and educational psychology. It helps communities sponsor clinic health centers in which a number of new health programs are conducted. It administers demonstration services on special health problems related to handicaps such as muscular dystrophy, mental retardation, phenylketonuria, and other anomalies.

University of Iowa Graduate Training Program in Audiology and Speech Pathology

University Hospital School

A University-affiliated program dealing with the problems of developmentally disabled children and young adults, the Hospital School serves as the focus of activity for the Division of Developmental Disabilities within the Department of Pediatrics. It is an integral part of the tertiary-level health services available through University Hospitals and Clinics.

The interdisciplinary team approach provides services involving the fields of medicine, dentistry, nursing, nutrition, speech and audiology, physical and occupational therapy, activity and music therapy, psychology, social work, special education, physical education, recreation, and vocational activities.

Outpatient services provide comprehensive evaluations and follow-up of infants, children, and young adults who have problems and/or disabilities that affect their development. Programs of education and therapy are planned in conjunction with the patient, when appropriate, and with the parents, and community-based services are utilized. The outpatient services include a number of special clinics (Child Development Clinic, Meningomyelocele Clinic, Genetic and Metabolic Disorders Clinic, Infant and Young Child Clinic, Weight Management Clinic, Child and Young Adult Clinic) in which specially trained staff address specific problems.

Infants, children and young adults may be admitted to the inpatient unit as a result of recommendations from one of the outpatient services. Short-term admissions are for relatively specific goals that can best be accomplished on an inpatient basis. The staff coordinates educational services with the child's local school system in order to maintain continuity of services while the children are in the unit.

Training activities include peer- and in-service lectures, workshops, practicums and seminars for a variety of care providers working in other facilities or community programs. These activities take place in the University and community setting.

Close cooperation exists with the state Developmental Disabilities Council and other state agencies in providing training and technical assistance to their programs.

The laboratories of the Division of Genetics and Biochemistry of the Department of Pediatrics are also housed in the University Hospital School and are utilized extensively in its research, training and service programs.

University Speech, Language, and Hearing Clinic

Located in the Wendell Johnson Speech and Hearing Center, the clinic provides audiology and consultation for individuals with speech, language, and/or hearing impairments. The clinic also provides habilitation or rehabilitation programs for persons who can come to the clinic for such services: a summer residential program for children with speech, language-learning, hearing, and/or reading problems; and training for students in speech pathology and audiology.

Iowa City Veterans Administration Medical Center

Medical students and residents receive much of their clinical training in this 327-bed hospital. University of Iowa Health Center facilities based here include laboratories for the transplantation program, highly specialized laboratories in nuclear medicine, and special units for the study of metabolic and gastrointestinal diseases. The Veterans Administration Medical Center also offers unique training opportunities in clinical pharmacology, gastroenterology, cardiology, nephrology, and applied immunology.
Research Activities

The University recognizes that creative activity is an indispensable function in teaching as well as the fine arts or in the sciences. It is of a common character and significance in the overall intellectual life of the institution.

The Office of the Vice-President for Educational Development and Research maintains an overview of the many individual research commitments of the institution and actively promotes, in a variety of ways, the research mission of the University and the educational development efforts of the faculty. This office has an interlocking relationship with the Graduate College, because of the all-university character of the college and the close connection between the graduate programs and research and creative activity.

The University Research Council assists the vice-president for educational development and research in regular advisory capacity. The Council consists of ten faculty members with widely recognized personal involvements in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two each from the physical, biological, and social sciences, and the humanities, and two from the faculty at large. The Council gives regular consideration to such matters as the establishment of general policies with respect to the University's research and creative efforts, the review of policies and procedures concerned with securing and allocating funds for support of research and creative activity, and additional matters related to the general research and creative functions of the University and the health of basic scholarship on the campus.

Programs

With the advice of the University Research Council and other appropriately involved officers and committees of the University, the Office of the Vice-President for Educational Development and Research currently supports the following programs:

Junior Faculty Research Support

A limited amount of money is available each year from the National Institutes of Health for the support of the initial research efforts of junior faculty (other than those in the colleges of Medicine and Dentistry) who wish to do health-related research. To qualify, the faculty member must hold a full-time appointment as instructor or assistant professor. The funds may be used for any purpose which will assist the faculty member in conducting an initial exploration of a hypothesis which he or she believes may lead to the development of a full-fledged program of research.

Incidental Grants

Limited funds are also available in the Office of the Vice-President for Educational Development and Research for small grants to faculty members to cover the costs of materials, supplies, equipment, proposal writing, clerical and related assistance for specific research projects; for faculty travel related to specific research projects or for the purpose of acquiring skills, knowledge, or techniques which will enhance research at the University; and for honors and expenses of visiting lecturers.

Services

The Office of the Vice-President for Educational Development and Research also provides support for several University-wide services required by faculty members engaged in research and creative activities. They include:

Central Research Facilities

To maintain state-of-the-art resources for key research activities within the University, selected facilities are identified for centrally supported development. Such facilities are available to all interested graduate students and faculty, and currently include:

Electron Probe Microanalysis (EPMA) Facility

Located in the College of Dentistry, the EPMA facility has an extensively updated Applied Research Laboratory EMX-94 electron microprobe X-ray analyzer which includes three crystal spectrometers, a SIG2 solid state detection system and an automation...
system (PD-11 comparator with floppy disk storage).

The primary application of the instrumentation is to analyze chemically, usually in a nondestructive manner, materials of small dimension (<1-10 cubic micrometers). The automation of the data collection and correction process produces on-line quantitative results within a few minutes for 10-12 elements per sample point. Software exists for routines of analysis of metallographic and microdrop residue samples that has been developed for other specimen types on a demand basis. Recently added capabilities include automated image analysis in which, through the use of digital image control, it is possible to automatically locate, size, and chemically characterize small objects in the scanned image. Analysis times are frequently less than two seconds per image feature. Typical applications include particulate analysis of ambient air and water samples, inclusion in metals, and mineral particulate analysis in coal or ore samples.

Demonstration of equipment capabilities are performed upon request and short-term feasibility studies are encouraged. Training sessions are available on request.

**Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM) Facility**

The TEM and SEM Facility provides instrumentation and technical assistance for research programs involving the use of scanning and transmission electron microscopy. Equipment includes a JEOL JEM-4000FX field emission gun transmission electron microscope, a Hitachi H-600 transmission electron microscope equipped with STEM and a Hitachi Xics X-ray microanalysis system, a Balzers B240 scanning electron microscope equipped with an electron microprobe, an automatic image analysis system, vacuum evaporators, critical point drying apparatus, light microscopes, centrifuges, ovens, darkrooms, and other accessories.

The facility provides all solutions and supplies necessary for investigations involving ultracryomicroscopy, including specialized staining and embedding techniques, metal-staining, metal-coating, autoradiography, exomycology, cytochemistry, cryomicroscopy, morphometry, sample preparation for SEM and TEM, and other procedures. A modern library contains the most recent literature on various applications of TEM and SEM. The facility is equipped to serve both the experienced and novice investigator and to provide training for those who need it. Alternatively, all or parts of a project can be handled by the facility staff. All instrumentation is available on a fee-for-service basis. The laboratory is located in the Brown Science Building.

**Flow Cytometry Facility**

The University of Iowa Flow Cytometry Facility provides facilities, technical personnel, and consultation service to investigators studying diverse problems in cell biology, immunology, endocrinology, hematology, cell physiology, and cell kinetics. It is equipped with an advanced fluorescence-activated cell sorter (Becton-Dickinson FACSC) which is interfaced to computerized data acquisition and storage equipment. The flow cytometer will measure any optically detectable cellular property, such as fluorescence or size, in large populations of cells. Up to four parameters may be concurrently evaluated per cell. A variety of cellular macromolecules can be thus quantitated. Detectable parameters include two spectral regions of fluorescence, narrow and wide angle light scattering, and fluorescent polarization anisotropy. Optical excitation is done with an argon ion laser with ultraviolet capability. The instrument will physically isolate any or all identified cell subpopulations to yield viable cells for subsequent experimental use. The facility provides all needed supporting equipment for staining cells with fluorochromes. The main emphasis is on fluorescent and flow phase microscopy. It is housed in the Department of Laboratory of the College of Medicine. Educational tours are conducted upon request.

**Raman Facility**

The Iowa Laser Facility consists of a wide variety of modern instrumentation, in particular, state-of-the-art Ar/Argon ion and Krypton ion lasers (with ultraviolet capability), as well as other optical excitation sources. It is housed in the Department of Chemistry and sponsored by the Rios Foundation. The facility is equipped with a variety of equipment for use by all scientists.

**NMR Facility**

The High Field Nuclear Magnetic Resonance (NMR) Facility features 400 MHz spectrometers. The equipment provides very high spectral resolution and sensitivity for study of complex molecules. Multidisciplinary, variable temperature, and selective pulse experiments are possible. Both 6 and 10 mm sample tubes may be accommodated. For the causal user, spectra are recorded by a technician, whereas hands-on use is encouraged for the frequent user. The facility is located in the northwestern ground floor area of the Chemistry-Botany building.

**Computing Center**

The University of Iowa Computing Center provides research and instructional computing facilities to the student and faculty, and staff of the University. Located in the Lindquist Center, the Computing Center is accessible through the main terminal, both batch and interactive, conveniently distributed around the campus. The center maintains systems capable of extremely wide variety of applications, and provides network connections with off-campus facilities. Supported applications software covers such diverse areas as statistical and numerical analysis, financial modeling, text editing and formatting, graphics, and data base management. In addition to terminals and general-purpose computing systems, the Computing Center has facilities for producing manuscript-quality printed and graphic output. The center provides users with non-credit educational services and consultation services on general computer use. Specialized consultation is also provided for equipment selection, laboratory support, data base, and information services. Detailed information on computing facilities can be obtained from the Computing Center, located in the Lindquist Center.

**Video Center**

The University of Iowa Video Center provides high-quality video services and facilities, including training and production of audio and video programs for University activities. It is housed in the Department of Communication and coordinates and promotes efficient University support of campus video. Toward this end, the center has the personnel and facility resources to assist in the development and production of audiovisual equipment and supplies, and in the preparation and production of audiovisual services. Additionally, the center provides central services in the selection and implementation of standard and system design and maintains guidelines for equipment standardization.

**Sponsored Programs**

The Division of Sponsored Programs is a source of information on public and private agencies that provide funds for research and study, including pre- and post-doctoral fellowships. Contact members are available to locate potential funding agencies, assist in the preparation and presentation of proposals, review material, and give editorial assistance to help ensure the technical correctness in an application. The staff also assists in processing an
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application through the University and in locating the appropriate contact in the prospective donor's office. After an award is made, it provides monitoring and advisory services, and monitors other than expenditure accounting.

University House

University House began in 1977 as a program designed to create a separate but related mission. The first and most important is faculty development in general. To help faculty in their professional growth and advancement, University House provides, on the Oakdale campus, an environment free from distractions, in which faculty members can work-alone and together-on scholarly tasks in a congenial, supportive setting. It is also a place in which scholars from different disciplines can meet in easy interchange for mutual benefit.

University House sponsors many public lectures and conferences, visits by distinguished faculty from other campuses, and faculty seminars on a wide variety of topics. Faculty members in all disciplines are eligible for appointment and for participation in University House activities. Thanks to a large grant, University House is also able to support research and other educational development activities jointly pursued by faculty members from the University and from the independent, four-year colleges in Iowa.

In addition to promoting faculty development, University House seeks to bring together university centers, institutes, committees, and other groups into consortia, interdisciplinarily arrangements that foster the acquisition of external support for research, education, and appropriate services.

University House has leased six thousand square feet of furnished space in the Oakdale Hospital, including private office offices, several conference and project rooms, and a lounge. Secretarial services are available. Located in the same building are a cafeteria, an auditorium, a large conference room, a coffee center, a bank terminal connected to the University Computer Center, a terminal with text-editing capabilities, and a full-time assistant for computer services. Photocopying and book delivery services are also available. University Libraries' half-hourly Campus service connects University House with the main campus.

Included as part of University House are the following:

Child Behavior and Development
Activities of the Institute of Child Behavior and Development (ICBD) are focused at this time on the problems of child abuse. Through its Center on Child Abuse, the ICBD provides services and materials to professionals on a regional basis to aid them in diagnosing and treating the problem of child abuse.

Center for Health Services Research
The Center for Health Services Research fosters a program of research and education in health care policy and management. Center staff include an interdisciplinary core of faculty associates drawn from the colleges of Medicine, Dentistry, Nursing, Pharmacy, Education, Engineering, Business Administration, and Liberal Arts, as well as the University of Iowa Hospitals and Clinics.

The Graduate Program in Hospital and Health Administration accepted responsibility for the management and development of the University's Center for Health Services Research in 1981.

Urban and Regional Research
Primary objectives of the Institute of Urban and Regional Research are to broaden knowledge in the area of urban and regional studies, to enrich the teaching programs in participating departments, and to initiate and carry out interdisciplinary research projects. It pursues these goals through the acquisition of grants and contracts and through other on-campus activities, by providing a liaison between faculty and students in both basic and applied urban and regional research activities.

Related Units
Although not directly connected with the Office of the Vice-President for Educational Development and Research, these units have a special role in the conduct of research at the University:

Institutes

Dows Institute for Dental Research
Contact the College of Dentistry for information.

Industrial Relations Institute
See the "College of Business Administration" section of the Catalog.

Institute for Economic Research
See the "College of Business Administration" section of the Catalog.

Institute for Insurance Education and Research
See the "College of Business Administration" section of the Catalog.

Institute for School Executives
Contact the Division of Educational Administration in the College of Education for information.

Institute for Accounting Research
Contact the Department of Accounting in the College of Business Administration for information.

Institute of Agricultural Medicine
See "Preventive Medicine and Environmental Health" in the "College of Medicine" section of the Catalog.

Institute of Hydraulic Research
See the "College of Engineering" section of the Catalog.

Institute of Public Affairs
See the "Continuing Education" section of the Catalog.

Centers

Cancer Epidemiology Center
Contact the Department of Preventive Medicine and Environmental Health in the College of Medicine for information.

Cancer Research Center
See the "College of Medicine" section of the Catalog.

Cardiovascular Center
See the "College of Medicine" section of the Catalog.

Center for Educational Experimentation, Development, and Evaluation
See the "College of Education" section of the Catalog.

Center for Materials Research
Contact the Division of Materials Engineering in the College of Engineering for information.

Center for Rehabilitation Engineering
Contact the Division of Materials Engineering in the College of Engineering for information.

Center for Research in Interpersonal Behavior
See "Sociology" in the "College of Liberal Arts" section of the Catalog.

Center for Research in Psychological Disorders of Children
See the "College of Medicine" section of the Catalog.

Center for the Study of Recent History of the United States
Contact the Department of History in the College of Liberal Arts for information.

Clinical Research Center
See the "College of Medicine" section of the Catalog.

Comparative Legislative Research Center
See "Political Science" in the "College of Liberal Arts" section of the Catalog.
Core Center: Diabetes and Endocrinology
See the "College of Medicine" section of the Catalog.

Iowa Center for Communication Study
See "Journalism" in the "College of Liberal Arts" section of the Catalog.

Iowa Urban Community Research Center
See "Sociology" in the "College of Liberal Arts" section of the Catalog.

Statistical Consulting Center
See "Statistics" in the "College of Liberal Arts" section of the Catalog.

Toxicology Center
See the "College of Medicine" section of the Catalog.

Laboratories
Accident Prevention Laboratory
See the "College of Medicine" section of the Catalog.

Iowa Lakeside Laboratory
See "Iowa Lakeside Laboratory" in the "College of Liberal Arts" and "Physical Education" sections of the Catalog.

Laboratory for Political Research
See "Political Science" in the "College of Liberal Arts" section of the Catalog.

Radiation Research Laboratory
See "Radiation Research Laboratory" in the "College of Medicine" section of the Catalog.

Social Science Data Archive
See "Political Science" in the "College of Liberal Arts" section of the Catalog.

Clinic
Child Development Clinic
Contact the Department of Pediatrics in the College of Medicine for information.

Lipid Research Clinic
Contact the Department of Internal Medicine in the College of Medicine for information.

Others
Collaborative Studies of Affective Disorders
Contact the Department of Psychiatry in the College of Medicine for information.

Iowa Pesticide Hazard Assessment Program
See the "College of Medicine" section of the Catalog.

Iowa Psychiatric Epidemiology Research Unit
Contact the Department of Psychiatry in the College of Medicine for information.
The Iowa Center for the Arts

Located along the west bank of the Iowa River on the University of Iowa campus, the Iowa Center for the Arts is a major cultural resource not only for the University community, but for the people of the state and region. The center realizes a University dream of many generations: to bring the arts together in a single campus setting, near the geographical heart of the University.

The physical center comprises many of the academic units of the Division of Fine Arts in the College of Liberal Arts, together with the Museum of Art, E. C. Mabee Theatre, Clapp Recital Hall, and Harper Hall in the School of Music, and Hancher Auditorium, the center's newest and largest showcase.

In addition to activities housed in these facilities, various educational programs in other parts of the campus reflect the University's strong commitment to artistic creativity.

Financial support from many sources, both public and private, is reflected in the physical structure and educational/cultural offerings of the Iowa Center for the Arts. In addition to funds from the State of Iowa and the federal government, private contributions from growing numbers of corporate and individual patrons play an ever more important role in the quality and diversity of the center's services to the people of Iowa.

School of Art and Art History

The University of Iowa School of Art and Art History has been a pioneering force in America for more than a century. The original art building dates from 1926. Major additions were added in 1968-69, greatly expanding classroom and studio spaces and providing a new wing for sculpture.

A small gallery within the building, used primarily for the display of works by students and visiting artists, is named for artist Eva Drewelowe, who in 1924 became the first resident of the Master of Arts degree in studio art at the University of Iowa.

The school's Corcorobone Gallery, located in South Hall (the old Music Building), features exhibitions of new and experimental work created at the University of Iowa by major visiting artists. The gallery presents lectures and performances which emphasize new concepts and directions in contemporary art.

Museum of Art

The University of Iowa Museum of Art provides as outstanding example of the enrichment of the arts through generous private support. In the early 1960s, Owen and Leone Elliott of Cedar Rapids offered to the University their extensive collection of civil-war and twentieth-century still-lifes, prints, antique silver, and rare jade. Promised that a museum could be built to house it, along with the University's existing and future acquisitions of art.

In response to this challenge, more than 2,000 individuals and businesses contributed toward the museum's construction cost. The museum opened in 1969 and quickly earned recognition as one of the nation's finest university museums.

A gift from industrialist Roy Carver of Muehlcke made possible the construction of a major addition opened in 1968. With the Carver Wing, the museum has 45,000 square feet of exhibition space in 15 galleries, plus the behind-the-scenes work areas essential to support the activities of a major museum.

Each year thousands of visitors, including school children of all ages, visit the museum to see displays of the permanent collections and traveling exhibitions. The permanent collection of more than 5,000 works of art include the Elliott Collection, nineteenth- and twentieth-century sculpture, drawings, photography, and African and pre-Columbian art.

The Stanley Collection of African sculpture, currently on extended loan to the museum, is a promised gift from Max and Betty Stanley of Muehlecke. The addition of this collection gives the museum one of the leading university-based African art collections in the country.

The Print Study Room houses more than 2,000 prints representing major artists. The Lasansky Room houses a collection of prints and drawings created by printmaker Mauricio Lasansky, longtime professor of art at the University.

Museum special events include slide lectures by visiting artists, scholars, and collectors; Music in the Museum, a Sunday afternoon concert series; and art study trips to other cities and countries. Museum docents lead groups on guided tours of the museum's exhibitions.

Catalogs of many exhibitions are
available for purchase. Friends of the Museum of Art, a private support group, sponsor annual exhibits and an active Print Group.

**University Theatre**

University Theatre houses the Division of Dramatic Arts of the Department of Communications and Theatre Arts. It is the home of the C. C. Meade Theatre, the traditional setting for many major University Theatre productions each year. Meade Theatre seats 477.

Four additional theater spaces in other parts of the campus greatly extend the range of University Theatre productions. Old Armory Theatre features a thrust stage and seats an audience of 200. MacLean 301 Theatre is used for student-produced works, often as an extension of course requirements.

Hancher Auditorium provides a vast stage and highly sophisticated technical equipment to the wide range of University opportunities in stage production.

The graphic art division in the Department of Communication and Theatre Arts provides production management, design, and technical direction for both dance, opera, and musical productions produced by the Iowa Center for the Arts in cooperation with the School of Music and the Dance Program in the Department of Physical Education and Dance. The Playwright Workshop, one of the three distinguished writing workshops in the Department of English, is a joint venture with the School of Communication and Theatre Arts.

**School of Music**

Opened in 1971-72, the new home of the School of Music was designed for spaciousness and convenience. Its interior corridors lead from rehearsal rooms to two recital halls and to the stage of Hancher Auditorium.

In a given year, faculty artists and the many guest artists of the school present about 100 major concerts, plus an additional 270 to 300 student vocal and instrumental recitals. Cleo Rector Hall, with its hand-crafted Casavant tracker organ, seats 720 for public concerts. The 200-seat Harper Hall is both a classroom and the setting for many recitals. The school's largest ensembles (symphony orchestra, bands, and choir) perform regularly in Hancher Auditorium.

The school has produced opera since 1938. Like other major stage presentations, opera is an interdepartmental in its opportunities for educational and performance experience, utilizing the talents and resources of other units of the Iowa Center for the Arts, particularly theater and dance.

The School of Music is in the vanguard of innovation in the arts, creating and performing in new forms. Its Center for New Music, founded originally by the Rockefeller Foundation, is a laboratory and extension of the composition faculty. Faculty and student ensembles in the Center for New Music are a resource ensemble to the pursuit of new music.

Two electronic music studios provide a wide range of technical capability to creative audio-visual forms. In Video/Laser (IL), the school has the most advanced laser deflection system of any university, utilizing laser beams in brilliant colors to produce visual analogues to sound. Outstanding recording facilities (IL) are the various performance schools of the School of Music/Hancher Auditorium complex with a central recording studio in the School of Music.

**Hancher Auditorium**

Hancher Auditorium, which opened in 1972, is a regional cultural resource of the first magnitude. It seats an audience of 2,684. In its first seven seasons, the auditorium hosted audiences totaling more than a million people.

In addition to performances by the various units of the Iowa Center for the Arts each year, leading artists from throughout the world appear on the stage of Hancher Auditorium. In addition to performances by the various units of the Iowa Center for the Arts each year, leading artists from throughout the world appear on the stage of Hancher Auditorium. In addition to performances by the various units of the Iowa Center for the Arts each year, leading artists from throughout the world appear on the stage of Hancher Auditorium.

The auditorium has become a Midwest fixture. Close-knit lobbies, excellent acoustics, and a surprising intimacy of the interior design make it one of the most unique halls in America. In addition more than a showcase, however, it is also a splendid educational tool, designed as an extension of the classroom and laboratory facilities of the performing units of the Iowa Center for the Arts.

For students of the various theater arts, the auditorium has spacious scene construction and costume shops, nearly 60 sets of rigging for scenery changes, and one of the finest house lighting and sound systems in the western world. For music students, Hancher is an on-campus concert hall.

The stage itself is an uncommon educational resource. Its proscenium is 70 feet wide, with its adjustable wings, the stage area is 175 feet long, 52 feet deep, and eight stories high. Mobile units of a concert shell may be quickly installed on stage for various concert requirements.

Across the back of the auditorium's main floor, sound-insulated viewing rooms make it possible for small class groups to observe and discuss performances in progress.

Hancher Auditorium reflects another dimension in the non-production educational and cultural services to its students and to the people of Iowa.

**Arts Center Outreach**

Cultural projects and programs which utilize the talents of faculty or student artists and other resources of the Iowa Center for the Arts are available to Iowa communities through the Arts Outreach Program. Designed to reach new audiences and to serve special constituencies (schools, centers for senior citizens and the handicapped, service organizations, special community and arts groups, etc.), the program is intended to share the University's cultural resources as widely as possible throughout the state.

Consistent with the University's mission of service, these programs are tailored to local needs and interests. In addition to programming throughout the state, the Arts Center Outreach office schedules on-campus conferences, workshops, and educational projects.

**Dance**

The University of Iowa Dance Program is centered in the dance division of the Department of Physical Education and Dance. Dance faculty and students engage in a rigorous curriculum during one year and participate with other units of the Iowa Center for the Arts in interdepartmental projects and programs. Dance Program is enriched by the frequent campus visits of professional dancers, choreographers, and leading dance companies of this and other countries. The professional visitors come not only to perform but often to provide lecture demonstrations and classes.

**Broadcasting and Film**

The Telecounion Center and the studios of Radio Iowa are dedicated to undergraduate classrooms and laboratories for use in the broadcasting and film division of the Department of Communication and Theatre Arts. The entire community serves as the "technical" laboratory for students in this division.
The Writing Programs
A longtime program of special distinction in the Department of English, the writers workshops encompass fiction, poetry, translation, and playwriting. The workshops provide opportunities for talented writers to work and learn with established poets, novelists, and playwrights.

The International Writing program brings accomplished writers of many nationalities to the University for extended periods of intensive writing and translating their works into English and other languages.

These writing programs are made possible by widespread private support from foundations, business corporations, individuals, and the U.S. State Department.

Windover Press
The skills of making books by hand—utilizing handmade paper, handwrought illustrations, hand-set type, hand-operated presses, hand-binding—may be learned in the workshop of the Windover Press in the School of Letters.

The Windover Press is one of the nation's small companies of distinguished hand presses. Its limited editions are frequently cited for their excellence by the American Institute of Graphic Arts, whose prestigious competitions involve all of the major publishers in the country.
General Services

Children's Reading Clinic
The Children's Reading Clinic is in The University of Iowa College of Education twin classroom teachers, supervisors and consultants, school psychologists, and counselors to assess the reading abilities of school-age children, and to recommend and use instructional materials which are suited to their needs and interests. During the academic year the clinic teaching program includes practice in Iowa City schools, and concurrent diagnosis and treatment activities conducted within the James B. Stroud Educational Services Center. During the summer the clinic is in the Wendell Johnson Speech and Hearing Clinic, where it is staffed, to provide reading instruction for children who attend the summer Residential Program for therapy in speech, hearing, and reading. Student clinicians do all Children's Reading Clinic teaching under the close supervision of clinic staff members.

International Education and Services
The Office of International Education and Services (OIES) is the focal point for University international education activities. It provides administrative support in the areas of international studies, inter-institutional educational exchange, and technical assistance. The OIES seeks to promote development of cooperation among the various aspects of international studies—foreign language and area studies, comparative and topical studies, and foreign language departments. It also assists faculty and students seeking grants or fellowships for study or research that has an international perspective.

The OIES seeks to encourage the development of formal ties between the University of Iowa departments and programs and their counterparts in foreign institutions by means of technical cooperation and faculty exchange programs.

The liaison officer for the Midwest User-Offices Consortium for International Activities (MUCIA) is located in the OIES and serves to involve University of Iowa faculty in MUCIA activities.

Foreign student advisors in the OIES provide assistance to foreign students, faculty members, and professionals in immigration and other matters relating to international educational exchange.

The OIES maintains a library on opportunities for study in other countries, including some information about foreign universities and organized study abroad programs open to UI students. The office assists students in selecting study abroad programs to complement their on-campus academic programs. It also provides information and applications for the Fulbright, Marshall, and Tiberian awards.

The International Center, a facility operated by the OIES, is open to all University and Iowa City community members who have international interests. Facilities and programs are designed to encourage interaction between people of all cultures.

Additional OIES activities involving students are described in the section on "Student Services" in the Catalog.

James B. Stroud Educational Services Center
The James B. Stroud Educational Services Center in the College of Education serves children and adults who request testing, assessment, and consultation about their learning abilities or their personal and social development. The center also provides consultation and information to schools, area education agencies, health care agencies, and business and community organizations. These services are provided by faculty and advanced graduate students in the college.

Museum of Natural History
To meet the needs of the general public and the various departments of the University, the Museum of Natural History provides a repository and the proper care for specimens which come to the University either by gift or through the efforts of its own collectors. The museum faculty also designs and executes new exhibits of educational value and offers instruction in the conceptual and technical phases of exhibit preparation and the general operational procedures of small science museums.

Habits exhibits of North American mammals include the bison, antelope, mountain lion, moose, and beaver.
The Leydan Island Cyclamens is a large and well-known bird habitat exquisitely depicted on the cover of this issue. Other habitat exhibits include the Bering Sea, Louisiana Swamp, Fall Migration, and Canebrake on the South Dakota Prairie. The crane exhibit includes both the sandhill crane and the equally beautiful whooping crane as they appear on the prairie during migration. The major vertebrate phyla are represented in several exhibits and include such familiar groups as insects and crustaceans, enigmatic sea stars, and amphibians. Ethological exhibits in the museum present artifacts from many parts of the world, including Eskimo materials, including beadwork and carved ivory; ceramic vessels of the late eighteenth century, and taxa exhibit, as the museum is located near the site of a fossil deposit from Africa, Asia, and Europe. Several displays relate to the geology of Iowa and include typical fossil specimens.

Old Capitol

Old Capitol is the central landmark of the University. It was the capitol of the Territory of Iowa from 1842 until 1848 and the capitol of the State of Iowa from 1848 until 1881. The old capitol moved to Des Moines and became the "old" capitol to the University as its first permanent home. Various University offices and departments were located in Old Capitol throughout the years, and it housed the office of the University president continuously from 1905 to 1970, when the president's office was relocated to make way for the restoration of Old Capitol as a historic site. Many of the rooms were restored to the 1840s and 1850s. Two rooms were restored to the 1920s to represent the University years. Old Capitol was designated as a "living museum." Guided tours are conducted daily without charge.

Public Information and University Relations

The Office of Public Information and University Relations (PIR) works to promote understanding of, participation in, and support of the University's mission and activities by both the University community and the general public. It seeks to maintain an effective information program through the use of internal and external media; to coordinate with the University administration on matters involving public information and University relations; and to provide a liaison between the central administration and appropriate University, governmental, civic, and other groups. University public information programs are implemented through the combined efforts of PIR individuals on campus, including Art Center Relations, Broadcast News Service, Health Center Information and Communication, Humanities/Science News Service, OPI Phone Unit, and Women's Sports Relations, as well as the Men's Sports Information. These units supply news, photos, and information to print and electronic media; gather and prepare information material for special and general Internet publications; and handle other requests for information; and assist writers, photographers, and broadcasters who visit the campus. OPI publishes the general University Calendar of Events; Campus Correspondent for students' parents; the FYI newsletter for faculty and staff; Programme for forthcoming arts activities; and Spectator for alum and friends of the University. The department also includes the Office of State Relations; serves as the executive office of the Parents Association; operates the University Speakers Bureau; and provides campus tours and other services for University visitors and guests. In addition, OPI has management responsibility for the Department of Publications and The University of Iowa Press. Publications

The Department of Publications provides services to meet the printing and publications needs of the University. Its staff provides assistance to departments and campus organizations in planning, editing, designing, and printing publications. The department also operates the University Bookstore, a business that sells textbooks and other unique instructional materials created by the faculty and not commercially available. The department is responsible for University compliance with the printing regulations of Iowa, including provisions for obtaining competitive bids on printing done by the Department of Publications.

The University of Iowa Press

The University of Iowa Press was established to publish significant results of scholarly research. The imprint is controlled by the University Editorial Review Board, composed of faculty members and administrators appointed by the vice-president for academic development and research.

Recreational Services

The Division of Recreational Services administers a program of more than 23 intramural and recreational activities for all interested University students; offers a wide range of recreational lesson programs in such activities as archery, bowling, dance, field hockey, yoga, aerobics, racquetball, skiing, and gymnastics; and provides informal activities for students, faculty and staff members, and their spouses and families. Activities include basketball, badminton, volleyball, table tennis, swimming, handball, paddleball, racquetball, squash, canoeing, golf, archery, weight training, billiards, tennis, and juggling. The division's "The Thrust" Earth Outdoor Program includes such activities as rafting, backpacking, bicycle trips, backpacking, skiing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles, camping equipment, toboggans, and cross-country skiing equipment are also available for a minimal rental fee.

The University of Iowa Alumni Association

The principal agency through which Iowa students continue their identification with the University after they leave the campus is The University of Iowa Alumni Association. The association was formed in 1895, now has chapters throughout the world. Its continuing goal is to maintain bonds between alumni and the University; to implement programs of service to alumni; to strengthen public recognition of the University as an instrument of the integrity and welfare of the state and the nation; and, through organized alumni efforts, to serve the University by strengthening its programs in research, service, and public service. The association publishes the Iowa Alumni Review, a bimonthly magazine for association members. The University of Iowa Foundation

The University of Iowa Foundation was established in 1958 to help the University obtain the greatest possible educational benefit from private giving. It raises funds for the objective through three major programs: annual giving, capital campaigns, and planned or deferred giving. The foundation is a private, nonprofit corporation empowered to solicit and receive gifts and bequests, to accept real estate subject to the conditions imposed on them, and to hold, administer, manage, use, or distribute gifts,
bequests, and trusts, all for the benefit of The University of Iowa. The foundation is constantly at work to provide more funds for student financial aid, faculty development, research, library acquisitions, and programs and projects throughout the University.

University Personnel Service

The University Personnel Service is responsible for meeting the employment needs of individuals and departments for the entire University complex. The office functions in the areas of recruitment, interviewing, screening, testing, placement, and salary and fringe benefit administration for full-time and part-time, permanent and temporary, nonteaching and nonstudent employees of the University. The University Personnel Office is responsible for the administration of the Board of Regents Merit System and faculty and staff benefits programs. It also participates in certain aspects of the academic personnel program, and in payroll record keeping and collecting personal record data for both faculty and staff employees.
The University's Main Library and its 12 departmental libraries, plus the Law Library, contain approximately 2.4 million volumes. More than two-thirds of this collection is in the Main Library.

The Art Library contains approximately 98,000 volumes; Botany-Chemistry, 62,000; Business Administration, 20,000; Engineering, 54,000; Geography, 32,000; Health Sciences, 175,000; Library Science, 11,000; Mathematics, 30,000; Music, 59,000; Physics, 34,000; Psychology, 38,000; and Zoology, 29,000.

The Law Library, which is administered by the College of Law, contains 348,000 volumes.

**Special Resources**

Main Library facilities include microfilm reading rooms, listening rooms for collections of recorded drama, poetry, and speeches; seminar and conference rooms; a map center; carrels for graduate students; and individual study rooms for faculty members engaged in research.

The House Relations Area Files consist of full sets on a sample of societies throughout the world, and are designed to facilitate comparative studies of social and cultural behavior.

The Leigh Hunt Collection, brought together by Luther A. Brewer of Cedar Rapids, Iowa, is considered one of the finest in the United States. It contains nearly 2,000 manuscripts and manuscript letters written by Hunt or to him by many famous literary friends, 100 association volumes, and 800 editions of Hunt's writings.

The Mark Ravenel Memorial Collection or approximately 5,000 volumes is particularly rich in deluxe editions, including many superb bindings made especially for Mrs. Ravenel.

The French Revolution Collection includes more than 6,000 political pamphlets, chiefly from the years 1788-1799, supplemented by numerous French newspapers and government publications of the time.

The John Springer Collection on typography, given to the University by a long-time Iowa City printer, includes 1,850 volumes of type specimens, books important in printing history, and volume illustrating the art and progress of printing through the centuries.

The "Oling" Darleg Collection comprises originals of nearly six thousand cartoonists in which, for more than 40 years, Oling recorded and commented on the economic, political, and diplomatic affairs of the United States. His cartoons are virtually a pictorial history of this country during the first half of the twentieth century. A subject index to the collection enhances its usefulness for reference and research.

The Bollinger-Lincoln Collection, gathered by Judge James W. Bolinger of Davenport, is one of the best libraries of Lincolniana in the United States. A number of items in it concern John Wilkes Booth and the trial of his fellow conspirators. Another large group contains reminiscences of people who knew Lincoln. Lincolniana, broadening related to Iowa and the Civil War period have been added.

The "4" Collection is a gathering of early, rare, or special works on diverse subjects, including books of the fifteenth and sixteenth centuries, early Americana, Rochester Civic Publications, private press books, and selected modern first editions.

The Mansfield Collection includes more than 10,000 individually catalogued letters or manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to more than 400 inventoried collections of papers, diaries, and correspondence files relating to midwestern economic, political, and cultural history.

Other special collections include the Harvey Higbee Collection of manuscripts and documents dealing with railroading in the Midwest; the History of Hydraulics Collection; the Edgar Ford Piper Collection of ballots and invoices; and the Southern Iowa Collection, which contains several thousand letters and other documents descriptive of the Chautauqua movement; the Allendorf Collection of poetry, biographies, criticism, pamphlets, and letters relating to the contemporary British poet, Edmund Blunden; the Iowa Aurora Collection, the Map Collection, containing more than 179,000 maps and indexed aerial photographs and nearly 3,000 atlases, gazetteers, and related reference items; and the University Archives.

The John Martin Rare Book Room in the Health Sciences Library houses a collection of approximately 2,000 books on the history of medicine, including a number of incunabula. The nucleus of the collection, which is especially strong in the areas of anatomy and surgery, was
College of Liberal Arts

People have many reasons for going to college. Some have specific careers in mind, while others are looking for guidance in seeking careers. Most expect that college will help prepare them for a wide variety of employment, social, and personal developments in their lives.

A liberal arts education is intended to ready students for effective performance in many situations over the course of their lives after graduation. It includes both preparation in specialties and a broad exposure to other ways of learning. Through the study of literature and language, mathematics, the physical, biological, and social sciences, and the arts, students may gain a general understanding of the many types of situations and people they will meet after leaving college.

Although this education often includes sound preparation for specific jobs, it also nourishes career flexibility by giving students broad bases for responding to changing employment opportunities. A result, the danger that a graduate may become "locked" into a single unsatisfactory job is reduced.

The kind of flexibility and adaptability mentioned here are built upon an understanding of other cultures and languages, the social and political institutions in American society, communication behavior, and the physical and biological world about us. A liberal arts education includes something called a "general education," because students receive general preparation for the opportunities and problems they will encounter throughout their lives. This approach to education assumes that, because we cannot now foresee all of these opportunities and problems, students are better prepared for the future if they have learned and developed abilities, awareness, sensitivities, and knowledge which will help them gracefully, unexpectedly meet the unexpected events. The College of Liberal Arts attempts to provide this versatility by its combination of major and, where appropriate, minor and general educational requirements.

College Organization

The College of Liberal Arts is composed of units of various ranks: divisions, schools, departments, programs, and non-departmental units.

Divisions

There are two divisions in the college. The Division of Fine Arts includes the School of Art and Art History, the School of Music, and the Department of Communication and Theatre Arts. The Division of Mathematical Sciences is made up of the Department of Computer Science, Mathematics, and Statistics and Actuarial Science.

Schools

There are seven schools in the college. In addition to the School of Art and Art History and the School of Music, mentioned above, there are schools of Journalism and Mass Communications, Library Science, Religion, Social Work, and Letters. This last still is a federation of the departments of Asian Languages and Literature, Classics, Communication and Theatre Arts, English, French and Italian, German, Linguistics, Russian, and Spanish and Portuguese, plus the programs in Afro-American Studies, American Studies, Comparative Literature, Women's Studies, the International Writing Program, the Translation and Writers' Workshops, and the Winton Press.

Departments

Thirty-six formally organized departments, plus units in the College of Education, provide instruction in the college, all of which offer one or more degrees. (See list which follow.)

Programs

There are ten formally organized programs currently operating in the college: American Studies; Afro-American Literature; Aging Studies; Global Studies; Latin American Studies; Literature, Science, and the Arts; Museum Studies; Recreation Education; Rhetoric; and Women's Studies. Comparative Literature; Literature, Science, and the Arts; and Recreation Education offer degrees.

Non-Departmental Units

Non-departmental units in the college, not included above, are the Language Medix Center and the Iowa Urban Community Research Center.
Departments of The University of Iowa College of Education offer instruction leading to several different degrees for students in liberal arts. Undergraduate and graduate degrees are recommended to the state Department of Education for certification as classroom teachers. The University of Iowa, College of Medicine provides instruction in medical technology and serves medical students. Students seeking certification in these two specializations by taking national examinations and having completed these programs, may earn degrees, usually in general science.

Liberal Arts Advisory Office

The Liberal Arts Advisory Office functions as an integral part of the Office of the Dean of Liberal Arts. Every undergraduate student enrolled in the college has an academic advisor to help the student with registration and the progressive development of the educational program which will best prepare the student to pursue his or her life goals. Academic advisors are assigned by the Liberal Arts Advisory Office. Students who have declared majors are assigned advisors from their major departments; students who have not declared majors are assigned advisors from the Academic Advising Office; students in preprofessional programs may be assigned to special advisers from the appropriate professional areas. Students should go to the Liberal Arts Advisory Office to change academic advisors, change degree or change majors; to obtain information and advice about graduation requirements, the Bachelor of General Studies and other degree programs, the College Examination Program (CLEP), Advanced Placement (AP), pass/fail, satisfactory-fail, the second-grade-only option, deadlines for various administrative actions (such as dropping or adding courses, canceling registration), probation, dismissal, reinstatement, academic discipline, and any other academic matter.

Degrees Offered

Students graduating from the College of Liberal Arts may earn Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), Bachelor of General Studies (B.G.S.), and Bachelor of Liberal Studies (B.L.S.) degrees.

Major Fields

The College of Liberal Arts confers degrees as indicated in the following 56 major fields:

- American Studies—B.A.
- Ancient Civilization—B.A.
- Anthropology—B.A.
- Art—B.A., B.F.A.
- Asian Languages and Literature—B.A.
- Asian Studies—B.A.
- Astronomy—B.A., B.S.
- Biochemistry—B.A., B.S.
- Biology—B.A., B.S.
- Botany—B.A.
- Chemistry—B.A., 9.S.
- Classics—B.A.
- Communication and Theatre Arts—B.A.
- Communication Studies—B.A.
- Comparative Literature—B.A.
- Computer Science—B.A., B.S.
- Dance—B.A.
- Dental Hygiene—B.S.
- Early Childhood Education—B.A., B.S.
- Economics—B.A., B.S.
- Elementary Education—B.A., B.S.
- English—B.A.
- French—B.A.
- General Science—B.A., B.S.
- Geography—B.A., B.S.
- Geology—B.A., B.S.
- German—B.A.
- Greek—B.A.
- Health Occupations Education—B.S.
- History—B.A.
- Home Economics—B.A., B.S.
- Italian—B.A.
- Journalism and Mass Communication—B.A., B.S.
- Latin—B.A.
- Linguistics—B.A.
- Literature, Science, and the Arts—B.A.
- Mathematical Sciences—B.A., B.S.
- Microbiology—B.S.
- Music—B.A., B.M.
- Philosophy—B.A.
- Physical Education—B.A., B.S.
- Physics—B.A., B.S.
- Political Science—B.A., B.S.
- Portuguese—B.A.
- Psychology—B.A., B.S.
- Recreation Education—B.S.
- Religion—B.A.
- Russian—B.A.
- Social Studies—B.A.
- Social Work—B.A.
- Sociology—B.A., B.S.
- Spanish—B.A.
- Special Education—B.A., B.S.
- Speech and Hearing Science—B.A., B.S.
- Statistics and Actuarial Science—B.A., B.S.

Zoology—B.A., B.S.

The B.S.G. and B.L.S. degrees are awarded by the college with no major designations.

Interdisciplinary Programs

The programs briefly described below are fully described among the rest of the interdepartmental programs presented in alphabetical order in the following sections of the Catalog.

Afro-American Studies

The Afro-American Studies Program focuses on the study of people of African ancestry in the North American colonies and the United States of America from the seventeenth century to the present. To provide a comprehensive view of that subject, the program also offers courses examining the African heritage and the present relationships of African-Americans to Africans in other lands. Because a thorough understanding of Afro-American culture cannot be achieved through a study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both humanities and social sciences. The program originated in 1964 in courses intended to foster awareness of the role Afro-Americans have taken in the development of the United States, and to promote understanding of the present condition and concerns of Black Americans. Since then, these courses have been organized into a curriculum that includes a program leading to an undergraduate minor in Afro-American Studies, a Master of Arts degree in Afro-American studies, and concentration in Afro-American studies in programs leading to a B.A., M.A., or Ph.D. in American Studies.

Aging Studies

The Age Studies Program is a multidisciplinary program, administered by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. The program is designed to complement an undergraduate degree program. It consists of courses in the sciences which have been coordinated and sequenced to provide a planned program of study for students with academic, professional, research, or service career interests in aging. This program offers a unique opportunity for students of varying disciplines to gain more background and develop some expertise in the field of aging.

Global Studies

The Global Studies Program is a cross-disciplinary study of major world problems. The purpose of the program is to give students an opportunity to
include the problems and their interrelationships, and to focus on one set of problems for more detailed analysis. The four problem areas are war, peace, democracy, development, environments, and global consciousness. Cross-cultural understanding.

Latin American Studies

Students may supplement their undergraduate majors by earning either certification or a minor in the Latin American Studies Program. Focusing on the history, politics, social organization, economy, art, and literature of Latin America, the program draws its faculty from four primary cooperating departments—anthropology, history, political science, and Spanish and Portuguese—and from several related disciplines. The program is designed to enhance students' qualifications for a wide range of career opportunities in business, communications, government, bilingual-bicultural education, secondary education, community organization, and international agencies. It also provides background for advanced academic or professional degree work.

Literature, Science, and the Arts

The Program in Literature, Science, and the Arts offers a group of taught courses on fundamental human questions and explores important contemporary issues on the basis of their reading in outstanding works. They teach to draw upon scientific and philosophical issues to define issues and problems and work them through. An L.S.A. major provides a strong background for graduate study in any area of specialization, and for medicine, law, business, and other professions.

Women's Studies

The Women's Studies Program is a multidisciplinary program in the liberal arts which is engaged in developing a body of knowledge about women in the humanities and social sciences and in interpreting that knowledge within the university community. The term "women's studies" is used to describe a more comprehensive and integrated education for women but emphasizes teaching and research about women who are in intimate interest to one another. This major's academic dimension is education forms a cumulative pattern in learning about women and supplements specialized areas of study in the existing curriculum, raises provocative intellectual questions, and widens the quest for truth about the human condition.

Minors

Students graduating from the College of Liberal Arts may earn a minor or minors in any degree program or approved program in the college outside of their major department and a notation of the minor will be entered on the student's permanent record.

Requirements for a minor

A minor is a secondary area of study. To complete a minor, the student must take at least 18 semester hours in courses numbered 200 or higher (at least 12 semester hours must be taken at the University of Iowa) in courses numbered 200 or higher. No course accepted toward the minor may be taken pass-noupsae.

Students must complete at least 12 semester hours in courses numbered 200 or higher before the student may apply to the College of Liberal Arts to have the notation regarding the minor placed on the permanent record.

Minor in Business Administration

Students in the College of Liberal Arts may seek a minor in business administration in one of the following three orders. Students must complete all requirements for the minor before applying for admission to the business minor.

Computer programming course

Course in mathematics numbered 185 or higher

Course in statistics numbered 225 or higher

Minor in Accounting

601-2 Principles of Economics

6A.1 Introduction to Financial Accounting

6A.2 Introduction to Managerial Accounting

6A.3 Marketing

6F-100 Introductory Financial Management

6A.100 Advanced Management

6A.101 Introduction to Law

"Must be taken junior or senior year.

Students complete the remaining courses following their admission to the business minor program in the College of Business Administration. Students must meet the general admission requirements of the College of Business Administration and the "Program Requirements for Undergraduate Study" in "The College of Business Administration section of this Catalog" to be considered for admission to the business minor program. Admission to the program is limited, and meeting minimum standards does not ensure admission.

Minor in Education

Students in the College of Liberal Arts may earn a minor in education. For detailed requirements, see the "College of Education" section of the Catalog.
Liberal Arts Minors for Business, Engineering, and Nursing Students

Undergraduate students in the College of Business Administration, College of Engineering, and College of Nursing at The University of Iowa may earn minors in their colleges by satisfying College of Liberal Arts requirements for minors. (See other college sections of the Catalog).

Foreign Studies Certificate

The college's Foreign Studies Certificate program is designed for undergraduate students who seek to broaden their knowledge of societies other than their own. The program is a supplement to and not a substitute for a major. The chairs of the various language departments serve as advisers to students in preparing for the certificate. After selecting an area or country of interest, students wishing to earn the certificate will be guided by the appropriate chair in choosing a group of courses designed to provide a basic understanding of the area or country. Courses may include work in geography, history, anthropology, art, literature, political science, or other fields offering international studies.

Programs leading to the certificate will include at least 18 semester hours in course work related to the chosen country or area. In addition, students fulfill the foreign language requirement for the B.A. in a language appropriate to the chosen area. A student who successfully completes a Foreign Studies Certificate program may request a transcript showing this attainment. Minor departments offer honors seminars, independent research, or internships which enable students to participate in study abroad programs or the University of Iowa Honors College.

Specializations within Degree Programs

Almost every degree-granting unit in the college offers specializations. Some of these are formal divisions or options within departments. For example, broadcasting is offered in the Department of Communication and Theatre Arts, actuarial science is offered in the Department of Actuarial Mathematics, and fashion merchandising and dietetics are offered in the Department of Home Economics. The School of Art and Art History and the School of Music have many different tracks leading to bachelor's degrees: studio emphasis, concert emphasis, and art education: music education, independent research, composition and theory, and applied music.

Other specializations can be developed in undergraduate programs for students with special interests or for students majoring in several areas—for example, a specialization in public relations and advertising with courses taken in the Department of Communication and Theatre Arts, the Program in Communication and Journalism, and the School of Journalism and Mass Communication; photography and graphic design specialization with courses taken in the School of Art and Art History and the School of Journalism and Mass Communication; or a specialization in management with courses taken in the various social science departments.

For more information on specializations within and between programs, see the program descriptions in this Catalog and advisable in the appropriate departments.

Honors Program

The Honors Program offers special curricular and extracurricular opportunities to outstanding students. Freshmen may take specially designed courses taught by faculty, and many general education courses include honors options. Honors departments offer honors seminars, independent research, or internships, which enable students to participate in study abroad programs or the University of Iowa Honors College. The program maintains an Honors House as a study and meeting center for the Association. The Association sponsors numerous honors events throughout the year. These events offer students an opportunity to meet other honors students in the College and to attend extracurricular events that are being planned by the Association.

The Unified Program

The Unified Program (UP) is a four-course series of integrative general education courses for a small group of self-selecting freshmen. UP satisfies all general education requirements, except physical education and the foreign language requirement, and each UP course is interchangeable with an equivalent approved course. All students in UP take the same courses in a given semester. Students may leave the program at any time, and satisfy their general education requirements in other ways, but only freshmen may enter.

Preprofessional (Joint) Programs

Joint programs leading toward graduation from the College of Liberal Arts may be used with The University of Iowa College of Dentistry and any accredited medical or dental college in the United States which offers advanced degrees.

To be eligible to use a joint program with the above colleges toward graduation from The University of Iowa, a student must have completed all of the following prior to going to a "professional" college: earned at least 64 semester hours; all general education requirements; met the requirement for the major; and satisfied the residence requirement of the college.

After the student completes the first year of medical or dental college, the College of Liberal Arts will, upon presentation of a transcript, award a student 30 semester hours of ungraded elective credit which may be applied toward a degree.

No more than 32 semester hours earned in the preprofessional college after the student transfers from the College of Liberal Arts may be counted as electives towards a degree in the College of Liberal Arts.

If a student wants to use a joint program with any other accredited U.S. medical or dental college except The University of Iowa, a student, during his or her last semester in the College of Liberal Arts, should apply to the graduation analysis section of the College of Liberal Arts for permission to use this joint degree program. If the student meets the requirements listed above and will be attending an accredited medical or dental school, the registrar will instruct the student on the procedure toward applying for a University of Iowa degree.

Combined Degree Program Belongs to College of Liberal Arts and College of Engineering

Students may earn two University of Iowa baccalaureate degrees in one combined curriculum program in the Colleges of Engineering and Liberal Arts. To enter this program, a student must be eligible for admission to the College of Engineering but may begin the program in either the College of Liberal Arts or the College of Engineering. Students who enter this program will be advised by the assistant dean of the College of Engineering and by an associate dean of the College of Liberal Arts. Students interested in the combined degree...
program should declare their interest by contacting a representative of the Dean’s Office at either the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisers from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the required time to complete the combined degree program. The student in the combined program can normally meet the baccalaureate degree requirements of both colleges in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major areas of study selected in Liberal Arts and Engineering.

Students selecting this program will be required to complete the general education requirements, the requirements for the major, and the residence requirement in the College of Liberal Arts. The technical engineering courses taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the socio-humanities are regularly accepted for credits by both colleges, the student is, in many cases, satisfying the requirements for two colleges in the taking of a particular course.

Admission Requirements
To qualify for admission to the College of Liberal Arts, the applicant must meet the course requirements outlined below, and any special requirements for the program of his or her choice.

Entering Freshmen
An applicant seeking admission as an entering freshman must attend the college from which he or she graduated provide a certificate of school credits, including a complete statement of school course history, class rank, scores on standardized tests, and certification of graduation. An applicant may be tentatively admitted after he or she has completed the junior year in high school, but evaluation will not be final until receipt of the final transcript and certificate of high school graduation.

A graduate of an approved Iowa high school who has the proper academic background, is in the upper one-half of his or her graduating class, and meets specific particular requirements, will generally be admitted upon certification of graduation. An applicant who is not in the upper one-half of his or her graduating class may be required to take special examinations, and, after a review of his or her entire record and the circumstances surrounding the filing of the application, be admitted unconditionally, admitted on probation, required to enroll for a trial period during a preceding summer session, or denied admission. A graduate of an accredited high school in another state will be expected to meet higher standards than the minimum requirements for a graduate of an Iowa high school. The option for admission by probation or trial enrollment may not be open to these students.

A graduate of a nonaccredited high school must submit all data required above, take examinations to demonstrate general competence and sign of the official in charge of records from each college or university the student has previously attended. The applicant must also submit a high school transcript, scores on standardized tests, and any other records or letters from the College of Liberal Arts they require to support his or her application for admission.

A transfer applicant is expected to have maintained a C average (2.0 in a four-point system) for all college work attempted, and must not be under suspension from the last college attended. Transcripts of applicants who are not residents of Iowa are expected to have maintained a 2.0 average. An applicant who does not meet this standard may be permitted to take entrance examinations. An applicant who successfully completes the examinations may be admitted or probation.

In general, transfer applicants under academic suspension from the last college attended will not be considered for admission during the period of suspension, or, if released from the indefinite period, not be considered until six months have elapsed since the last date of attendance. When eligible for consideration, the applicant will be considered on the basis of his or her performance on the entrance examinations.

A transfer applicant under disciplinary suspension will not be considered for admission until a clearance and a statement of the reason for expulsion are filed from the previous college. When it becomes proper to consider an application from a student under expulsion, the college must account the fact of the previous suspension. An applicant granted admission under these circumstances will in each case be admitted on probation, and his or her admission will be subject to cancellation.

The College of Liberal Arts may refuse to recognize credit from a nonaccredited college, or may admit the applicant on a provisional basis and provide a means for the validation of some or all of the credit. The validation period must not be less than one semester and will ordinarily be for a full academic year. The college will specify the student to the term of the validation access at the time or provisional admission. Each student from a nonaccredited college is considered on his or her merits, and admission or rejection is at the discretion of the admissions officer.

Foreign Students
Foreign applicants (those who are or will be in the United States on a non-remittance status) whether U.S. high school graduates or not, may be required to meet higher standards for admission than those who have been admitted to a resident graduate of an Iowa high school.

Applicants whose native or official language is not English must provide a score of at least 450 TOEFL or a score of 11 on the IELTS. The university requires TOEFL as an admission requirement for any student whose native language is not English. Applicants with a TOEFL score of 500 or above may be admitted to the College of Liberal Arts after admission and may use other tests or criteria for judgment of English language proficiency for admission purposes. Students admitted with a TOEFL score below 500 must be considered proficient in English and held only to the same college English requirements as other students, i.e., rhetoric and 111. The interpretation of Literacy. Students who score above 250 on the TOEFL, are required to take an English proficiency exam by the university's Department of Languages to demonstrate proficiency. Freshmen evaluated as proficient must enroll in 101 or 111 rhetoric. If not proficient, the student must enroll in the EFL course recommended by the linguistics department. The student must continue to enroll in EFL courses until the student can present a 550 TOEFL score or until the student has taken all of the courses recommended by the linguistics department.

The Department of Languages offers six EFL courses (105-184-189).
Foreign students who have attended a U.S. college or foreign college or both before transferring to Iowa for undergraduate study may be expected to meet higher admission standards than the minimum requirements outlined for in-state transfer students. Foreign transfer students will have their proficiency in English evaluated in the same manner as entering freshmen. Those who are initially evaluated as proficient will fulfill the various undergraduate rhetoric requirements. If the student is not proficient, enrollment in the ESL courses which are recommended by the linguistics department is required until all such courses are completed. Like foreign applicants, immigrants (permanent resident aliens) from typically non-English-speaking backgrounds may be required to take the TOEFL or other suitable measures of English proficiency.

Nondegree Candidates
Under special circumstances, students may be admitted to the college as nondegree candidates. Such admission may be for certain sessions or unlimited in length. Readministration by such students may be contingent on University of Iowa grades. Courses taken by students in this category cannot be used toward satisfying the residence requirement for graduation from the College of Liberal Arts.

Requirements for Graduation

Total Earned Hours
Total semester hours required are: at least 120 semester hours as beginning freshmen; as indicated on their admission statements for transfer students.

Residence
Minimum credit to be earned in residence at the University: 30 semester hours, 45 of the last 60 semester hours, or a total of 90 semester hours. Nonresident Schulich includes work at other colleges (not The University of Iowa), is at other undergraduate campus or in The University of Iowa or correspondence courses.

General Education Requirement
All students must satisfy the college course requirements (see sections that follow)

Major Requirement
All students must complete the course and semester-hour requirement in one subject area (major department).

Other
A maximum of 12 semester hours of credit with a grade of “F” (prorated according to classification at the time of admission) will be counted towards the 124 semester hours needed for graduation. Transfer students admitted to the University with more than 16 semester hours of “F” grades are not eligible to take any more. (See following section for more details about the usage for pass-satisfactory grades.) Students may earn up to 32 semester hours of credits by examination from all sources.

Maximum credit earned through correspondence courses: 30 semester hours. Correspondence courses do not earn resident credit.

Semester hours for courses completed with nonpass grades do not count toward the total required for graduation and do not count in the computation of the grade-point average.

After a student has earned 62 semester hours of college credit from all sources, no more credit can be accepted by transfer from a two-year college toward meeting the 124 semester hours needed for graduation from the College of Liberal Arts.

College Course Requirements for Graduation for B.A., B.S., B.M., and B.F.A. Degrees
Two systems or general college course requirements for graduation exist in the College of Liberal Arts. All students who registered for the Spring semester prior to May 1982 may meet the college course requirements for graduation by following either of the systems or requirements. All students who register for the first time at Iowa after May 1982 must complete the "new," general education requirements. Whichever system of requirements students elect to follow, they must meet all parts of that system. One group or system of requirements may be called the skills, core, and foreign language requirements. It has been in operation, as amended, since 1944. The other group of requirements, called general education requirements, goes into effect in June 1982. A description of the core requirements of the "old system" follows immediately, and a description of the "new" general education requirements follows after that.

How to Satisfy Course Requirements
The "old" skills, core, and foreign language requirements course requirements are comprised of:

Basic skills (rhetoric, mathematics, and physical education skills);
Core courses (historical-cultural, literature, natural science, and social science); and
Foreign language

Rhetoric
All Students
Students fulfill the course requirement in rhetoric by registering at the first registration for rhetoric as assigned on the admission statement and continuing to enroll each semester until the requirement is satisfied. Once enrolled in a rhetorical course, a student cannot drop the course. Students enrolled in 10:3 Rhetoric may attempt to meet all or part of the rhetoric requirement by proficiency examinations given after the semester begins. Exemption from the requirement, but no credit may be awarded. For information about these tests see the rhetoric section of the Catalog. The maximum number of semester hours of rhetoric that may be counted toward a bachelor's degree is six.

Transfer Students
Transfer students fulfill the course requirement in rhetoric by submitting at the time of entrance 6 semester hours of course work from another institution of good standing comparable to the rhetoric course at The University of Iowa; or by transferring 6 semester hours of credit in English composition and 2 semester hours of credit in speech from another accredited institution for by transferring 6 semester hours in English composition and either completing 2 semester hours of credit in speech (295-295) at this University or satisfactory passing the speech test.

A student who transfers less than 6 semester hours in composition must register for at least 2 semester hours in the rhetoric course included on his or her admission statement and continue until the requirement is satisfied.

Mathematics
All Students
Students fulfill the course requirement in mathematics by presenting at least two and one half years of high school mathematics exclusive of such courses as business arithmetic and consumer mathematics; or by scoring 23 or better on the mathematics section of the ACT test; or by completing 22M.1 Basic Mathematical Techniques; or by satisfactorily completing a college-level course in mathematics, computer science, or statistics and completing satisfactorily the examinations in 22M.1.

Physical Education Skills
All Students
Students fulfill the physical education skills requirement by satisfactorily completing four one-semester-hour courses in physical education skills to
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be taken under a satisfactory-fail grading system. Only 10:21, 10:22, 10:31, 10:32 and 10:33 may be used to satisfy the physical education skills requirement.

For the physical education skills courses that are listed on transcripts in terms of activities and levels, when incompletes are made up and second grade options are used, the student must complete or take again the same activity at the same level. It is a student's responsibility to repeat the same course or take a more advanced course, the registrar will assess a penalty for either duplication or repetition.

Students may meet the requirement by passing comprehensive tests in physical education skills. These tests are given each semester at announced times. Any student, even those not registered for physical education skills, is eligible to take these tests. A maximum of 4 semester hours of credit may be awarded for successful completion of these examinations. Credit from these examinations may be applied to the physical education skills requirement only.

Freshmen who elect to meet the requirement by examination, but who fail to pass, must register for a physical education skills course for at least one semester before repeating the examination during the sophomore year. Students who have passed their twentieth birthday prior to their first enrollment in the University, as well as those who have passed their twentieth birthday prior to the day of their graduation, are excused from the requirement.

Veterans

Exemption from physical education skills may be obtained by the Office of the Registrar official evidence of having completed the basic training program in the armed forces.

Transfer Students

Transfer students may fulfill the physical education skills requirement by transferring 4 semester hours of college physical education, or by transferring 40 semester hours of advanced standing, or by transferring as a semester hours of college physical education and by earning enough credits in physical education skills in the College of Liberal Arts to make a total of 4 semester hours from all colleges.

Historical-Cultural, Literature, Natural Sciences, and Social Science Courses

Eight courses are required in each of the four core areas for the B.A., B.S., and B.A.A. degrees. However, with the approval of the department, courses may be used from the core requirement in the areas of their major. Approved core courses, with permissible combinations, are listed below. Consult core and department listings for offerings in the current session.

Students interested in satisfying the core requirements by examination should inquire at the Liberal Arts Advisory Office, 118 Schaeffer Hall.

Historical-Cultural

Any combination (nonduplicating) of the following courses totaling 8 semester hours.

1. 10:20-30 Problems in Human History

2. 11:31-32 Western Civilization

3. 12:34 Philosophy and Human Nature

4. 13:37 Understanding Basic Visual Arts (formerly Form and Theory in the Visual Arts)

5. 13:38 Western Art and Culture before 1400 (formerly 11:38 Art in the Western World)

6. 13:39-40 Masterpieces of Music

7. 14:31-41 Western Art and Culture after 1400 (formerly 11:38 Art in the Western World)

8. 11:31 Art of the Theatre (formerly Drama and Western Civilization)

9. 13:55-56 Civilizations of Asia


12. 13:55 Quest for Human Destiny (formerly 13:35 Religion in Human Culture)

Literature

All students must complete 11:1 The Interpretation of Literature, followed by any other literature core courses. Selection of the rhetoric requirement is a prerequisite. English majors are exempt from fulfilling the literature core requirement.

1. 11:1 The Interpretation of Literature

2. 11:2 Biblical and Classical Literature

3. 11:3 Medieval and Renaissance Literature

4. 11:4 Idea of Tragedy

5. 11:5 Idea of Comedy

6. 11:6 Narrative Literature

7. 11:7 Lyric Poetry

8. 11:8 Literature of the Theater

9. 11:9 American Lives

10. 11:13 The Classical Views

11. 11:14 Literatures of the African Peoples

12. 11:15 The Literary Presentation of Women

13. 11:17 German Heric and Erotic Literature of the Middle Ages

14. 11:18 Contemporary Latin American Narrative

15. 11:19 Asian Humanities

16. 11:20 Asian Humanities

Natural Science

Any combination (nonduplicating) of the following courses totaling 8 semester hours.

1. 21:2, 21:11, 21:13 Botany

2. 4:7 or 4:8, 4:9, 4:13, 4:14, 4:16 Chemistry

3. 11:21 Human Biology

4. 11:23 Ecology and Evolution

5. 11:23 Earth History and Resources (may not be combined with 12:5)

6. 11:24 Men and His Physical Environment

7. 11:25 Chemistry and Physics of the Environment (also 29:5; offered for 3 s.h. credit only)

8. 11:29 Technology and Social

12:05 Introduction to Geology (may not be combined with 11:23) 29:14/110 Mathematics

9. 29:11 or 29:17, 29:12 or 29:18, or 29:8 Physics

10. 29:11 or 29:62, or 29:50, or 29:105 Astronomy

(Department of Physics and Astronomy)

11. 37:9 Principles of Animal Biology

12. 97:50, 97:55 and 224:90 Science Foundations (for majors in elementary, special education, and early childhood education only with no college science)

13. 97:104 and 224:60 Science Foundations (for majors in elementary, special education, and early childhood education only with 4 or more semester hours of college science)

Social Science

Any combination (nonduplicating) of the following courses totaling 8 semester hours.

60:2, 62:2 Economics


31:1 or 31:3 Psychology

34:1, 34:2 Sociology

44:1, 44:2, 44:11, 44:19, 44:30, 44:35

102:11 Language and Society

105:11 Anthropology

Additional Options for Transfer Students

Transfer students may meet their core requirements in any of the following ways.

1. By transferring in 8 semester hours or more of appropriate courses.

2. When a student transfers less than 8 semester hours in a core area, he or she may complete the 8-semester-hour requirement by taking either approved core courses and/or any courses of the departments listed in each core area.

a. Historical-cultural—American studies, history, philosophy, religion, and history and appreciation of art, music, or drama.

b. Natural science—astronomy, biochemistry, botany, chemistry, geology, mathematics, microbiology, physics, physiology, and zoology.

c. Social science—anthropology, economics, geography, linguistics,
political science, psychology, and sociology
3. A transfer student with zero hours in a core area must complete 8 semester hours of approved core courses at The University of Iowa.
4. Literature core—By submitting at the time of entrance 8 semester hours of college credit in literature from another institution or by submitting 3 semester hours of college credit in literature from another institution and completing one of the 4-semester-hour courses in the literature core area of this University. Students transferring less than 3 semester hours must complete 8 semester hours of approved courses in the literature core area.

Pass-Nonpass for Core Requirements
No core courses or departmental courses used to meet core requirements may be taken pass-nonpass if they are to be used toward satisfying the core requirements of the college.

Foreign Language
The following are the foreign language requirements for bachelor’s degrees effective for students who entered Liberal Arts in September 1961, or thereafter.
1. Candidates for the Bachelor of Arts degree: A minimum of four semester hours of college-level study must be completed in any one of the foreign languages required in the college.

The requirements may also be satisfied by:
1. Completion of four years of high school study in one language;
2. Completion of a combination of high school study in one language and college-level study in one language which would be the equivalent of two semesters of study on the college level;
3. Satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study in one language.

2. Candidates for the Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science degrees:
A minimum of two sequential semesters of college-level study must be completed in any one of the foreign languages taught in the University.

The requirement may also be satisfied by:
1. Completion of two years of high school study in one language;
2. Completion of a combination of high school and college study in one language which would be equivalent to two semesters of study on the college level;
3. Satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after two years of study in one language.

3. If you are taking French, the foreign language requirement for the B.A. degree may be fulfilled by taking a sequence of courses culminating in 212 Intermediate French, or 208, 209 Second-Year Composition and Conversation, or a combination of 207 Second-Year Composition and Conversation and 908 French Conversation First Level. 208 alone is not sufficient for the fourth-semester requirement. Other combinations are possible. Check with the French department office, 10 Schaeffer Hall (phone 353-4087).

4. Elementary Chinese or Japanese courses, 6 semester hours each, for a total of 12 semester hours will meet the foreign language requirements for the B.A. degree. One semester, 6 semester hours, of these languages will meet the foreign language requirements for the B.F.A., B.M., or B.S. degree.

5. Bachelor of General Studies degree and Bachelor of Liberal Studies degree—no foreign language required.
6. No foreign language courses may be taken pass-nonpass if they are to be used toward satisfying the foreign language requirement of the college.

Change From Four to Three Semester Hours for Core Courses
If any of the 4-semester-hour core courses, previously approved to meet core requirements, change their credit hours from four to three for the new general education requirements, these courses will be accepted as meeting half of the core requirement for students remaining under the old program core requirements. Transfer students held for 8 hours or less in a core requirement would also be subject to this ruling. While the courses described above will count as 4 semester hours toward meeting core requirements, they will only count as 3 semester hours toward total hours needed for graduation. Hours needed for graduation from courses approved for general education and designated as 3 semester hours would count as only 3 semester hours taken by students meeting 8 semester-hour core requirement.

General Education Requirements
All students who registered for the first time at low for any semester after May 1962 must complete the following general education requirements for the degrees of B.A., B.S., B.M., and B.F.A. as described below:

Rhetoric
Mathematics
Quantitative or formal reasoning

Foreign language
Physical education
Natural sciences
Social sciences
Humanities
Historical perspectives
Foreign civilization and culture

Rhetoric
All students must complete the rhetoric required for the degree (which includes speech and writing) as stipulated at each student’s admission statement. This applies to both entering freshmen and transfer students. All transfer students regardless of the number of hours brought in must satisfy the rhetoric requirement. All students must register for their assigned rhetoric course at their first registration and continue to enroll for rhetoric courses until the requirement is completed. Once enrolled in a rhetoric course a student cannot drop the course. The maximum number of hours of rhetoric credit that may be counted towards a Bachelor’s degree is eight.

The rhetoric requirement may be completed in one of the following ways:
By passing 10:1 and 10:2 Rhetoric for 8 semester hours;
By passing 10:3 Rhetoric for 4 semester hours;
By passing the speech test and 10:4 Rhetoric for 2 semester hours;
By passing the writing test and 30:1 Principles of Speech Communication for 2 semester hours;
Or by passing both the speech and writing tests.

Proficiency tests in writing and speaking are given in rhetoric during the first week of classes and students must register for 10:3 Rhetoric. Exemption but not credit from part or all of the requirement may be awarded on the basis of these tests.

Mathematics
The college requirement in mathematics may be met in any of the following ways:
1. By scoring 20 or above on the mathematics subscore of the ACT general test battery;
2. By completing 2 years of high school algebra and one year of high school geometry or their equivalents;
3. By successfully passing a basic mathematics techniques proficiency test at low. The passing score will be equivalent to a score of 20 or above on the mathematics subscore of the ACT general test battery or the mathematics techniques proficiency expected of those who have two years of high school algebra and one year of high school geometry.) Scores from this test will be used to recommend placement of students in elementary college mathematics courses.
High School Courses
Successful completion of four sequential years of study of the same language in secondary school/high school meets the B.A. degree requirements. Two sequential years in high school meets the B.S., B.M., and B.F.A. degree requirements. Individuals must complete the fourth year of high school language for the B.A. degree and the second year for the B.S., B.M., and B.F.A. degrees.

College Courses
Successful completion of four sequential semesters of the same language in college, or their equivalent, meets the B.A. degree requirement. Two sequential semesters in college, or their equivalent, meets the B.S., B.M., and B.F.A. degree requirements. Individuals must complete the fourth semester of college language for the B.A. degree and the second semester for the B.S., B.M., and B.F.A. degree.

Combinations of High School and College Courses
One year of high school work in a foreign language equals one semester of college work. Successful completion of sequential years of high school followed by sequential semesters of courses in the same language in college will meet the requirement. Individuals must complete the fourth semester of college language in sequence for the B.A. degree and the second semester in sequence for the B.S., B.M., and B.F.A. degree.

Proficiency Examinations
Satisfactory performance on an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study meets the B.A. degree requirement. Proficiency equivalent to that usually attained after two semesters of college study meets the B.S., B.M., and B.F.A. degree requirements. (Accrual credit will not be given for passing the proficiency tests.)

Additional Comments
No foreign language course may be transferred as a pean-or-passage if it is in a sequence of courses to be used towards satisfying the foreign language requirement of the college.

No duplication will be assessed between high school work and college courses in foreign language.

If you are taking French, the foreign language requirement for the B.A. degree may be fulfilled by taking a sequence of courses culminating in 912 Intermediate French, or 928 Second-Year Composition and Conversation, or a combination of 927 Second-Year Composition and Conversation and 928 French Conversation First Level. If a course is not equivalent in fourth semester requirement, other combinations are possible. Check with the French department office, 10 Scheffer Hall (phone 353-4067).

Elementary Chinese or Japanese courses, 6 semester hours each, for a total of 12 semester hours will meet the foreign language requirement for the B.A. degree. One semester, 6 semester hours, of these languages will meet the foreign language requirement for the B.S., B.M., and B.F.A. degrees.

There is no foreign language requirement for the Bachelor of General Studies and the Bachelor of Liberal Studies degrees.

Students who are proficient in a foreign language not usually taught at The University of Iowa may validate their proficiency. No semester hours credit will be awarded on the basis of validation of proficiency in a foreign language.

Physical Education
All students must complete four one-semester hour courses in physical education skills under the S-G rating procedure. Only courses 10.21, 10.22, 10.23, 10.25, 10.30, and 10.35, offered by both physical education departments, may be used to satisfy the requirement. Courses under these numbers have activity or sports titles and levels of proficiency. If a student repeats the same course or takes a more elementary one, the registrar will assess a penalty for either duplication or regression. In removing locational restrictions, only the option the student must complete or take again the same activity or sport at the same level.

Proficiency Examinations
This requirement may be satisfied wholly or in part by passing comprehensive tests in specific physical education activities or sports. Up to 4 semester hours of ungraded credit or exemption may be earned by taking the physical education completion of these tests. Credit from these tests cannot be used as elective credit towards a degree. A maximum of 4 semester hours of credit by examination in physical education skills will be recorded towards a bachelor's degree.

Transfer Students Transfer students may satisfy this requirement by transferring 4 semester hours of college physical education course work (skills, sports, and activities), or by achieving junior standing having earned at least 36 semester hours of college credit prior to admission to The University of Iowa, or by transferring less than 4 semester hours of college physical education credits by earning enough credits in physical education at Iowa to make a total of 4 semester hours from all colleges.

Older Students
Students who have passed their twenty-third birthday prior to the date of their
graduation, are excused from the physical education requirement.

Veterans

Exemption from the physical education requirement may be achieved by presenting, at the time of application for admission, or later, to the registrar official evidence of having completed a basic training program in some branch of the armed forces.

Natural Science

All students must complete at least 7 semester hours of course work from the list below. At least one course taken to fulfill this requirement must include a laboratory component. (Those with laboratory components have Lab following their titles.)

2:1 Introduction to Botany (Lab) 4 s.h.
2:11 Plant Diversity (Lab) 4 s.h.
2:13 General Zoology I 3 s.h.
2:16 Invertebrate Zoology I 3 s.h.
2:16 Principles of Chemistry Lab (Lab) 2 s.h.
2:16 Principles of Chemistry (Lab) 2 s.h.
2:16 Principles of Chemistry II 3 s.h.
2:21 Human Biology (Lab) 4 s.h.
2:22 Ecology and Evolution (Lab) 4 s.h.
2:29 Earth History and Resources (Lab) 4 s.h.
2:29 Man and his Physical Environment (Lab) 4 s.h.
2:29 Chemistry and Physics of the Environment 3 s.h.
2:29 Principles of Geology 4 s.h.
2:29 Evolution of the Earth (Lab) 4 s.h.
2:29 Chemistry and Physics of the Environment 3 s.h.
2:29 Basic Physics (Lab) 4 s.h.
2:29 College Physics (Lab) 4 s.h.
2:29 Introduction to Physics (Lab) 4 s.h.
2:29 Introduction to Physics II (Lab) 4 s.h.
2:29 General Astronomy (Lab) 3 s.h.
2:29 Modern Astronomy 3 s.h.
2:29 General Astronomy (Lab) 4 s.h.
2:29 Invertebrate Zoology I 3 s.h.
3:1 Principles of Animal Biology 3 s.h.
3:1 Principles of Animal Biology 5 s.h.
3:40 Biology of the Brain 3 s.h.
3:41 Introduction to Animal and Human Behavior 3 s.h.
3:41 Human Genetics 3 s.h.
3:41 Genetics and Evolution 3 s.h.
3:41 Introduction to Environmental Science (Lab) 4 s.h.
3:12 Human Origins 3 s.h.

Social Science

Students must complete a minimum of 6 semester hours from the courses listed below:

3:15 Introduction to Speech and Hearing Problems and Disorders 3 s.h.

6:01 Principles of Economics 4 s.h.
6:02 Principles of Economics 4 s.h.
7F:120 Introduction to the Politics of Education 3 s.h.
16:00 Introduction to Afro-American Society 3 s.h.
16:10 Social Scientific Foundations of Communication 3 s.h.
30:1 Introduction to American Politics 3 s.h.
30:2 Introduction to Politics 3 s.h.
30:30 Introduction to Political Thought and Action 3 s.h.
30:40 Introduction to Comparative Politics 3 s.h.
30:50 Introduction to Political Behavior 3 s.h.
20:60 Introduction to World Politics 3 s.h.
30:110 The American Political Process 3 s.h.
31:1 Elementary Psychology 3 s.h.
31:3 General Psychology 3 s.h.
31:3 Principles of Psychology 3 s.h.
31:3 Principles of Psychology 3 s.h.
31:13 Introduction to Clinical Psychology 3 s.h.
31:16 Introduction to Child Psychology 3 s.h.
31:1 Introduction to Mental Processes 3 s.h.
31:11 Human and Animal 3 s.h.
31:4:1 Introduction to Sociology: Principles 3 s.h.
31:4:2 Introduction to Sociology: Problems 3 s.h.
26:25 Mass Media and Mass Society 3 s.h.
60:60 Communication Theory in Everyday Life 3 s.h.
41:1 Introduction to Human Geography 4 s.h.
42:1 Introduction to Physical Geography 4 s.h.
42:1:1 Introduction to Social Geography 3 s.h.
42:1 Contemporary Environmental Issues 3 s.h.
42:2 Environmental Management 3 s.h.
42:4 Introduction to Economic Geography 5 s.h.
42:5 Introduction to Economic and Regional Geography 5 s.h.
42:5 Introduction to American and Urban Society 3 s.h.
101:11 Language and Society 3 s.h.
113:1 Introduction to the Study of Calligraphy and Society 4 s.h.
113:10 Anthropology and Contemporary World Problems 3 s.h.
113:14 Language and Human Behavior 3 s.h.
113:19 Urban Anthropology 3 s.h.
122:1 Mass Media and Mass Society 3 s.h.
42:2 Communication Theory in Everyday Life 3 s.h.
122:1 Introduction to Social Foundations of Communication 3 s.h.

Humanities

All students must complete the course 11.1:1 The Interpretation of Literature 3 s.h. and at least an additional 8 semester hours of courses from the list below:

112:2 The Art of Tribal Cultures 3 s.h.

8:40 Major Texts in World Literature I 3 s.h.
112.1:1 Major Themes of World Literature 3 s.h.
112.1:2 The European Novel 1850 to the Present 3 s.h.
21:1:6 Major Themes of European Literature 3 s.h.
11:2 Biblical and Classical Literature 3 s.h.
112.3 Medieval and Renaissance Literature 3 s.h.
112.4 Idea of Tragedy 3 s.h.
112.5 The Comic Tradition 3 s.h.
112.6 Narrative Literature 3 s.h.
112.7 Greek Comedy 3 s.h.
112.8 Literature of the Theater 3 s.h.
112.9 American Literature 3 s.h.
111.10 The Personal Voice 3 s.h.
111.11 Comedy and Tragedy 3 s.h.
111:13 The Classical View 3 s.h.
111:14 The Literature of the African Peoples 3 s.h.
111:15 The Literary Presentation of Women 3 s.h.
111:17 German Heroic and Erotic Literature of the Middle Ages 3 s.h.
111:18 Contemporary Latin American Literature 3 s.h.
111:19 Asian Literatures 3 s.h.
111:20 Asian Literatures 3 s.h.
111:27 Masterpieces of World Art 3 s.h.
111:28 Art and Religious Symbolism 3 s.h.
111:31 Understanding the Visual Arts 3 s.h.
111:37 Masterpieces of Music 3 s.h.
111:44 The Art of Tribal Cultures 3 s.h.
111:44 The Art of Tribal Cultures 3 s.h.
111:46 Introduction to Religious Studies 3 s.h.
111:46 Introduction to Religious Studies 3 s.h.
111:47 Religion and Society 3 s.h.
111:47 Religion and Society 3 s.h.
111:37 Understanding the Visual Arts 3 s.h.
111:37 Understanding the Visual Arts 3 s.h.
111:37 Understanding the Visual Arts 3 s.h.
111:37 Understanding the Visual Arts 3 s.h.
111:37 Understanding the Visual Arts 3 s.h.
111:37 Understanding the Visual Arts 3 s.h.
33:154 Human Nature and the Impact of Science 2-4 s.h.
33:161 Form and Mimesis in the Arts 2-4 s.h.
33:172 Opera as Drama 2-4 s.h.
33:194 Contemporary Latin American Narrative 3 s.h.
33:251 Survey of Film 3 s.h.
33:6148 European Film History 3 s.h.
33:6168 National Cinema 3 s.h.
33:6171 Art of the Theatre 3 s.h.
33:6361 Asian Humanities 3 s.h.
33:6362 Asian Humanities 3 s.h.
33:651 American Values 3 s.h.
36:48 Literature of the African Peoples 3 s.h.
36:48 Introduction to Afro-American Culture 3 s.h.
36:48-40 Major Texts in World Literature 3 s.h.
36:48-41 Major Texts of World Literature II 3 s.h.

Historical Perspectives
All students must complete at least 8 semester hours of courses from the list below.
1H:13 Islamic Art and Civilization 3 s.h.
1H:16 Introduction to Asian Art 3 s.h.
11:29 Problems in Human History 3 s.h.
11:30 Problems in Human History 3 s.h.
11:31 Western Civilization 3 s.h.
11:32 Western Civilization 3 s.h.
11:33 Philosophy and Human Nature 4 s.h.
11:34 Philosophy and Human Nature 4 s.h.
11:36 Western Art and Culture before 1400 3 s.h.
11:41 Western Art and Culture after 1400 3 s.h.
11:42 Introduction to Asian Art 3 s.h.
11:43 Islamic Art and Civilization 3 s.h.
11:52 Theatre and Society 3 s.h.
11:55 Civilization and World History 3 s.h.
11:56 Civilizations of Asia 3 s.h.
11:51 Judeo-Christian Tradition 3 s.h.
11:54 Living Religions of the East 3 s.h.
20:185 The Concept of the City: Rome 3 s.h.
20:191 History of Music I 3 s.h.
20:202 History of Music II 3 s.h.
26:63 Philosophy and Human Nature 4 s.h.
26:54 Philosophy and Human Nature 4 s.h.
26:61 Judeo-Christian Tradition 4 s.h.
26:54 Living Religions of the East 3 s.h.
36:12 Theatre and Society 3 s.h.
36:16 Introduction to Asian Art 3 s.h.
36:55 Civilizations of Asia 3 s.h.
36:56 Civilizations of Asia 3 s.h.
36:54 Living Religions of the East 3 s.h.

Foreign Civilization and Culture
All students must complete one 3- or 4-semester-hour course from the list below. Courses used to satisfy this requirement may also be approved to satisfy the social sciences, historical perspectives, or humanities requirement.
71:101 Education, Politics, and Culture of Mainland Southeast Asia 3 s.h.
9:147 French Cinema 3 s.h.
11:13 The Classical Views 3 s.h.
11:14 Literature of the African Peoples 3 s.h.
11:17 German Heric and Erotic Literature of the Middle Ages 3 s.h.
11:18 Contemporary Latin American Narrative 3 s.h.
11:19 Asian Humanities 3 s.h.
11:20 Asian Humanities 3 s.h.
11:31 Western Civilization 3 s.h.
11:32 Western Civilization 3 s.h.
11:52 Civilizations of Asia 3 s.h.
11:56 Civilizations of Asia 3 s.h.
11:54 Living Religions of the East 3 s.h.
11:17 German Heric and Erotic Literature of the Middle Ages 3 s.h.
13:31 Introduction to Modern German Literature 3 s.h.
13:32 Introduction to Modern German Literature II 3 s.h.
13:104 The Third Reich and Literature 3 s.h.
13:105 German Culture History 3 s.h.
13:115 Contemporary German Civilization 3 s.h.
14:13 The Classical Views 3 s.h.
16:19 Introduction to Colonial Latin America 3 s.h.
16:106 Survey of Ancient Near East and Greece 3 s.h.
16:107 The Hellenistic World and Rome 3 s.h.
18:110 Medieval Civilization 3 s.h.
18:115 Economic and Social History of Medieval Europe 3 s.h.
18:117 History of the Medieval Church 3 s.h.
18:118 Early France and the Age of Clovis 3 s.h.
18:119 French Middle Ages in Literature 3 s.h.
18:121 Society and Culture in Europe 1000-1815 3 s.h.
18:122 Age of the Renaissance 3 s.h.
18:123 The Arab-Iranian Conflict 3 s.h.
18:128 France from Renaissance to Revolution 3 s.h.
18:126 French Revolution and Napoleon 3 s.h.
18:133 Germany 1800-1849 3 s.h.
18:134 Nineteenth-Century Europe: The Imperial Era 3 s.h.
18:136 France from 1815 to the Present 3 s.h.
18:141 Germany 1798-1814: Society and Revolution 3 s.h.
18:142 Germany since 1914: Society and Revolution 3 s.h.
18:151 History of East Central Europe 1750-1914 3 s.h.
18:152 History of East Central Europe: 1918-Present 3 s.h.
18:154 Alaska, Klawakrick, and Mexico's Russia to 1862 3 s.h.
18:160 Imperial Russia 1862-1917 3 s.h.
18:165 Soviet Union 1917-1953 3 s.h.
18:158 Society and Gender in Europe 3 s.h.
18:159 Society and Gender in Europe 1750-1850 3 s.h.
18:160 The Mexican Revolution 3 s.h.
18:161 History of Ancient and Traditional India 3 s.h.
18:164 Imperialism and Modern India 3 s.h.
18:165 Traditional China 3 s.h.
18:166 China: Opium War to the May 3 s.h.
18:167 Premodern Japan 3 s.h.
18:168 Modern Japan 3 s.h.
27:103 World Music I 3 s.h.
30:114 Introduction to Soviet Government and Politics 3 s.h.
30:143 Government and Politics of the Far East 3 s.h.
30:144 Latin American Government 3 s.h.
30:145 Major States of Latin America 3 s.h.
30:146 Africa Development 3 s.h.
30:148 The Politics of Southern Africa 3 s.h.
26:54 Living Religions of the East 3 s.h.
30:185 Contemporary Latin American Literature 3 s.h.
30:186 French Cinema 3 s.h.
30:187 National Cinema 3 s.h.
30:186 Asian Humanities 3 s.h.
30:185 Asian Humanities 3 s.h.
30:184 Civilizations of Asia 3 s.h.
30:183 Civilizations of Asia 3 s.h.
30:184 Living Religions of the East 3 s.h.
30:185 Ethnology of Southeast Asia 3 s.h.
30:186 Japan and China: Comparing Cultures 3 s.h.
30:187 History of Ancient and Traditional India 3 s.h.
31:115 Ethnology of Measamam 3 s.h.
31:115 Social Anthropology of the Caribbean 3 s.h.
31:115 Japanese Society 3 s.h.
31:116 Ethnology of Oceania 3 s.h.
31:117 Ethnology of Southeast Asia 3 s.h.
31:113 China and Japan: Comparing Cultures 3 s.h.
31:113 Latin American Economy and Society 3 s.h.
Transfer Students and General Education Requirements
Transfer students who have had courses elsewhere, that are similar to those approved for general education at Iowa, may be given credit toward general education requirements (acceptance of these courses shall be subject to the student's admission statement). If a transfer student brings to Iowa less than enough hours to meet a general education requirement, he or she may use only approved courses to complete the remainder of the requirement.

Transfer Students with A.A. Degree
Students admitted from Iowa Community Colleges who have received Associate of Arts degrees prior to the time of their first registration at Iowa will be considered to have met all the college general education requirements except the foreign language requirement. The program of study at the community college for which the A.A. degree was awarded must meet the following requirements: A minimum of 80 semester hours of credit acceptable for transfer, the completion of an agreed-upon group of courses at the community college, and at least a 2.00 grade-point average. A yearly review is conducted to assess whether students are meeting the stipulations in this agreement.

Course Limits and Waivers
No course from a student's major department can be used to satisfy general education requirements, except those taken as part of the foreign language, civilization and culture requirement, b) the foreign language requirement, c) the physical education requirement, d) 290:1 Basic Mathematical Techniques, or e) 111:1 Interpretation of Literature. However, each department may waive 4 semester hours of general education requirements for its B.A. students, and 7 semester hours for its B.S., B.M., and B.F.A. students, in the area closest to or most relevant to its program. Each department will be asked to submit a statement to the General Studies and Educational Policy Committee on the selection of courses, designating the area in which it requests to waive these hours. Statements must receive the approval of the dean and the Educational Policy Committee.

Pass-Nonpass
No course offered to meet any of the general education requirements may be taken pass-nonpass.

Bachelor of General Studies
The Bachelor of General Studies degree is designed for students with maximum flexibility in planning their educational programs. Candidates for this degree should have clean educational goals with both major and area of study already in mind. To earn this degree, a student does not have to have satisfied the general education requirements of the college, except that students held for the major department must enroll for a full semester.

Within the freedom of the B.G.S. degree, students may assemble groups of courses related to a single topic or they may select courses from a number of disciplines. Individuals may put together one or more groups of courses to provide just the background they desire.

All B.G.S. students should follow the requirements for the B.A. or B.S. degree in planning their programs, and should consult with their advisors on specific areas in which they see the most interest to do so. In working out such individualized "area of concentration," the student should examine the requirements in the major most closely related to his or her field of interest.

If a student has been pursuing a B.G.S. degree decides to earn a B.A., B.S., B.M., or B.F.A. degree instead, he or she must then meet all the general education requirements for these degrees.

Specific requirements for the B.G.S. degree are as follows:

Completion at The University of Iowa of at least 45 semester hours of courses numbered 100 and above, including no more than 20 semester hours in one department.

Completion of at least 124 semester hours of college-level course work, including no more than 40 semester hours in one department from all colleges and no more than 30 semester hours in all other colleges of the University. Students may enter The College of Liberal Arts.

Enrollment for at least one semester of rhetoric.

Achievement of at least a 2.0 grade-point average, but the College of Education course work undertaken, on all course work undertaken at the University of Iowa, and on all upper-level (numbered 100 and above) course work undertaken.

For purposes of the above requirements, all College of Education courses (prefix 75) are considered to be in one department, all College of Business Administration courses (prefix 85) are considered to be in one department, except those in economics (prefix 68), and all Division of Mathematical Sciences courses with the prefix 22 are considered to be in one department.

Undergraduate courses offered by the College of Education are considered to be in the College of Liberal Arts.

College of Liberal Arts residence, pass-nonpass, excluding remedial, co-requisite, and good standing policies apply to B.G.S. students in the same way as to all other undergraduate students in the college.

No major or concentration is specified with the B.G.S. degree.

Bachelor of General Studies students are not eligible to earn minors.

A B.G.S. student may take on a pass-nonpass basis any course offered pass-nonpass.

Since many 100-level courses have prerequisites, B.G.S. students should plan ahead to complete the prerequisite requirements in time to prevent otherwise avoidable delays and difficulties they will need for the 100-level courses they wish to take.

Bachelor of General Studies students who intend to apply for admission to a particular graduate or professional school should find out what courses they will need to complete to meet admission requirements.

Teaching Certification with the B.G.S. Degree
A B.G.S. student may earn teaching certification in early childhood, elementary, special, or secondary education in the following manner:

Meet all B.G.S. upper-level course requirements and course distribution requirements.

Meet the requirements of the major department (this usually involves meeting major requirements in some field, such as elementary education, English, social studies education, etc.);

Meet certification requirements in the selected certification program (this involves methods courses and practice teaching).

A B.G.S. student seeking certification to teach may use the one-listing of education and psychology courses to avoid exceeding the B.G.S. maximum allowance of 40 semester hours in one department.

Bachelor of Liberal Studies
Offered by each of the three Iowa Regents universities (The University of Iowa, Iowa State University, and the University of Northern Iowa), the B.L.S. program is designed to serve adults who cannot attend college as full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and in accredited out-of-state colleges may be applied toward the degree, as may applicable courses taken from any of the three Iowa Regents universities. Types of courses available from the Regina General Studies program include correspondence and independent study courses, radio, television, and newspaper courses; Saturday and evening courses; extension courses including those with new distance-learning formats; and regular on-campus
courses. Students may also take proficiency examinations. To be eligible for admission to the program, the student must have earned an Associate in Arts (A.A.) degree from an accredited institution, or 62 semester hours of collegiate work acceptable for credit toward a baccalaureate degree. The student must satisfy the college's general education requirements; holders of the A.A. degree from accredited two-year colleges in Iowa may have already met these requirements. Of the 124 semester hours of credit required for the degree, at least 45 must be earned in four-year colleges, in courses defined as upper-level where the credits were earned (in the College of Liberal Arts, courses numbered 100 and above); 45 must be completed in courses offered by the Iowa Regents universities; and 30 must be earned after admission to the B.L.S. program in the specific Regents university which will grant the degree. The B.L.S. candidate must meet the general education requirements of the Regents university from which the candidate expects to receive the degree, and, in addition, must earn at least 12 semester hours (or 18 quarter hours) of credit in each of three of these distribution areas: Humanities Communications and arts Natural sciences and mathematical disciplines Social sciences Professional area, as approved by the degree-granting institution Of these 36 semester hours, 24 must be in upper-level courses, and of these 24, at least 6 must be in each of the three selected discipline areas. Credits applied to the general education requirements may not be used to meet the distribution area requirements. Graduation requires a minimum grade- point average of 2.0 in all college work applied toward the degree, in all course work completed after admission to the program, and in all upper-level course work. While the B.L.S. is awarded by the College of Liberal Arts, the program is administered by the Division of Continuing Education.

Two or More Bachelor's Degrees Students who have already received a bachelor's degree and are of suitable quality for a different bachelor's degree must meet requirements for the second degree and complete at least 30 additional hours of study in residence in the College of Liberal Arts beyond the first degree.

Double Majors Students may meet the major requirements in more than one department, and if both departments award the same degree, the student may earn a bachelor's degree with two majors: for example, B.A. in psychology and sociology. No double majors can be earned unless both are in degree-granting departments or programs in the College of Liberal Arts.

Scholarship Requirements for Graduation The general requirements for graduation include the element of quality as well as the quantity of work completed. A student satisfies the qualitative graduation requirements of the college by earning a minimum grade-point average of 2.0 on (1) all college-level work attempted,(2) all work attempted at The University of Iowa, (3) all work attempted in the major field, and (4) all work attempted in the major field at The University of Iowa. A student who does not meet requirement (1) or who does not have a cumulative grade-point average of at least 1.8 in all college work attempted and on all work attempted at The University of Iowa, and has a 2.0 average in the major, both cumulative and at The University of Iowa, may satisfy requirement (1) by earning sufficient grade points to equal or exceed a figure determined by multiplying two by the number of hours required for graduation at the time of enrollment. The provisions of the preceding paragraph (the 1.9 requirement for graduation) are not available to any student who enrolls at Iowa for the first time after May 1962 and who has not graduated by May 1966.

Majors in Education and the Teacher Education Programs Students may indicate a major in one of the fields of education at the time of admission or may change their majors at any time to one of these fields after enrolling. In order to be enrolled in the major (first) courses in education, the student must be admitted to the Teacher Education Program (TEP). To be accepted into the TEP, a student must have attained sophomore standing (28 semester hours) and have earned a total cumulative grade-point average of at least 2.0. In order to remain in the TEP, the student must maintain a 2.2 total cumulative grade-point average. To apply for admission to the TEP, complete application forms in the Liberal Arts office before the semester begins. Students admitted will be notified in writing. (Contact the College of Education section in the Catalog.)

Collegiate Policies Deadlines Adds Courses may be added during the first three weeks of the semester (or first one and one-half weeks of the summer session) with the approval of the adviser and instructor.

Drops Courses may be dropped during the first ten weeks of the semester or first five weeks of the summer session with the approval of the adviser and instructor.

Special Courses Courses that meet on a different schedule or start or end at times other than the beginning and end of the semester, and are listed in the Schedule of Courses, may be added with necessary signatures at any time during the first one-fifth of the duration of the course and dropped at any time during the first two-thirds of the duration of the course. Similar proportional deadlines apply to the usual eighth-week summer session and for other special session courses. The dean's approval will be needed for all adds after the third week and for all drops that occur after the tenth week. Pass-nopass and Audit Pass-nopass registrations or revocations of pass-nopass registration and changes to audit or revoking audit may be made during the first three weeks of the semester (or first one and one-half weeks of the summer session) with approval of the adviser and instructor.

Late Registration With the approval of the adviser and instructor, students may register late during the first three weeks of the semester or first one and one-half weeks of the summer session.

Cancellation Students may cancel their registration at any time during the semester up to 4:30 P.M. of the last day of classes and prior to 4:30 P.M. of the fourth day from the end of the summer session.

Grading System A: 4 grade points B: 3 grade points C: 2 grade points D: 1 grade point F: no grade points
N: nonpass, no grade points
P: pass, no grade points
S: satisfactory pass, no grade points
R: registered, no credit
I: incomplete
O: no report
W: withdrawn

Incompletes
A grade of I may be reported only if (a) the unfinished part of the student's work (other than in research, thesis, or independent study) is small; (b) the work is unfinished for reasons acceptable to the instructor; and (c) the student's standing in the course is satisfactory. Courses may not be repeated to remove Incompletes. Incomplete grades must be removed by completing the unfinished part of the work.

Failure to remove the incomplete during the next session for which the student is registered (except that students with incompletes from second semester are exempt from the need to complete the work during the succeeding summer session) results in an F being assigned to replace the I. All special reports to the registrar removing Incompletes must reach the registrar on or before the deadline for submitting final grades for the next session that the student is registered. No extensions to prevent the assigning of F's will be made. Instructors, if they desire, may allow students to make up incompletes at any time subsequent to the deadline, even if the incompletes had been changed to F's. In such cases, special reports to the registrar giving forms must be sent for approval to the dean of the college since the instructor now is changing a grade.

No Report
The "no report" designation appearing on a student's permanent record must be changed to a valid grade according to the academic rules. Failure to remove the I by the specified date will result in an F being assigned for each such record.

The Mark of W
Undergraduate students in the College of Liberal Arts will be assigned a mark of W for any course in which any college dropped after the third week. Undergraduates in other colleges will receive a mark of W for dropping a course in the College of Liberal Arts after the third week, including courses registered with the College of Education prefix 7 and General Science Program prefix 87. A mark of W will be assigned for all courses dropped after the first week and a half of a summer session.

For courses that begin and end at times other than the beginning and end of the semester, students may drop these courses any time within the first one-fifth of the duration of the course without being assigned a mark of W.

Pass-Nonpass
The option of taking courses P-N is available to all students in the College of Liberal Arts under the following conditions:

1. The signature of the adviser and the instructor must be obtained on the proper form. (In cases where multiple-section courses are involved, the department should have a uniform policy.)

2. The mark of "Pass" (P) may be used in lieu of grades of A, B, and C for students registered in the College of Liberal Arts. Students registered on a P-N basis who receive grades of D or F will have N entered on their record. The grades of P and N will not be used in computing GPA nor will the grade of N count as earned hours for graduation. Liberal Arts students taking courses in other colleges of the University will be subject to the grading policies of those colleges. Students from other colleges taking courses in liberal arts are subject to the College of Liberal Arts grading policies.

3. A student must be in good academic standing in order to be eligible for the P-N option. The academic advisor should not sign P-N forms unless the student is in good standing.

4. P-N grading may be used on elective courses only.

5. Not more than 18 semester hours of P grades from all colleges will be accepted toward the bachelor's degree for any student. Transfer students who bring in less than 56 semester hours may earn a maximum of 18 semester hours of P grades. Those who bring in more than 50 semester hours are limited to 8 semester hours

6. Work in the major department is not available on a P-N basis, except by departmental action for courses which are not eligible for credit toward the departmental major. Courses required for the major in computer or related areas may be taken on a P-N basis, at the discretion of the major department.

7. A student may register for a maximum of two P-N courses per session.

8. A student is not registered for P-N unless he or she turns in a properly completed P-N form during registration or to the registrar before the end of the third week of classes (and of the first week and a half of a summer session). Any change from P-N to grade status to P-N must be made by submitting a properly completed P-N form to the registrar before the end of the third week of classes (and of the first week and a half of summer session).

9. For courses eligible for P-N that start after the regular beginning of classes in any session, students may turn in properly signed Pass-Nonpass slips at any time prior to the beginning of the courses and during the first one-fifth of the duration of the courses.

Satisfactory-Fail
The option of taking courses on a satisfactory-fail basis is available to all students in the College of Liberal Arts under the following conditions:

1. When approved by the department and the dean of the college, the grade of Satisfactory (S) may be used in courses in which, in the judgment of the department, the instructional purposes of the course will be best served by grading all students on a satisfactory-fail basis.

2. Not more than 18 semester hours of S grades will be accepted toward the bachelor's degree of any student.

3. Grades may be earned in the major. No forms will be needed to register for a satisfactory-fail course. All students in each course will receive either an S or an F.

4. The grade of F under the satisfactory-fail grading will be used in the computation of the student's grade-point average.

Auditing Courses
Students in the College of Liberal Arts may register to audit courses by marking their registration form for zero credit and explaining their reason for taking the course. Auditors must also explain to the special permission signature of the instruction of the course. To add a course for audit (zero credit) at the start of the semester, the student must register for zero credit on a change of registration form. Any change from credit to audit or audit to credit basis must be made within the first three weeks of classes (and a half of a summer session), using a change of registration form with the necessary signatures.

The mark of R will be assigned to those courses for which zero credit is reported on the student's attendance and performance record. If unsatisfactory, the mark of W will be assigned. Courses offered for zero credit only will be graded on the R/W basis. Courses offered for zero credit as well as for credit hours, when taken for zero credit, will be graded on the R/W basis. Courses completed with a mark of R will not meet any college requirement, and carry no credit toward graduation. Auditing may not be used as a second-grade option.

Grade-Point Average
The cumulative grade-point average is computed by (1) multiplying the number of credit hours earned by the appropriate grade point; (2) totaling the grade points earned to date; and (3) dividing the sum in (2) by the number of hours undertaken, excluding courses in which
grades of W or P are given. Grades of F are included in hours attempted and are used in computing the grade-point average.

Deficiency in English
Any instructor who finds the written work of a student seriously defective in English is expected to report the case, together with specimen papers, to the writing supervisor of the Rhetoric Program, who shall have authority to require additional work in composition without credit. Instructors are authorized to refuse credit or to give a reduced grade to written work which does not demonstrate accuracy, effective use of the English language.

Duplication
Duplication occurs when a student takes the same course more than once. Whether duplication has occurred is determined by the registrar at the time of graduation, and if it has occurred the student must earn extra hours to replace those earned by duplication. Both grades for courses when duplication has occurred will count in the student's grade-point average.

Regression
Regression occurs if a student takes a lower-level course (which may be a prerequisite) after having satisfactorily completed a more advanced course in the same subject. Grades for courses where regression has occurred will count in the student's grade-point average. Whether regression has occurred is determined by the registrar at the time of graduation, and if it has occurred, the student must earn extra hours to replace those earned by regression.

Area of Concentration or Major
The executive officer of the department or area in which the student wishes to concentrate his or her studies specifies the requirements in this area. In most instances, requirements are stated in connection with the departmental area announcement in the Catalog. However, a student whose college record specifies her adviser in outlining plans for a major.

Maximum Credit in One Department
No more than 20 semester hours of credit earned in one department or degree granting program may be applied toward College of Liberal Arts requirements for the Bachelor of Arts or Bachelor of Science degrees.

Semester Load Limit
The normal schedule is 15-18 semester hours for a semester, 45-6 for a summer session. No student may register for more than 20 semester hours in one semester, or 10 in a summer session, without the permission of one of the associate deans in the Liberal Arts Advisory Office.

Credit from Other Colleges
The College of Liberal Arts will accept toward the bachelor's degree up to a maximum of 30 semester hours of credit the student may have completed in all other colleges of the University while the student is enrolled in the College of Liberal Arts.

Examinations for Credit
Validation of Credit
Students with educational experience obtained at an accredited institution or in a formal training program in which there is no standardized procedure for evaluation of credit may request the validation of this credit. The Liberal Arts Advisory Office and the department concerned should be consulted for approval to take the appropriate examinations.

Advanced Placement and Credit in Nonmajor Areas
Students who have pursued college-level courses in high school or otherwise attained equivalent competence may be awarded advanced placement and credit on the basis of their performance in appropriate examinations. The examinations shall be those prepared by the Advanced Placement Program of the College Entrance Examinations Board or by a recognized test construction agency or group as approved by the Educational Policy Committee. The examinations include College-Level Examination Program (CLEP) and the Advanced Placement Program (AP) of the College Entrance Examination Board.

In the case of foreign languages, credit toward graduation will be awarded only for passing examinations covering sophomore-level (or above) course work.

Information about the CLEP tests may be obtained from the Liberal Arts Advisory Office. For information about Advanced Placement tests, write to the College Entrance Examination Board, 475 Riverside Drive, New York, New York, 10027.

Examination Credit in the Major
Departments may administer examinations covering required courses or areas of instruction in the major field and may grant credit with a grade of P for the successful completion of such examinations. The maximum credit by examination which may be awarded in the major field is 18 semester hours.

Second-Grade-Only Option
For courses taken at The University of Iowa, a student may repeat that course at the University unless the option for second-grade-only regression is involved, and have only the grade of P counted in the cumulative registration used in calculating The University of Iowa grade point or the total cumulative grade-point average.

This provision may be applied to a maximum of 16 semester hours of work from all sources.

A student who wishes to utilize the provisions of this rule should:
Register in the usual manner for the course he or she decides to repeat or add it during the regular period for adding courses (the first three weeks of the semester or the first week and a half of a summer session).
Apply to the Liberal Arts Advisory Office to check his or her eligibility and complete the proper form. Current procedures of counting both grades in instances where a student repeats a course will be continued unless the student completes the form.

Under the provisions of this option, the Office of the Registrar will mark the permanent record to show that a particular course has been repeated. Both grades will remain on the permanent record, but only the second one will be used in calculating the grade-point average and hours earned. The use of the second-grade-only option does not guarantee the opportunity to repeat a specific course; for example, the course may not be offered within the necessary time period the student has available. If the course is not offered, or disciplinary actions concerning grades may be involved.

If the student takes the course for a grade the first time, he or she must take the course for a grade the second time. If the student took the course pass-nonpass first time, he or she may take it pass-nonpass or for a grade the second time.

Classification
Freshman: less than 28 semester hours of credit earned Sophomore: 28 through 55 semester hours earned Junior: 56 through 89 semester hours earned Senior: more than 89 semester hours earned

Official Transcripts
Official transcripts of a student's record are available at the Office of the Registrar.
Application for Degree
Each student who wishes to be considered for graduation must file an application for a degree with the Office of the Registrar before the deadline date during the semester in which the degree is to be conferred. If a student does not graduate on the date indicated in the application, he or she must file another application for a degree for the next applicable semester. Students do not need to be registered to apply for a degree.

Graduation Analysis
Students may obtain a written graduation analysis upon application at the Office of the Registrar. The analysis may be requested at any time after the completion of the sophomore year. Each student is limited to only one analysis.

Class Attendance
The individual faculty member or course chair determines the policy regarding class attendance in his or her own course except that students are to be permitted to make up examinations or other required work missed due to illness or participation in University-sponsored activities which necessitate absence from class. Students are required to observe the regulations as announced for the course. The individual instructor may assign extra work, lower grades, or in severe cases cancel the student's registration for the course it appears justified.

Students are expected to attend classes regularly. It is suggested that instructors keep reasonably adequate attendance records, especially in courses in which examinations are offered. When an instructor considers that a student has been excessively absent, that is, when such absence endangers satisfactory academic progress, the instructor may call or send a written request to the Liberal Arts Advisory Office for the student to show cause.

Excused Absences
For permission to be absent from class to participate in any regularly scheduled University event, members of athletic teams, the marching band, and other recognized University groups are expected to present to each instructor prior to each absence a written statement signed by a responsible official specifying exactly the date and time it is necessary to miss class. Students who have been absent for medical or health reasons are expected to present evidence that they have been ill. Additional absences for this purpose are available in each department under the authority of the Liberal Arts Advisory Office. Students should not be asked to obtain excuses from the Student Health Service.

Final Examinations
A suitable period for the administration of examinations is set aside at the end of each semester during which time no classes are held. With the exception of any changes authorized by the dean, all final examinations must be given according to the schedule as announced. Students are expected to take examinations at the times scheduled. If a student has two examinations scheduled for the same time period or more than three examinations scheduled for the same day the student may file a request with the registrar to have the conflicts resolved.

Mid-Semester Reports
Faculty members are expected to report mid-semester grades for all students whose work is below C. Mid-semester reports should be sent to the Office of the Registrar on forms provided for that purpose. These reports are distributed to advisers and to individual students. Delinquent grades are not recorded on a student's permanent record.

Student Conduct
Any offense against good order committed by a student in a classroom or a laboratory may be dealt with summarily by the instructor or referred by the instructor to the Office of the Dean. The instructor should report any disciplinary action which he or she takes to the dean's office. If the student involved is enrolled in another college, the report should be made to the dean of that college or the dean of students.

Student Dishonesty
The college expects students to act with honesty and integrity in all instances of work submitted in the College of Liberal Arts. Students should be familiar with the standards established in the College of Liberal Arts and the Office of Student Conduct.

Probation and Dismissal
Students who fail to attain the following minimum cumulative grade-point averages (3.0 and overall) for their class are placed (or continued) on scholastic probation:

- Freshmen (less than 28 semester hours): 1.60
- Sophomores (28 to 55 semester hours): 1.80
- Juniors (56 to 89 semester hours): 1.90
- Seniors (90 or more semester hours): 2.00

Students on probation whose cumulative and overall grade-point averages equal or exceed the grade-point averages listed above for the four classes will be restored to good standing. Students will be removed from probation only at the end of a semester or session.

Students who fail to make the grade-point averages as listed above will be dropped from the college for poor scholarship as follows: those who are admitted on probation, at the close of one semester or session; those who are admitted in good standing and are placed on probation at the close of the first semester of their enrollment, after one semester on probation; all others after two semesters on probation. However, very poor work in any semester may result in dismissal at the close of that semester or session.

Under special and unusual conditions, students may be granted an additional semester on probation. Students who are granted for scholarship at the close of the spring semester will at their request have their cases reviewed if they enroll in the summer session. Students who are granted for scholarship for a second time will have the petitions considered at that time. Students must have made significant and substantial progress toward the required grade-point average to be granted an additional semester on probation.

A student dropped from the college for poor scholarship may petition the Liberal Arts Advisory Office for permission to register after an interval of one year. The petition must present evidence that changes have occurred in the status of the student which indicate improvement of performance in college work. A student granted permission to register under the provisions of this paragraph will be registered on scholastic probation and if dropped for the second time for poor scholarship, may not register for at least five years. After five years, the student may petition the Liberal Arts Advisory Office for permission to reenroll.

A record of each student's scholastic performance is kept in the Office of the Registrar and the Liberal Arts Advisory Office. Students placed on probation, continued on probation, or
Aerospace Military Studies

Department head: Lt. Col Michael P. Nolan
Faculty professors and instructors: Robert W. Neiss, assisted professor Major Robert J. Armstrong, Capt. Thomas E. Shinneman, Capt. James W. Klein

The Department of Aerospace Military Studies administers the Air Force Reserve Officer Training Corps (AFROTC) at The University of Iowa. The purpose of AFROTC is to recruit, educate, and commission highly qualified students to be officers in the United States Air Force.

AFROTC is entirely voluntary and the courses are open to all undergraduates and graduate students. The amount of credit given toward a degree for AFROTC academic work varies with the colleges at the University.

In order to receive a commission, AFROTC cadets must complete all University requirements for a degree and complete certain courses specified by the U.S. Air Force. Three programs are offered to complete the U.S. Air Force requirement. A student may complete the four-, three-, or two-year AFROTC program.

Four-Year Program

The four-year program consists of the General Military Course (GMC) and the Professional Officer Course (POC). The GMC awards a no-obligation boat at AFROTC. In addition, books and uniforms for AFROTC programs are provided.

The GMC consists of four one-credit AFROTC courses and the leadership laboratory. Beginning as a freshman, a student takes 23A:11-12 The Air Force Today and 23A:31-32 The Development of Air Power, To be considered an AFROTC cadet, a student must also take 23A:36-97 Leadership Laboratory.

The professor of aerospace studies may credit grade toward completion of the GMC for previous military experience.

Three-Year Program

The three-year program is the same as the four-year program except that a student compresses the GMC into one year. Sophomores take the freshman and sophomore sequence simultaneously. This results in two semester hours of AFROTC plus 23A:36-97 Leadership Laboratory.

Two-Year Program

The two-year program consists of field training and the Professional Officer Course (POC). Entry into the two-year program is competitive and requires a student to have at least two academic years of either undergraduate or graduate work remaining in college.


Students desiring to enter the two-year program should contact the professor of aeroseas studies by the January before the fall semester of their junior year. Applicants must be evaluated on the basis of college major, grade, ACT/SAT scores, the Air Force Officer Qualifying Test (AFOQT), an air force medical exam, a personal interview by a board of U.S. Air Force officers, successful completion of field training, and the recommendation of the professor of aeroseas studies.

Students accepted into the POC incur a commitment to serve a minimum of four years as a U.S. Air Force officer.

Leadership Laboratory

Leadership Laboratory is a cadet-centered activity. It is largely cadet-planned and directed toward providing leadership training experiences which will improve a cadet's ability to perform as a U.S. Air Force officer. Freshmen and sophomores learn air force customs and courtesies, drill and ceremonies, wearing of the uniform, and the benefits of an air force career. Juniors and seniors plan and direct the Cadet Corps activities.

Field Training

All applicants must successfully complete field training during the summer at a U.S. Air Force base. There are two types of field training: a four-week course for cadets in the four-year program and a six-week course for two-year AFROTC applicants. Normally, a student attends field training between the junior and senior years.

Field training consists of aircraft, basic and advanced training. The six-week field training provides 60 hours of academics that a student normally would have taken as a freshman and sophomore.

Students receive authorized pay and allowances when they attend field training.
Courses

324:17 The Air Force Today 1.5h. Presentation to the U.S. Air Force, including mission, organization, and functions; U.S. military forces, and Soviet threat; emphasis on student's writing skills. Offered fall semester.
324:12 The Air Force Today 1.5h. Continuation of 324:11. Offered spring semester.
324:31 The Development of Air Power 1.5h. traces the historical development of U.S. air power from early military use of balloons in the undersea warfare of minor air vehicle; emphasizes student's speaking skills. Offered fall semester.
324:32 The Development of Air Power 1.5h. Continuation of 324:31. Offered spring semester.

Special Activities

The Cadet Club sponsors many social events, including informal parties, a formal dinner, the Military Ball, and an awards ceremony. Cadets can join the Airsoft Sports Club, a national professional honor society dedicated to developing leadership qualities and to serving the community. The Advanced Training Program is a voluntary program in which selected cadets may go on active duty for two or three weeks during the summer following their senior year. Cadets get "real-world" experience and receive authorized pay and allowances. Selective. APROF Cadets may attend airborne training and upon completion wear the army parachute "jump wings."

Financial Assistance

AFROTC scholarships are available for 4, 3, 2, 1, and 2/3-year pre-health professions and nursing scholarships are offered. All scholarships are based on merit and provide full tuition, books, laboratory fees, and $500 as a month tax-free subsistence allowance. Applicants are selected on both objective and subjective factors. Students should apply directly to the professor of aerospace studies.

Educational Delay

Cadets may request an educational delay to postpone entry to active duty until after completion of an undergraduate degree or professional training program.

The present to provide a comprehensive view of that subject, the program also offers courses examining the African heritage and the present relationships of African-Americans to Africa is other lands. Because a thorough understanding of African-American culture cannot be achieved through study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both humanities and social sciences. Although the program at present emphasizes history and literature, the Afro-American Studies steering committee engages in a continuing effort to expand program perspectives by developing courses which will fuse the knowledge drawn from many disciplines in the humanities and social sciences.

The program originated in 1969 in courses intended to foster awareness of the role African-Americans have taken in the development of the United States, and to promote understanding of the present conditions and concerns of Black Americans. Since then, these courses have been organized into a curriculum that includes a program leading to an undergraduate minor in Afro-American Studies, a Master of Arts degree in Afro-American Studies, and concentrations of Afro-American Studies in programs leading to a B.A., M.A., or Ph.D. in American Studies. It is also possible for students enrolling in Ph.D., M.A., or M.S. degree programs to include courses in Afro-American Literature or Afro-American History into a special field or areas.

Most of the students in the Ph.D. program are preparing to work in colleges and universities as teachers and administrators. Many M.S. and M.A. programs provide valuable background for many other students seeking careers in community work, social work, teaching, religion, government, and politics. A short, the Afro-American Studies Program offers training to the key to employ whose career will require understanding and knowledge of Black Americans.

Undergraduate Study

The Afro-American Studies Program offers courses to all undergraduate students. The semester hours required for the minor conform to the seminor specified for all minors in the College of Liberal Arts. In consultation with his or her adviser, the student selects 18 semester hours designated Afro-American Studies courses. Lists of such courses are available in the office of the Afro-American Studies and in the offices of most departments.

Although the Afro-American Studies Program does not offer a major leading to a degree in Afro-American Studies, students interested in the field may concentrate on Afro-American studies in
a program leading to the B.A. degree in American studies. Such a concentration would include a concentration in the African Peoples, 450 Introduction to Afro-American Literature, and 450 Introduction to Afro-American Culture, as well as at least two more courses numbered 450 through 458. Also recommended as background for more advanced courses in Afro-American literature and history are 450-116-117 Afro-American Literature 1 and 2, and 458 Afro-American History 1914-1919.

The Master of Arts Program

The interdisciplinary curriculum leading to a Master of Arts degree in Afro-American studies was designed to provide an intensive, organized, graduate-level examination of African American culture and experience. Such a program explicitly benefits individuals preparing for community college teaching, work with community-service organizations, or other careers in which an understanding of Afro-Americans may be necessary or helpful.

Curriculum Requirements

The Master of Arts program in Afro-American studies requires the baccalaureate student to complete 45 hours of work, normally comprised of coursework and thesis. Requirements include 45/211 Introduction to Research in Afro-American Culture, 45312 Advanced Research in Afro-American Culture, and 12 semester hours of elective courses in Afro-American studies. Most students are required to earn 8 semester hours in literature/hisacy by taking 45/116-117 Afro-American Literature 1 or 2, 45/116 Afro-American History 1900-1930, 45/116 Afro-American History 1900-1930, 45/116 Afro-American History 1914-1919, 45/116 Afro-American History 1914-1919. Students who have earned graduate credit in Afro-American literature and history may be required to complete both 45/116-117 Afro-American Literature 1 or 2 and one of the following: 45/165 Afro-American History 1900-1930, 45/166 Afro-American History 1914-1919, 45/166 Afro-American History 1914-1919, 45/168 Afro-American History 1914-1919. All students in the program are required to complete a thesis, 46/301 Advanced Research in Afro-American culture, and to pass the literary/history requirement by taking at least one course in African American literature and history. The maximum number of credits for a thesis is 3 hours, and the dissertation will be defended in consultation with an advisor. A project must be approved by the department and defended before the academic program.

Admission Requirements

In addition to the general requirements of the Graduate College, undergraduate or graduate students entering either the Afro-American Studies Program of the Graduate College, 45/116-117 Afro-American Literature 1 or 2 and one of the educational background in literature and the social sciences, at least 6 semester hours of credit in American literature and/or history courses, and a minimum grade-point average of 2.7 in previous college courses in Afro-American studies. A student may be asked to take, without credit toward the master's degree, courses needed to improve deficiencies in undergraduate preparation.

Recommendations for admission will be made by the Graduate Admissions Committee of the Afro-American Studies Program.

Concentration within M.A. Program in American Studies

Generally, a student seeking a concentration in Afro-American studies within the M.A. Program in American studies is preparing for a career as a research scholar or a college/university teacher, and proposes to undertake doctoral work in Afro-American studies. Of the 36 post-baccalaureate semester hours required for completing an M.A. degree, at least 24 credits must be taken in Afro-American Studies. Since the Afro-American Studies Program is interdisciplinary, students taking 24-28 credits in Afro-American Studies Program must take 12 credit hours in non-Afro-American Studies courses. Such courses are not counted as part of the Afro-American Studies program.

Concentration within Ph.D. Program in American Studies

Generally, a student seeking a Ph.D. in American studies with a concentration in Afro-American studies is preparing to become a teacher or research scholar at the college/university level, and must complete the minimum 72 post-baccalaureate semester hours required for the degree, at least 30 semester hours (not counting those required in courses in Afro-American studies, including 45/211 Introduction to Research in Afro-American Culture, 45/116-117 Afro-American Literature 1 or 2 and one of the
following—45:165 Afro-American History 1860-1865, 45:166 Afro-American History 1830-1914, 45:168 Afro-American History 1860-1914—except when the student has completed equivalent year-long surveys in Afro-American literature and history before enrolling in the graduate program at The University of Iowa.

The interdisciplinary concentration in Afro-American humanities and social sciences requires students to explore both areas. The thesis must draw upon research from more than one field, while focusing on an aspect of Afro-American culture or experience. For additional requirements, please see the description of the requirements for the doctoral program in American studies in the following departmental section of the Catalog.

Cognate Areas, Special Fields

It is possible for students to take concentrations of Afro-American courses as cognate areas or special fields in Ph.D. programs in History, English, and other disciplines. For further details, consult the advisor in African-American studies.

Curricular Activities Related to Afro-American Studies

Black Kaleidoscope

Periodically the Afro-American Studies Program attempts to promote knowledge and consciousness of Afro-American culture by sponsoring Black Kaleidoscope, a series of lectures and demonstrations by scholars and artists distinguished in Afro-American culture.

Institute in Afro-American Culture

From 1968 through 1975, The University of Iowa each summer served as host for an Institute in Afro-American Studies for college and university teachers. The institute, which brought renowned artists and lecturers to the campus, focused on such topics as the Harlem Renaissance, Richard Wright, W.E.B. DuBois, Black Americans in the Civil War, and slave narratives. Although students in residence at the University were not eligible to be official members of the institute, they were permitted to enroll in a three-semester-hour course which is offered at the same time as the institute and on the current year’s topic. The program plans to offer institutes in future summers.

Black Action Theater

Academically sponsored through the Afro-American Studies Program, Black Action Theater affords participants instruction and experience in theatrical productions of plays by Black authors.

Afro-American Cultural Center

The Afro-American Studies Program encourages participation in the facilities of the Afro-American Cultural Center. The center serves as both a museum and library of Afro-American cultural artifacts and exhibits of Black culture. Thus, it provides cultural enrichment for Black people and a cultural meeting place for Black students. It also attempts to promote a knowledge of Black culture which will improve intercultural understanding among all members of the University community.

Black Genesis Troupe

The Afro-American Studies Program also encourages participation in Black Genesis Troupe, a student organization which blends dance, music, poetry, and visual arts in representations of Black culture and history.

Afro-American Studies Graduate Student Association

The Afro-American Studies Graduate Student Association attempts to promote interest in Afro-American culture by sponsoring programs on various topics. Any graduate student of the University who is interested in Afro-American Studies is eligible to be a member.

Related Courses

Although they are not included in the Afro-American Studies Program, the following are recommended for students interested in this area. For course descriptions, see appropriate sections of the Catalog.

Business Administration

63:215 Employment Relations and Public Policy

5 a.h.

Economics

6C:137 Prophesy in Urban Economics

3 a.h.

Education

7F:104 Education in the Third World

2-3 a.h.

7F:130 Educational Sociology

2-3 a.h.

7F:380 Seminar: Value Problems in the Administration of American Education

3 a.h.

7F:160 Socialization of the School-Age Child

2-3 a.h.

FU:133 The Culturally Different in Educational Settings

3 a.h.

History

16:21 American History, 1492-1877

3 a.h.

18:85 American History, 1877-Present

3 a.h.

18:165 United States in the Early Republic

3 a.h.

18:164 Civil War and Reconstruction

3 a.h.

18:165 The Gilded Age in America

3 a.h.

18:108 The Progressive Era in America

3 a.h.

18:167 The New Era and The New Deal 1900-1945

3 a.h.

18:168 The Contemporary United States 1940-Present

3 a.h.

11:16 The Revolutionary Generation in America

3 a.h.

16:176 American Thought and Civilization 1865-Present

3 a.h.

Courses

Afro-American Studies and Related Areas

For Undergraduates Only

487 Int. Race, Sex, and Identity

3 a.h.

465 Literature of the Pacific People

Introduction to selected works of nineteenth-century Black writers in the United States, the Caribbean, and Africa. Prerequisite: 111. Same as 11:14.

48:1 Black Poetry Workshop

Survey of Black American poetry, from its roots in folk songs and spirituals to the Black Arts Movement. Includes frequent class presentations of poems submitted by students in the class.

451 Contemporary Black Experience

Exploration of the depth and diversity of issues concerning Black culture, including literature, current events, generally concentrated on the 1980s.

461:1 Afro-American Family

Feature and duration of Afro-American nuclear and extended families and the social and political consequences these structures have on minority society.

4620:1 Introduction to Afro-American Family

Overseas works in anthropology, sociology, and history that relate to the social, political, and economic characteristics of the Afro-American family. Same as 461:1.

4621:1 Introduction to Afro-American Culture

Jaime Llano through a study of significant works in Afro-American culture, e.g., literature, drama, and philosophy—have contributed to the development of that culture.

Primary for Advanced Undergraduates and Graduate Students

40:18 African Studies

An examination of Africa by contemporary African reading list includes plays for staging, one-act plays, radio plays.

40:169 Afro-American Art

Work of Afro-American painters and sculptors, with attention to individual artists, movements, and African background, Oral traditions.

41:197 Art of West Africa

Same as 41:193. Same as 41:197.

41:198 Black Literature of Portuguese Expression

Same as 41:193. Same as 41:198.

41:195 Art of Central Africa

Same as 41:195. Same as 41:197.

41:111 Black Cult Literature

Same as 41:111.
Students should take the introductory gerontology course prior to coursework in the program. The research project or the practicum should not be taken until the first nine semester hours of the program are completed.

Program Eligibility
The program is open to all interested graduates, upper-level undergraduates (must have completed forty-five semester hours), and special status students whose particular career interests and needs will be served by completing the program. Students in good standing at the above mentioned levels may establish plans of study with the Aging Studies Program coordinator who will work with the students and their advisors to shape the plan of study to complement each student's academic program and career interest. Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program will include the required courses, as well as a recommendation for the sequencing of course work to be taken. The coordinator will keep a record of the student's approved program and of the student's progress. Upon completion of the program, the coordinator will notify the Registrar who will indicate a completion of the program on the student's transcript.

Courses
For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Introductory Courses
All students must take at least one and no more than two introductory courses. The introductory courses accepted in the program include:

17:108 Basic Aspects of Aging
34:130 Aging and Society
42:199 Selected Aspects of Social Work
Social Welfare
96:129 Introduction to Gerontology

Practicum and Research Courses
At least three and no more than six semester hours of credit for a practicum and/or research work will be accepted for the Aging Studies Program. Practicum and research courses include:

17:119 Directed Studies in Family Development
42:199 Selected Aspects of Social Work
Social Welfare
96:130 Seminar: Research on Aging

Other departmental practicum or research courses will be accepted if the content and focus of the course of study is aging-specific.

Elective Courses
Students may take elective courses to meet their particular needs and interests. Additional courses which may be used to fulfill the requirements for the program can be selected from the following:

Business Administration
68:123 Public Economic Security Programs

Counselor Education
72:300 Topical Seminar in Counselor Education

Dentistry
112:145 Introduction to Geriatric Dentistry

Family Practice
116:501 Perspectives on the Process of Aging

Health and Hospital Administration
80:112 Long-Term Care

Home Economics
17:21 Individual and Family Development: Life Span (Partial Credit)

Nursing
96:104 Nursing IV (partial credit)
96:133 Nursing Care of the Institutionalized Gerontological Client

Physical Education
27:112 Physical Activity and Aging

Recreation Education
104:148 Contemporary Issues in Recreation and Leisure: Aging Reality or Socially Imposed (Same as 104:183)
104:182 Aging and Leisure

Religion
30:185 Death and Dying

Sociology
34:233 Aging and Human Development

Social Work
43:118 Aging and Social Work
42:286 Home Behavior: Selected Aspects Issues of the Elderly

Speech Pathology
53:302 Seminar on Communication and Aging

Zoology
37:21 Seminar in Cell Physiology: Biology of Aging

American Studies Program

Program chair: Albert C. Stoesz


In its course work and for its majors, the American Studies Program provides an interdisciplinary introduction to American culture, past and present. The aim of the program is to train students and critics of culture who are broadly familiar with the dynamics of cultural experience. Students may combine related departments' courses in American experience with the interdisciplinary courses and seminars of the American Studies Program to explore such aspects of life in the United States as popular and high culture, institutions, values, social processes, artifacts, and the contributions of subcultures.

Bachelor of Arts

While the major for the B.A. degree in American studies stresses broad training in American culture and communication, rather than specific preprofessional or vocational training, it provides preparation for a career in business, education, government, journalism, or other fields. For advanced studies in the humanities, the social sciences, theology, or business; or for professional studies in law or medicine.

With his or her advisor's assistance and approval, the student majoring in American studies develops an individual plan of study combining courses from at least two departments and programs with integrative American Studies Program courses to explore a common period, topic, theme, or problem in American culture and experience. The major normally consists of 12 courses totaling 36 semester hours and including four courses (12 semester hours) in American and/or Afro-American studies, two courses (6 semester hours) in American history, and six courses (18 semester hours) in complete departments and/or American studies.
The courses in American and/or Afro-American studies usually include:
- Required courses:
  - 441 American Values 3 s.h.
  - 4500 Tuning Points in American Culture 3 s.h.
- Two of the following:
  - 452 American Issues 3 s.h.
  - 453 Women in American Culture 3 s.h.
  - 454 Family and Sex Roles: Alternatives to Stereotypes 3 s.h.
  - 455 Media Studies 3 s.h.
  - 456 Regional Studies: The American West 3 s.h.
  - 457 Sex, Race, and Ethnicity 3 s.h.
  - 458 American Music 3 s.h.
  - 4580 Introduction to Afro-American Sociology 3 s.h.
- 4581 Introduction to Afro-American Culture 3 s.h.
- 4582 Readings in American Studies 3 s.h.
- 4582 Childhood and Youth in America 3 s.h.
- 4583 Aging in America 3 s.h.
- 458 Visual Arts and American Culture 3 s.h.
- 4585 American Institutions: The Business Corporation 3 s.h.
- 458 American Community: Field Work 3 s.h.
- 4588 Autobiography and American Culture 3 s.h.
- 4589 Popular Culture 3 s.h.
- 1601 American History 1490-1777 3 s.h.
- 1602 American History 1777-Present 3 s.h.
- General education courses in historical perspectives, humanities, literature, and social sciences provide relevant preparation for the American and Afro-American major; 11 S American Lives is especially recommended.

Honor

Honors candidates in American studies must take 4600 Tuning Points in American Culture and 4595 Honors Project. With his or her advisor's help, the student in 4596 defines a research project on an American studies topic, does the research, and presents the results of the research in a senior essay.

Minor

Students interested in a minor in American studies are invited to consult members of the staff.

Master of Arts

The M.A. degree in American studies may be a terminal degree or a degree preliminary to the Ph.D. in American studies or a traditional discipline. The M.A. program in American studies normally includes 12 courses totaling 36 semester hours. Requirements include:
- 452000 Theory and Practice in American Studies 4 s.h.
- 452001 History, Literature, and American Popular Culture 4 s.h.
- Two other courses or seminars in American studies or Afro-American studies
- Two courses in American history at the graduate level (unless already taken as undergraduates)
- Six or eight additional courses selected in relation to a topic or period of cultural history. These courses may be grouped to address more than one topic or problem, but must be chosen from more than one discipline or department.

Satisfactory performance on a comprehensive examination on course work and basic concepts

The M.A. may also be taken with thesis, in which case 30 semester hours of course work is the required minimum. Consult department chair for details.

A joint program leading to the M.A. degree in American studies and the J.D. degree from the College of Law provides a broad cultural context for the study and practice of law. Such joint programs may be arranged in other professional fields, including social work and journalism.

Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 72 semester hours of course work, preparing the candidate in five areas: American studies seminars, interdisciplinary approaches and methods, subcultural/cultural analysis of a major field or topic, equivalent work in a second major field or topic, and courses in other fields, including one in two skills.

Although permitted considerable flexibility in planning, the American student candidate must meet certain basic requirements. One is that all students directly engage, in course work and teaching, the cultural diversity of American life and experience. Some course work is expected in such areas as Afro-American studies, women's studies, native American culture, or Chicano culture; this will be specifically explored on the candidate's oral exam. A second requirement is that each program will include substantial study of one period of American cultural history as defined to reflect the student's specific interests. Hence, history is considered either background or the actual content of the comprehensive examination courses.

The candidate normally takes 452000 Theory and Practice in American Studies and 452001 History, Literature, and American Culture during the first year of graduate study, and may include 455300 Special Graduate Projects among the two or three other courses he or she takes in the area of interdisciplinary approaches and methods in American studies. Instead of a written examination in this area, the student prepares a position paper or interdisciplinary essay. The candidate may also elect one of seven courses (18-21 semester hours), including tutorials, in each of his or her two major areas. Four-hour written examinations on each of the major areas, together with the interdisciplinary position paper or essay, provide one basis for the candidate's oral final examination.

The student also takes three or four courses, organized around a specific topic or subdiscipline, as one minor area. A student who wishes to explore a larger topic as a minor may do so if one of his or her major areas has a thematic or specific focus.

Instead of a written final examination, the candidate prepares an annotated bibliography on the minor field, for evaluation by a member of his or her comprehensive examination committee.

A candidate who has already submitted an annotated bibliography for a course has the option of taking a two-hour written examination based on an abbreviated reading list.

The tools and skills area or minor field must include at least 6 semester hours of graduate course work at low in foreign language, film making, linguistics, computer science, statistics, etc. In addition, up to 6 semester hours in thesis research and writing, courses on other cultures, teaching methods, and/or American studies topics outside the major and minor areas may be included in this area.

In demonstrating mastery of one tool or skill useful for culture studies, the candidate may use prior experience, summer internships, and/or independent study, but must take two graduate-level courses at low.

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on a topic whose investigation involves more than one field or discipline. The candidate may present a creative thesis—such as fiction, autobiography, film—if he or she combines it with a critical analysis of the cultural experiences the work reflects.

Internships

Qualified graduate students in American studies can arrange internships with the State Historical Society of Iowa, the Division of Hispanic Preservation, The University of Iowa Museum of Art, the Iowa Humanities Board, Living History Farms, the Herbert Hoover National
## Concerning Undergraduates

- **451-100 American World**: Interdisciplinary study of American experiences, literature, and culture. At least one of the following: 451-105, 451-106, 451-107.
- **451-105 American Literature**: Historical and cultural contexts in American literature. At least one of the following: 451-106, 451-107.
- **451-106 American Studies**: Interdisciplinary study of American society as represented in literature, art, and culture. At least one of the following: 451-105, 451-107.
- **451-107 American Women**: Interdisciplinary study of women in American literature. At least one of the following: 451-105, 451-106.
- **451-200 American History**: Historical and cultural contexts in American history. At least one of the following: 451-205, 451-206, 451-207.
- **451-205 American Civilization**: Historical and cultural contexts in American civilization. At least one of the following: 451-206, 451-207.
- **451-206 American Politics**: Historical and cultural contexts in American politics. At least one of the following: 451-205, 451-207.
- **451-207 American Social History**: Historical and cultural contexts in American social history. At least one of the following: 451-205, 451-206.
- **451-300 American Studies**: Interdisciplinary study of American society as represented in literature, art, and culture. At least one of the following: 451-305, 451-306, 451-307.
- **451-305 American Civilization**: Interdisciplinary study of American civilization. At least one of the following: 451-306, 451-307.
- **451-306 American Politics**: Interdisciplinary study of American politics. At least one of the following: 451-305, 451-307.
- **451-307 American Social History**: Interdisciplinary study of American social history. At least one of the following: 451-305, 451-306.

## Primarily for Graduates

- **452-100 American Literature**: Historical and cultural contexts in American literature. At least one of the following: 452-105, 452-106, 452-107.
- **452-105 American Civilization**: Historical and cultural contexts in American civilization. At least one of the following: 452-106, 452-107.
- **452-106 American Politics**: Historical and cultural contexts in American politics. At least one of the following: 452-105, 452-107.
- **452-107 American Social History**: Historical and cultural contexts in American social history. At least one of the following: 452-105, 452-106.
- **452-200 American History**: Historical and cultural contexts in American history. At least one of the following: 452-205, 452-206, 452-207.
- **452-205 American Civilization**: Historical and cultural contexts in American civilization. At least one of the following: 452-206, 452-207.
- **452-206 American Politics**: Historical and cultural contexts in American politics. At least one of the following: 452-205, 452-207.
- **452-207 American Social History**: Historical and cultural contexts in American social history. At least one of the following: 452-205, 452-206.

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### Anthropology

- **Department Chair**: Prof. William D. Mitchell
- **Graduate Advisor**: Prof. John W. Barrett
- **Undergraduate Advisor**: Prof. Margaret T. Smith
- **Undergraduate Coordinator**: Prof. John W. Barrett

All students of anthropology are required to take at least one course in cultural anthropology and one course in physiological anthropology. The following courses are recommended for students planning to pursue graduate study in anthropology:

- **453-100 American Indian Culture**: Historical and cultural contexts in American Indian culture. At least one of the following: 453-101, 453-102.
- **453-101 American Indian Culture**: Historical and cultural contexts in American Indian culture. At least one of the following: 453-102, 453-103.
- **453-102 American Indian Culture**: Historical and cultural contexts in American Indian culture. At least one of the following: 453-101, 453-103.

### Field Research

Opportunities are available for students to participate in anthropological field research in central Mexico or at various locations in the United States. Under the direction of University archaeologists, participating students acquire skills in data recovery and interpretive techniques.
Master of Arts

The M.A. program is general in nature, designed to prepare the student to deal with any aspect of anthropology at an introductory level. The department offers the M.A. degree with or without thesis. The program without thesis requires consideration for admission to the Ph.D. program. The number of semester hours of credit required for the M.A. with thesis may vary from 30 to 36, depending upon the student’s previous anthropological training. The nonthesis program requires at least 36 semester hours of graduate work. A 36-hour M.A. degree without thesis is available in conjunction with a minor concentration in musicology. The following are the core area requirements at the M.A. level:

Either

113.240 Seminar: Social Anthropology
or
113.201 Seminar: Anthropological Theory

These four courses:

113.171 Anthropological Linguistics
113.269 Seminar: Archaeological Theory and Method
113.285 Seminar: Biological Anthropology
113.102 Anthropological Data Analysis

Two courses from the following subject areas:

Social institutions;
Linguistics (including courses in the Department of Linguistics); and
Archaeology.

No more than 9 semester hours of courses outside of anthropology and no more than 3 semester hours of independent study may be applied toward the M.A. degree requirements in anthropology.

Students with previous training in anthropology, whatever their undergraduate major, may petition for paragraph 1 transfer of degree requirements to anthropology.

Anthropology/Museology Joint M.A. Program

In cooperation with the Museum of Natural History, the Department of Anthropology offers a program of study leading to the M.A. degree in anthropology with a concentration in museology. Details of exhibit preparation and the general operations procedures or small science museums form part of the student’s training. Further information on this option may be obtained from the Department of Anthropology or the Museum of Natural History.

Doctor of Philosophy

Graduate training in anthropology at the Ph.D. level is designed to lead to professional collaboration in both scholarly research and teaching. The Ph.D. degree represents a balance between general competence in all the subfields of anthropology obtained in the M.A. level and professional specialization in one. The specialization a student at the University of Iowa currently may select include archaeology, linguistic anthropology, and socio-cultural anthropology.

Training in specialization will be guided by a Ph.D. committee composed of members of the faculty competent in the particular area or topics chosen by the student. The only limitations in program selection are based on the faculty’s expertise in given areas or the feasibility of arranging for training and guidance.

These are the requirements:

At least 72 semester hours of graduate course work.

 Demonstration of a reading knowledge of one foreign language;

Mastery of a relevant research skill (for example, fluency in a foreign language or proficiency in a branch of mathematics, logic, computer programming, geology, or paleontology);

Ethnographic or archeological specialization in a major geographic area (for example, North America, Mesopotamia, Oceania, Southeast Asia, the Caribbean, Europe), approved by the student’s Ph.D. advisory committee;

Specialization in a major and minor topical area;

A written comprehensive examination in the student's area of specialization; and

Preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Kind of topics that may serve either as major or minor areas in socio-cultural or linguistic anthropology include: kinship or social organization, ethnology, economic anthropology, language and culture, religions, cultural ecology, and urban anthropology. Examples of possible major topical areas for students in anthropology include settlement archaeology, environmental archaeology, and dating methods. The comprehensive examination ordinarily will be taken when the student’s course work is completed or nearly completed, the language and research skills requirements have been satisfied, and before he or she begins fieldwork.

All doctoral candidates are required to carry out original anthropological research. Ordinarily, students conduct fieldwork as the basis for their dissertation; occasionally, however, a research proposal may be carried out using only museum collections, or other source materials.

All doctoral candidates are required to pass a comprehensive preliminary examination in gathering primary data in archaeological or ethnographic field research.

Graduate Admission

Applications for admission to the graduate program in anthropology are recommended regardless of the field of their previous training. An applicant with an M.A. degree in another discipline must seek admission as a first-year graduate student. Admission to the department’s graduate program may be at either the M.A. or Ph.D. level; however, full admission to the Ph.D. program depends on successful completion of departmental requirements.

Any student with an M.A. with a thesis may apply for admission to the Ph.D. program. A student admitted with an M.A. in anthropology from another institution may proceed directly to a specialized Ph.D. program. Admission to the Ph.D. program is limited to students who wish to conduct research in an area of interest and competence represented among the departmental faculty.

Applications for admission to the graduate program require the same general admission requirements of the Graduate College (see “Graduate College”) and will be required to submit a completed University application form, transcripts of all previous undergraduate and graduate work, three letters of recommendation from individuals competent to judge the candidate’s potential for graduate training, scores from the Graduate Record Examination, and at least one typed written example of previous research (for example, a term paper or an original experiment). An applicant with an M.A. degree from another university must submit a copy of his or her master's thesis; an applicant who earned a M.A. without thesis or whose thesis is not yet complete should submit eight copies of three papers culled from graduate school.

It is advisable that the applicant have at least a 3.0 grade-point average. However, applicants with lower grade-point averages may be admitted with conditional status if other criteria indicate potential for graduate work.
Bachelor of Arts

The B.A. candidates in art or art history must earn at least 74 semester hours of credit in non-art courses, but may apply no more than 58 non-art hours of credit toward the total of 124 hours of credit required for the degree.

Cross-listed courses originating in the School of Art and Art History may not be counted toward fulfilling the general liberal arts course and hour requirements.

Studio Emphasis

The B.A. degree with an emphasis in studio requires the following courses and credits in art:

- Intermediate art history 12 s.h.
- IA-101 Colloquium 2 s.h.
- IA-3 Basic Drawing 2 s.h.
- IA-4 Basic Design 2 s.h.

Any two of the following courses:

1C:50 Ceramics I 2 s.h.
1H:54 Introduction to Metalworking and Jewelry 2 s.h.
1J:50 Multimedia I 2 s.h.
1K:15 Undergraduate Sculpture I 2 s.h.

One introductory studio course from each of the following studio areas 4 s.h.

- Design
- Drawing
- Painting
- Photography
- Printmaking

Textiles (off-cross-listed with an art number)

Electives to bring the total number of credits in History of Art, Studio, or Art Education courses to a minimum of 38 semester hours.

No more than 50 semester hours of credit in art courses the school lists will be counted toward the total of 124 hours of credit required for the degree.

Transfer students majoring in studio must complete at The University of Iowa a minimum of 3 semester hours in art history and 12 semester hours in studio beyond the basic studio courses and including at least two different studio areas.

Undergraduate transfer students majoring in studio must, at their request, have a portfolio reviewed by a faculty committee.

Art History Emphasis

Major requirements for the B.A. degree with an emphasis in art history are 12 semester hours of studio courses, as advised, and 18 semester hours of intermediate and advanced art history.

Electives must raise the total of art courses to a minimum of 36 semester hours and may raise the total to a maximum of 50 semester hours. Art courses taken beyond this level do not count toward the B.A. degree.

Honors students in art history must maintain a minimum grade point average in art history of 3.5, and must complete six semester hours (beyond the 16 semester hours of intermediate and advanced art history) in a semester and a writing thesis, for 3 semester hours credit each.

Non-art credits must include two or more semester of a second foreign language, and at least 16 semester hours in at least three areas, including two of the following: anthropology, classics, drama, history, language, literature, music, philosophy, religion, or sociology.

Transfer students planning to major in art history should meet with the professor in charge of art history to discuss the requirements for minimum registration for courses in art history and studio.

Art Education

Students seeking the B.A. degree in art education may choose either the studio or art history emphasis, subject to the requirements described above, in addition to the general requirements for teacher certification (see the College of Education section of the Catalog). Students must satisfy these specific requirements:

1E:50 Concepts in Art Education 2 s.h.
1E:128 Art Education Studio 3 s.h.
1E:143 Methods: Art 2 s.h.
1S:105 Advanced Methods: Art 3 s.h.
1S:187 Seminar: Curriculum and Student Teaching 3 s.h.
1S:188 Practice in Elementary School 6 s.h.
1S:191 Observation and Lab Practice in Secondary School 6 s.h.

The following courses are electives:

1S:197 Aesthetic Education 2 s.h.
1E:230 Art Education and the Museum 3 s.h.

Bachelor of Fine Arts (studio only)

Prospective B.F.A. students must apply to enter the program following completion of at least one semester of work in the studio area of concentration, but before completion of 50 semester hours in art.

The B.F.A. requires 63 semester hours of credit in School of Art and Art History courses. In addition to the general education and major requirements listed above, the B.F.A. student with studio emphasis, the B.F.A. candidates must complete three courses in a studio area of concentration beyond the fundamental core, and must complete at least the second semester of coursework in each.
of two additional studio areas. Art education majors in the B.F.A. program must meet the same teacher certification requirements as those in the B.A. program.

**Master of Arts in Art History**
An M.A. student in art history is expected to acquire a broad general knowledge of art history as an academic and humanistic discipline; become familiar with major periods and monuments of world art; and gain proficiency in techniques of research within the specialized field.

Specific requirements include:
- A B.A. or B.F.A. degree, with at least 18 semester hours of undergraduate work in art history.
- A minimum of 30 semester hours of graduate-level course work, with a grade-point average of 3.0 or higher.
- At least a one-semester intermediate (100-level) course completed with at least a 3.0 grade in each of five of the following areas of art history:
  - Ancient (to 300 A.D.)
  - Medieval (300-1600)
  - Renaissance to Baroque (1500-1700)
  - Nineteenth Century to Modern
  - Primitive and Pre-Columbian

Course distribution for the M.A. in art history is as follows:

- 19204 Seminar: Methodology of Art History and Criticism 3 s.h.
- Two other art history seminars (with different instructors) 4-6 s.h.
- Additional Art History courses 14-21 s.h.
- Studio work 0-6 s.h.
- Courses outside the school 0-9 s.h.

Students with little or no undergraduate studio work may be required to take two courses in different studio fields; students with substantial undergraduate studio training will be exempted from the graduate studio requirement. A student preparing to teach in both the art history and studio areas will take 12 to 15 semester hours of studio work, with a minimum of 9 semester hours in one subject. In addition to the art history coursework, Studio majors may be taken on a satisfactory/unsatisfactory basis.

M.A. candidates with undergraduate studio work in art history are encouraged to take courses outside the school.

Within the first 20 semester hours of graduate work, the M.A. candidate will be expected to demonstrate the ability to read historical writings in an appropriate foreign language, normally German or French, though other languages, including Oriental languages, may be acceptable. This requirement may be satisfied by the Graduate School Foreign Language Test (GSFLT), examination by the appropriate University of two language departments, satisfactory completion of the final semester of a Ph.D. language reading course, or satisfactory completion (at least a 3.0 grade-point average) of the fourth semester of a college or university language course.

Qualification for the M.A. degree requires a comprehensive written examination, broadly covering the entire field of art history.

The student must prepare either a written thesis, for which three semester hours of credit may be allowed, or a substantial research paper (approximately 20-40 pages).

**Master of Arts in Studio**
The school offers the M.A. degree in studio with a major in ceramics, design, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture.

The degree requires:

- The B.A. or B.F.A. in art equivalent to that offered at The University of Iowa (undergraduate deficiencies, if any, may be made up concurrently with, but are in addition to, graduate requirements).

A minimum of 38 semester hours of graduate work, including at least 12 semester hours in major studio subject. A total of at least 21 semester hours in studio courses, 9 semester hours in the history and theory of art, and up to 8 semester hours of courses outside art history.

Clearance for M.A. candidacy by faculty review, and
- Studio and written theses.

Majors in studio may elect to take art history courses on the satisfactory/unsatisfactory basis.

Graduate students who have not had drawing at The University of Iowa must take at least one drawing course during the first year.

A student preparing to teach in both the studio and art history areas may offer an art history minor of 15 semester hours, including 19204 Seminar: Methodology of Art History and Criticism, and one other seminar. These hours are in addition to the University's undergraduate requirement for an art history major (except for the second foreign language), and in combination with the graduate hours must satisfy the distribution requirement for art history.

**Master of Arts in Art Education**
Applicants for the M.A. in art education are:

- The B.A. or B.F.A. in an art equivalent to that offered at The University of Iowa;
- Teaching certification in art;
- Completion of 28 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 9 in studio and 12 in art history), 8 semester hours in graduate seminars in art education and 12 semester hours to be specified after the student completes the program.
- An oral and/or written examination in art education;
- A written thesis based on research in art education or art history or a studio thesis, (a studio thesis must be accompanied by a brief statement of the student's technical, aesthetic, and/or psychological approach) and, as in the M.A. degree in studio, clearance for M.A. candidacy by faculty review.

Art education majors who elect to do a studio thesis and who have not had drawing at The University of Iowa are required to take at least one drawing course, selected from among the school's regularly scheduled drawing courses, during the first year in residence.

Art education majors may elect to take art history courses on the satisfactory/unsatisfactory basis.

**Master of Fine Arts (studio only)**
The school offers the M.F.A. degree with a major in ceramics, design, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture.

The M.F.A. candidate must have an M.A. degree in art equivalent to that offered at The University of Iowa, and a minimum of 50 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 5 semester hours in a minor studio field, 9 semester hours in art history and theory of art, and 6 semester hours in courses originating outside the school; clearance for M.A. candidacy by faculty review and a written thesis. These credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.
Doctor of Philosophy (art history only)
The Ph.D. student is expected to have a broad general knowledge of art history and to acquire detailed knowledge of monuments, an understanding of artistic development, and a knowledge of methods of research within certain specialized areas of world art to be selected by the student in consultation with appropriate faculty members in the school.
No more than 36 semester hours of credit earned in an M.A. program may be applied toward the 72 semester hours required for the Ph.D.
Course requirements beyond the M.A. program outlined above are:
Two art history seminars (with two different instructors) 4-6 a.h.
Additional art history courses 12-18 a.h.
Courses outside the school 0-12 a.h.
Students holding the M.A. from another institution must take the school's M.A. comprehensive examination within the first two regularly scheduled examination dates following admission.
Within the first 16 semester hours of graduate work beyond the M.A., the doctoral student must demonstrate ability to read art historical writings in two appropriate foreign languages. For majors in European art, one language will normally be German; for majors in Oriental art, Sanskrit, Chinese, or Japanese may be acceptable. The procedure for satisfying the Ph.D. language requirement is as explained in the regulations of the M.A. in art history program.
The student must take a comprehensive examination in one major field (5 semester hours) and two minor fields (3 semester hours each) selected by the student in consultation with the advisor and approved by the art history faculty. At least one minor field must be concerned with the art historical period and area remote from the major field. One minor field may be related to the major; this field may be in a discipline or disciplines outside the school, for example, religion, history, or philosophy.
The student must prepare a written dissertation consisting of an original scholarly contribution to the field. The school will allow up to 6 semester hours of credit toward the art history course requirements for dissertation preparation. The Ph.D. program formally presents the dissertation topic for faculty approval. The student must also pass an oral examination or the dissertation.
Graduate Admission: Studio
Admission procedures for graduate studio programs include a committee review of application and art of the applicant's supporting material. Contact the school for specific dates.
Courses:
Ceramics, design, metalworking or jewelry, multimedia or video art, or painting majors must submit slides and/or photographs of their work in their major fields into applicants who are residents in the United States may be submitted original work is shown. Drawing majors must submit original drawings. (Newly drawn but never before exhibited. Preparing majors must submit from 6 to 20 original prints and drawings. Photography majors must submit a selection of original photographs. Sculpture majors should send 15 black-and-white photographs—slides, if color is important —of their work. Students must also submit examples of their work in their own areas, and must submit three letters of recommendation.
Graduate Admission: Art History and Art Education
Applicants to the graduate program in art history must submit a term paper or other example of ability to write in English. Applicants in art education must submit both a term paper or other example of ability to write in English and a selection of slides or photographs of their creative work in two studio areas. All applicants must submit three letters of recommendation.
Deadline for receipt of completed art history and art education applications is June 15 for the fall semester, November 15 for the spring semester, or April 15 for summer registration. Newly admitted students who do not register within two semesters of their admission must reapply. Students who are unable to meet a timely deadline and then interrupt their studies for two or more years must reapply for admission.
Assistantships and Scholarships
Assistantships paying approximately $5,800 per academic year for 20 hours of departmental duties weekly are awarded to graduate students on a competitive basis. Half-time assistantships are also available. The award of an assistantship entitles the recipient to the in-state tuition rate. Scholarships paying partial or full tuition and enabling no departmental duties require at least a 3.0 cumulative grade-point average. These financial aids are generally awarded to students who have been in residence for at least one semester, so that faculty members have had an opportunity to observe their performance and potential.
Facilities
School facilities include an art library containing 60,000 volumes; a visual materials library containing 255,000 slides and 80,000 photographs; an in-studio printshop; fume and equipment for large-scale iron and bronze casting processes, as well as facilities for welding and fabrication of steel sculptures; a well-equipped darkroom; extensive kiln facilities, including provision for construction of various types of temporary and specialized kilns; a large shop for woodworking, metalworking, and industrial design; electroforming equipment; a papermaking mill; a typography studio; and video equipment.
Courses
Art History
Primarily for Undergraduates
151 Understanding the Visual Arts 3 a.h.
152 History of Art 3 a.h.
153 Art and Religion (offered in the summer) 3 a.h.
154 Museum of World Art 3 a.h.
155 Understanding the Visual Arts 3 a.h.
158 Informations relating to the visual, the aesthetic, and the culture of the primitive, ancient, and medieval periods. Same as 123 A, 123 B.
156 Western Art and Culture before 1400 3 a.h.
157 Western Art and Culture after 1400 3 a.h.
158 Informations relating to the visual, the aesthetic, and the culture of the primitive, ancient, and medieval periods. Same as 123 A, 123 B.
159 Introduction to Ada Art 3 a.h.
160 Art and architecture of Mediterranean civilization, including European and Near Eastern art. Same as 1420, 201 A, B.
160 A Introduction to Ancient Art 3 a.h.
161 Understanding the Visual Arts 3 a.h.
162 Art and architecture of Europe from 300 to 1500 A.D. Same as 1420.
163 Introduction to Renaissance Art 3 a.h.
164 Art and architecture of Europe from 1500 to 1700. Same as 1420, 1421.
165 Introduction to Baroque Art 3 a.h.
166 Art and architecture in Europe from 1600 to 1700. Same as 1420, 1421.
For Undergraduates and Majors
Courses numbered above 100 have as prerequisite an introductory course in the appropriate art history area or permission of the instructor.

132 Art of the South Pacific

150 Art of Pre-Columbian America

152 Art of the Inca Culture

153 Byzantine and Romanesque Art

154 Chinese Painting

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The Program in Asian Studies

This program is designed to introduce students to East and South Asian cultures, both modern and traditional, and to contemporary political and social problems in Asia. Courses are taught by Asian specialists in many departments. Students are encouraged to take courses in a number of disciplines and in more than one area of Asia.

Students majoring in Asian studies must complete 30 semester hours of courses on Asia distributed as follows:

- 36:10-11 Second Year Chinese 12 s.h.
- 36:10-12 Second Year Japanese 12 s.h.
- 36:23-24 Second Year Sanskrit 8 s.h.

At least one course on the history of the area whose language they are studying, chosen from:

- 36:133 History of Ancient and Traditional India 3 s.h.
- 36:154 Imperialism and Modern India 3 s.h.
- 36:155 Traditional China 3 s.h.
- 36:164 China: Opium War to Mao 3 s.h.
- 36:153 Modern Japan 3 s.h.
- 36:154 Modern Japan 3 s.h.
- 36:193 Aesthetics: The East 3 s.h.
- Other courses on Asian 100-level or above

- for those taking Chinese or Japanese 12 s.h.
- for those taking Sanskrit 18 s.h.

Many students find a Program in Asian Studies major is conveniently combined with a major in history, political science, art, or religion, business, anthropology, or another discipline.

Students completing the major will satisfy the general education requirements in foreign civilizations and culture, foreign language, and 3 semester hours of the requirement in historical perspectives.

Chinese, Japanese, or Sanskrit

This program is intended for students who wish to achieve an ability to speak, understand, read and write Chinese or Japanese, or to "read Sanskrit; and to gain knowledge of the literature of China, Japan, or South Asia.

Majors are required to complete advanced courses distributed as follows:

For students of Chinese:
- 36:10-11 Second Year Chinese 12 s.h.
- 36:10-12 Third Year Chinese 12 s.h.
- 36:141-142 Chinese Literature: Poetry and Prose 8 s.h.

For students of Japanese:
- 36:10-11 Second Year Japanese 12 s.h.
- 36:10-12 Third Year Japanese 12 s.h.
- 36:141-142 Japanese Poetry 3 s.h.
- 36:142-143 Japanese Fiction 3 s.h.

For students of Sanskrit:
- 36:23-24 Second Year Sanskrit 6 s.h.
- 36:153-156 Third Year Sanskrit 6 s.h.
- 36:183 Indian Religious Texts 5 s.h.

*With the approval of the departmental advisor, students may substitute two of the following courses for Third Year Sanskrit:
- 36:133 History of Ancient and Traditional India 3 s.h.
- 36:154 Imperialism and Modern India 3 s.h.
- 36:158 Painting of India 3 s.h.
- 36:181 Art of India I 3 s.h.

Students are strongly urged to fulfill the general education requirement in historical perspectives by completing 11:50-56 Civilizations of Asia.

Graduate Admissions

Applications for admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 3.4 is required for conditional admission. Otherwise, applicants must submit a specimen of their writing—such as a term paper, senior paper, or graduation thesis—to the Department of Asian Languages and Literatures. All applications for graduate awards for the following academic year are due March 15. Applications for admission without support will be accepted until July 1. Applications for fall admission, December 15 for the spring semester. The Graduate Record Examination is required for all applicants and admission. All exams may be taken in the university branch of the Graduate Record Examination.

Research Facilities

Since 1960 the university library has been the home of all books on Asian languages and culture. The library's collection in the Chinese and Japanese languages is more than adequate for basic research; it includes approximately 10,000 books, periodicals, and microfilms. It is particularly strong in literature, history, art, and philosophy, and it is constantly being augmented by purchases of books and periodicals necessary for research in contemporary society. The library regularly acquires periodicals in Tibetan and in English.
Biochemistry

Department Head: Edward C. Heath
Degree offered: B.A., B.S., M.S., Ph.D.

Biochemistry is the study of the basic chemical processes which occur in all living systems. It is one of the most actively developing sciences, and promises to remain so for a considerable time to come.

Biochemists generally work in laboratories and/or classrooms. Those with the bachelor's degree are most often employed as research associates in laboratory work in a wide variety of situations in industry, government, education, health service, or in secondary school teaching, for which certification is also required.

Biochemists with advanced degrees—usually the doctorate—pursue teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, and government laboratories; and in the food, drug, cosmetics, chemical, petroleum, and allied industries as well as in recombinant DNA gene companies.

Bachelor of Science

The Bachelor of Science program in biochemistry prepares the student, upon graduation, to work as a biochemist in certain positions requiring no further formal training. It is also an excellent background for graduate study in biochemistry and related sciences, or professional degree work in health sciences.

In addition to the College of Liberal Arts general requirements, the Bachelor of Science degree in biochemistry requires:

- 2M: 25-26 Calculus I-III
- 2P: 35-36 Engineering Calculus I-III
- 29: 17-18 Introductory Physics I-III
- 37: 3 Principles of Animal Biology
- 2: 1 Introduction to Botany
- 61: 187 General Microbiology
- 61: 147 Survey of Immunology
- or:
- 3: 172 Environmental Science
- or:
- or:
- 4: 13 Principles of Chemistry I
- 4: 14 Principles of Chemistry II
- 4: 18 Principles of Chemistry Lab I
- 4: 121-122 Organic Chemistry I-II
- 4: 131 Physical Chemistry I
- 4: 132 Physical Chemistry II
- 96: 135 Physical Biochemistry
- 4: 141 Intermediate Chemistry Laboratory
- 96: 100 Seminar: Undergraduate
- 96: 102 The Chemistry of Biological Metabolism
- 96: 140 Experimental Biochemistry
- 96: 150 Biochemistry of Informational Macromolecules
- 96: 155 Research: Independent Study

Bachelor of Arts

In addition to the College of Liberal Arts general education requirements, the Bachelor of Arts degree in biochemistry requires:

- 2M: 25 Mathematics for the Biological Sciences
- 2M: 18 Calculus for the Biological Sciences
- 28: 11-12 College Physics
- 37: 3 Principles of Astral Biology
- 2: 1 Introduction to Botany
- 61: 187 General Microbiology

Other biological area:

- 4: 13 Principles of Chemistry I
- 4: 14 Principles of Chemistry II
- 4: 18 Principles of Chemistry Lab I
- 4: 121-122 Organic Chemistry I-II
- 4: 130 Physical Chemistry for Life Sciences

Other programs:

- 96: 100 Seminar: Undergraduate
- 96: 102 The Chemistry of Biological Metabolism
- 96: 140 Experimental Biochemistry
- 96: 150 Biochemistry of Informational Macromolecules
- 96: 155 Research: Independent Study

Advanced science electives

- 4: 18 Principles of Chemistry I
- 4: 14 Principles of Chemistry II
- 4: 18 Principles of Chemistry Lab I
- 4: 121-122 Organic Chemistry I-II
- 4: 130 Physical Chemistry for Life Sciences

Astronomy

See "Physics and Astronomy."

Biochemistry

See "Chemistry and Biochemistry."

Graduate Programs, Facilities, Courses

See "Biochemistry" in the College of Arts and Sciences section of the Catalog for descriptions of the department's graduate programs and facilities, and for its faculty roster and course offerings.
Biology

Coordinator: Eugene Special
Degrees Offered: B.A. & B.S.

The major in biology is designed to further students' understanding and appreciation of living organisms, and to prepare students for careers in which a detailed understanding of aspects of organisms is essential.

These careers include teaching, laboratory and field research and testing, clinical work, counseling, and administration in agricultural, environmental, and health sciences as well as numerous specialized and interdisciplinary areas. Potential employers include educational institutions, foundations, government agencies, publishers, industrial firms, hospitals, zoos, and museums.

Completion of an undergraduate major in biology generally prepares the student for work at a technical level, or for teaching secondary school (which also requires certification). It also prepares the student for entry into graduate or professional school in areas of biological science, medicine and other health professions, agriculture, environmental and conservation programs, and related areas.

Graduate or professional education is generally required for teaching positions in higher education, for independent clinical work, and for the direction of laboratory and field research.

Undergraduate Program

The biology major is jointly administered and taught by the departments of Botany and Zoology.

The basic courses emphasize processes which unite or are common to living systems, at molecular, cellular, organismic, and population levels.

Lower, though approximate selection of elective courses, students may follow their own interests by concentrating in such areas as genetics, development, physiology, ecology, microbiology, or courses which emphasize plant or animal systems.

Students interested primarily in field biology have ample opportunity for this emphasis through the program in ecology and evolutionary biology, and the program use of the Madrill Field Campus.

Also, a variety of courses is offered during the summer at the Iowa Lakeside Laboratory at Lake Okoboji.

The science requirements are identical for the Bachelor of Arts and Bachelor of Science degrees with a major in biology. They total 34 semester hours, as follows:

- 21:1 Introduction to Botany 4 s.h.
- 37:3 Principles of Animal Biology 3 s.h.
- *21:126 Fundamental Genetics 3 s.h.
- or
- *37:126 Fundamental Genetics 3 s.h.
- *21:126 Fundamental Genetics Laboratory 2 s.h.
- or
- *37:129 Fundamental Genetics Laboratory 2 s.h.
- *21:131 Evolution 4 s.h.
- or
- *37:131 Evolution 4 s.h.
- 37:10C Cell Physiology 4 s.h.
- Electives in botany, microbiology, zoology, or geology (12 s.h.),

The twelve elective hours must be in courses numbered 100 or above, excluding 37:135 A Plant in Crisis, 61:164 Microbiology, and all other courses directed primarily at non-science students and including no more than three semester hours in botany and zoology honors courses, and 2:153 Special Topics and 37:199 Introduction to Research. Students may substitute up to 4 semester hours of advanced courses in physical sciences (physics, chemistry, or geology courses numbered 100 or above that carry elementary course prerequisites and are directed at science students) or in mathematics (any course that requires first-semester calculus as a prerequisite). Such substitutions may not include any of the "requirements in other disciplines" listed below.

Requirements for the major in biology also include these courses in other disciplines:
- 4:13-14 Principles of Chemistry I-II 6 s.h.
- 4:18 Principles of Chemistry Lab I 2 s.h.
- 4:121 Organic Chemistry I 5 s.h.
- 90:120 The Chemistry of Biological Materials 3 s.h.
- 20:11-12 College Physics or 22:17-18 Introductory Physics I-II 3 s.h.
- 22M:25 Calculus I 4 s.h.
- or
- 22M:26 Calculus for the Biological Sciences 3 s.h.
- or
- 22M:35 Engineering Calculus I 4 s.h.
- 5W:10 Expository Writing 3 s.h.

Biology students planning to apply for admission to the College of Medicine must take a complete course in organic chemistry, with laboratory. This requirement may be satisfied by taking 4:121 Organic Chemistry I and 4:122 Organic Chemistry II plus 4:141 Intermediate Chemistry Laboratory I or by taking 4:151 and 90:120 The Chemistry of Biological Materials plus 90:140 Experimental Biochemistry.

Biology students planning to teach in high schools should consult with advisors in the College of Education concerning psychology, education, and American government courses required for teaching certification.

Minor

A minor in biology is available for students majoring in other subjects. The biology minor requires 18 semester hours of credit in botany, microbiology, zoology, or geology, and includes 12 semester hours in soil science or 12 hours in any of the biology courses taken at The University of Iowa and including at least 12 semester hours in 100-level courses, excluding those designed primarily for non-science students. Biology courses taken at other institutions or taken on a pass-fail basis will not apply toward requirements for the minor in biology.

Honors

The Honors Program in biology gives the superior student membership in a small, active group of undergraduates with common interests, and association with one of the departments' research groups. It introduces the student to the spirit of pursuing scientific experimentation, discussion of current research, with an specialized topics, attendance at research lectures.

Students in the College of Liberal Arts Honors Program may earn an honors degree in biology by completing at least 6 semester hours of honors course work in the departments of Botany and/or Zoology, including at least 2 semester hours in 2:198 Honors Laboratory Research or 37:195 Honors Laboratory Research at least 2 semester hours in 2:197 Honors Readings in Botany or 37:197 Honors Readings in Zoology, and at least 1 semester hour in 37:98 Honors Readings in Zoology or a graduate-level seminar. An honors internship, involving at least 3.5 grade-point average overall and at least a 3.3 average in the biological sciences, must be approved by the research supervisor, is required.

Graduate Programs

The departments of Botany and Zoology offer Master of Science degree programs in biology; for descriptions, see "Botany" and "Zoology" in this section of the Catalog.
Botany

Department chair: Jerry T. Schuller
Faculty professors: Robert W. Crum, Robert M. Matt, Jerry T. Schuller
assistant professor: Craig Thibodeaux
associate professor: William P. Seeman, Robert M. Schuller
associate professor emeritus: Henry L. Dees
associate professor: Jonathan A. West
adjunct assistant professor: Kenneth J. Ziemke
Teaching Fellows A.B., Ph.D. in biology, B.S., B.S., M.S. in biology, jointly with the Department of Zoology

Botany is a science contributing to our understanding of plants, their significance in the earth's biosphere, their structure, function, reproduction, diversity, evolution, ecology, and relation to human affairs. Training of professional botanists for teaching and research positions in college, universities, governmental agencies, and industrial firms is available. Students majoring in botany are often preparing to enter careers in fields related to the plant sciences, such as agriculture, forestry, horticulture, plant breeding, microbiology, the chemistry of natural products, ecology, medicine, environmental law, pharmacy, and zoology.

Bachelor of Arts

In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:

2/1 Introduction to Botany 4 s.h.
373 Principles of Animal Biology 5 s.h.
2128 Fundamental Genetics 3 s.h.

A minimum of one course from each of the following five areas (17-20 hours):

Structural Botany
2/113 Botany 4 s.h.

Physiology and Cell Biology
2/109 Plant Physiology 4 s.h.
2/110 Plant Physiology 4 s.h.
2/114 Cellular Plant Physiology 3 s.h.
2/126 Plant Anatomy 3 s.h.
37105 Cell Physiology 4 s.h.

Vascular Plant Diversity
2/11 Plant Diversity 4 s.h.
2/13 Biological of Local Flora 4 s.h.
2/151 Plant Taxonomy 4 s.h.
2/151 Field Botany 3 s.h.
2/120 Palaeobotany 4 s.h.
L105 Plant Taxonomy 5 s.h.

Evolution and Ecological
2/11 Botany 4 s.h.
2/116 Field Ecology 4 s.h.
2/151 Evolution 4 s.h.
2/122 Ecology 4 s.h.

Biological of Non-Vascular Plants
2/105 Physiolog 4 s.h.
2/106 Bryology 4 s.h.
2/107 Mycology 4 s.h.

One level course in Botany or a related science.

Chemistry
4/13 Principles of Chemistry I 3 s.h.
4/14 Principles of Chemistry II 3 s.h.
4/18 Principles of Chemistry Lab 2 s.h.
4/121 Organic Chemistry I 3 s.h.
4/122 Organic Chemistry II 3 s.h.
891/120 Chemistry of Biological Materials 3 s.h.

Mathematics
(One of the following)
2/232 Mathematics Techniques II 3 s.h.
2/236:15 Mathematics for the Biological Sciences 3 s.h.
2/236:20 Elementary Functions 3 s.h.
2/236:20 Calculus I 4 s.h.

Students preparing to teach in secondary schools should consult the "College of Education" section in the Catalog regarding requirements for teacher certification.

Honors
An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by professional staff members.

In addition to the regular requirements for the B.A. degree, honors students must complete 3 semester hours of research during their senior year, maintain the grade-point averages required for admission to the program, and pass an honors examination at the end of the senior year.

Biology Major

Students interested in majoring in biology may now have this alternative available to them. See "Biology" in this section of the Catalog.

Graduate Programs
An advanced degree enhances career opportunities in botany. The department offers advanced degree work in many subdisciplines. Graduate training frequently involves interdisciplinary study, and is some fields, such as genetics and ecology. It requires some coursework in cognate departments. Each graduate student is therefore advised a faculty guidance committee to help him or her set educational goals and plan the course requirements necessary to meet them.

Master of Science in Botany

The department offers the degree with specializations in anatomy, bryology, cell biology, ecology, genetics, development and morphogenesis, mycology, physiological, physiology, plant biochemistry, or taxonomy. The degree requires at least 30 semester hours of graduate study, including 6 semester hours in a 2298 Research in Botany. Preparation of a thesis is not required.

Each student must:
Submit a program of study to be approved by a graduate committee composed of two members of the graduate faculty, a member of whom may be from another department. Normally the prop-ram of study should be prepared during the first semester in residence as a regular graduate student.
Complete at least 12 semester hours of graduate courses in botany, as prescribed by the graduate committee.
No more than six semester hours of 2215 Research Botany and 2215 Thesis Botany may be included.
Achieve a grade-point average of 3.0 on all courses—other than Research—attempted up to the time of the final examination.

Take a written examination during the term in which he or she is to graduate. This is followed within a week by an oral examination. These examinations cover the courses and research experience the student has had up to this point.

Master of Science in Biology

A student who has been regularly admitted to the College of Arts and Science and the Department of Botany or the Department of Zoology may elect a course of study leading to the Master of Science degree in biology.

The degree requires at least 44 hours of graduate study without thesis, or 30 hours with thesis. Candidates for the degree without thesis must earn 44 semester hours of credit in research. Candidates for the degree with thesis must earn at least 36 semester hours of credit in research. Students can earn research credit up to a maximum of 12 semester hours by taking graduate courses in the College of Arts and Science.

Students who have completed the degree requirements may elect a program of study to be approved by the department in which the student is enrolled. The program must include at least 8 semester hours of graduate courses in each of the two departments, exclusive of research, and may include 6-10 semester hours taken in supportive areas including biochemistry, microbiology, geology, and mathematics.

The student must achieve a 3.0 grade-point average in all courses other than research. A grade of C in any course is not allowed. The student must also pass a comprehensive final examination covering the graduate program. For thesis candidates, there is also an oral examination, based mainly on the work reported in the thesis.
Doctor of Philosophy

The doctoral student may specialize in any of the areas of emphasis listed for the master’s degree in botany. The general requirements for the doctorate are the standard requirements established by the Graduate College. Upon admission to the Ph.D. program, a student must:

Submit a program of study toward the degree for approval by a graduate committee;
Take a qualifying comprehensive examination, at a time agreed to by the graduate committee, testing the student’s progress in understanding concepts and ideas in various divisions of botany, with some concentration in fields closely associated with the research specialty;
Submit a thesis to the Ph.D. final examination committee at least two weeks prior to the planned date of the final examination; and
Take the final examination, consisting of an oral defense of methods, results, interpretations, and conclusions presented in the thesis.

Graduate Admission

All prospective graduate students should be thoroughly familiar with the requirements of the Graduate College. Applicants should submit (1) satisfactory Record Examination (GRE) Aptitude Test scores with their applications. If the student has little or no training in botany or biology, some introductory coursework will be required in accordance with the academic needs of the individual. Such courses prescribed by the student’s graduate committee should be made up during the first year of graduate courses may be taken for reduced graduate credit.

Students entering with a B.A. or B.S. degree from an accredited college or university should:

Scores on the GRE verbal and quantitative tests adding up to at least 1100; A transcript of undergraduate record showing a grade-point average of 3.0 on all courses attempted equal to 3.0 and Letters of recommendation from at least three of their professors.

Students entering with an M.S. degree should:

Scores on the GRE verbal and quantitative tests adding up to 1200; A transcript showing a grade-point average of 3.4 on all courses attempted at the graduate level; and Letters of recommendation from at least three of their professors.

The numerical requirements listed above are not absolute. For example, a high level of academic achievement can compensate for a GRE score somewhat below the standard.

Special Facilities and Activities

There is an excellent departmental library in the Chemistry-Botany Building. Students conducting research projects requiring the cultivation of plants have access to greenhouses and special culture rooms with level beds in environments. A plant physiology laboratory is available, with associated greenhouses.

A number of research laboratories are equipped with standard and more sophisticated apparatus for research in growth regulation, photosynthesis, plant biochemistry, biochemical systematics, paleobotany, cytogenetics, ecophysiology, polination biology, morphogenesis, and cell biology. The two are two transmission electron microscopy in a special laboratory. Students and staff may use the Scanning Electron Microscopy Laboratory in the Bowen Science Building.

An herbarium for research and general study houses more than two hundred thousand specimens. These standard specimens include complete collections of seed plants from Iowa and the Midwest, research specimens from Mexico and Central America, the Conard herbarium of Bryophytes, and a growing repository of fossil plant fossils.

Within a few miles of the campus, a forest preserve is available for field trips and experimental projects. A biological field station at Iowa Lakeside Laboratory (see “Iowa Lakeside Laboranty’ in this section of the Catalog) is West Suburban Park, and other areas within town afford excellent conditions for summer study in field botany, ichnology, taxonomy, plant ecology, population biology, and plant taxonomy. Students frequently participate in field expeditions in Mexico, and Central America.

Qualified graduate students may use the University computing center in their research projects.

Courses

Primary for Undergraduates

3.1 Introduction to Botany

3.2 Plant Anatomy

3.3 Plant Physiology

3.4 Plant Physiology

3.5 Plant Physiology

3.6 Plant Physiology

3.7 Plant Physiology

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requirements in chemistry. These are the major requirements for the B.A. degree:
4.15-14 Principles of Chemistry I
4.16 Principles of Chemistry Lab I
4.17 Basic Measurement
4.52 Organic Chemistry I
4.12-13 Organic Chemistry II
4.11-12 Analytical Chemistry I
4.13-14 Analytical Chemistry II
4.14 Intermediate Chemistry Laboratory
4.15 Advanced Chemistry Laboratory I
4.25 Advanced Organic Chemistry I
4.26 Advanced Inorganic Chemistry II
4.17 Advanced Inorganic Chemistry I
4.17 Advanced Organic Chemistry I
4.17 Intermediate Physical Chemistry

These courses are recommended.

Teacher Certification

The chemistry courses required for the B.S. or B.A. degree satisfy the major requirements for teaching in secondary schools. Chemistry courses through organic chemistry satisfy the requirements for a teaching minor in chemistry (see the "College of Education" section of the Catalog).

Master of Science

The department offers the M.S. degree, with or without thesis, in analytical, inorganic, organic, and physical chemistry, and in chemical physics. Candidates for the M.S. degree are required to obtain minimum grades of C in three of the following courses or to meet the requirement by examination:
4.170 Advanced Inorganic Chemistry
4.171 Advanced Analytical Chemistry
4.172 Advanced Organic Chemistry
4.173 Advanced Physical Chemistry

Enterers will be given the opportunity to take examination examinations to demonstrate competence in the areas listed above. A minimum grade-point average of 2.5 is required for the master's examination.

Doctor of Philosophy

A program of study for the Ph.D. degree is the areas listed for the M.S. degree includes the courses required for the M.S. degree and courses in the major field of interest. Students must present a thesis covering the research. Students who have demonstrated the required competence in the four areas of chemistry and who have maintained a minimum grade-point average of 3.0 are admitted to the oral examination upon presentation and preliminary approval of their research proposal. A final oral examination is required of all candidates for the Ph.D. degree. The student must successfully defend the Ph.D. thesis and a manuscript of the publishable portion of the thesis before an examining committee.

Interdisciplinary Programs

The Department of Chemistry offers interdisciplinary programs in applied mathematical sciences and in chemical physics (see "Graduate College" section in the Catalog). Students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

Language Requirement for Graduate Students

The department requires graduate students majoring in organic chemistry to demonstrate reading competence in German.

Teaching Requirement for Graduate Students

The department requires all graduate students in chemistry to teach as part of their training.

Graduate Admission

An applicant for graduate admission should have a bachelor's degree in chemistry with a grade-point average above 3.0. Most of the graduate students who are admitted receive financial support, and application forms may be obtained by writing to the Department of Chemistry. Most assistantships and other appointments for the following academic year are filled by April 1, but there are occasional openings at the beginning of the second semester.

Facilities

The department is housed in a five-story building containing two auditoria, 5 lecture rooms, 15 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Modern scientific equipment is available for research. The department's excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemical and chemical engineering journals, and subscribes to a large number of current scientific journals.

Courses

Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 4.12, 4.14, and 4.15. Students requiring only one year of chemistry may take 4.7, 4.8, and 4.16.

4.00 Cooperative Education Internship

4.12 General Chemistry I

4.14 Introduction to basic concepts of chemistry for students who do not plan to take more than one year of chemistry.

4.16 General Chemistry II

4.14 Introduction to physical concepts and biochemistry for students who do not plan to take more advanced courses in chemistry. Prerequisite: 4.17 or high school chemistry.

4.18 General Chemistry Laboratory

4.18 Introduction to laboratory techniques for students taking 4.15. Prerequisite: or concurrent course.

4.18 Principles of Chemistry

4.18 Introduction to basic principles of chemical bonding and chemical reactivity. Prerequisite: 4.12 or high school equivalent.

4.18 Principles of Chemistry II

4.18 Continuation of 4.18. Prerequisite: 4.15 or 4.7.

4.18 Principles of Chemistry Lab

4.18 Introduction to laboratory techniques for students taking 4.18. Prerequisite: 4.18.

4.17 Biochemistry

4.18 Continuation of 4.17. Prerequisite: 4.15 or 4.7.

4.18 Principles of Chemistry Lab

4.18 Introduction to laboratory techniques for students taking 4.18. Prerequisite: 4.18.

4.172 Qualitative Analysis

4.172 Physical methods of qualitative analysis. Two lectures and one laboratory session weekly. Prerequisites: 4.17 and 4.171.

4.171 Analytical Chemistry I

4.171 Principles and methods of analytical chemistry with emphasis on quantitative analysis. Prerequisites: or concurrent course: 4.171.

4.172 Analytical Chemistry II

4.172 Principles and methods of analytical chemistry with emphasis on quantitative analysis. Prerequisites: or concurrent course: 4.172.

4.171 Organic Chemistry

4.171 Principles of organic chemistry. One lecture and one laboratory session weekly. Prerequisites: 4.17 and 4.171.

4.172 Organic Chemistry II

4.172 Principles of organic chemistry. One lecture and one laboratory session weekly. Prerequisites: 4.17 and 4.172.

4.173 Inorganic Chemistry

4.173 Principles of inorganic chemistry. One lecture and one laboratory session weekly. Prerequisites: 4.17 and 4.173.

4.175 Inorganic Chemistry II

4.175 Principles of inorganic chemistry. One lecture and one laboratory session weekly. Prerequisites: 4.17 and 4.175.

4.178 Physical Chemistry for Life Sciences

4.178 Physical principles and applications of thermodynamics, kinetic theory, and statistical mechanics to physical problems. Prerequisite: 4.17 and one semester of calculus.

4.179 Physical Chemistry II

4.179 Principles of chemical thermodynamics. Prerequisites: 4.12 or 4.18 and and one semester of calculus.

4.182 Physical Chemistry II

4.182 Principles of quantum chemistry. Prerequisite: 4.12 or 4.18 and and one semester of calculus.

4.183 Introduction to Spectroscopy in Quantum Chemistry

4.183 Introduction to the basic principles of quantum chemistry and its applications to chemical problems. Prerequisite: 4.120.
transmitted the culture of Greece to the
West. The candidate for a B.A. degree with a major in Latin must earn a minimum of 30 semester hours of major credit, of which at least 24 semester hours must be in Latin language courses. These courses, or their equivalents, are required:

- 20:1-2 Elementary Latin 6 s.h.
- 20:15 Latin Review 4 s.h.
- 20:16-17 Intermediate Latin 1-2 6 s.h.
- 20:21-23 Age of Cicero 3 s.h.
- 20:25 Age of Augustus 3 s.h.
- 20:171 Elementary Latin
  Composition 3 s.h.
- Two Latin language courses, 100-level or above 6 s.h.

**Major in Classics (Greek and Latin)**

The B.A. degree with a major in classics requires a minimum of 38 semester hours of major credit, of which 30 semester hours must be in Greek and Latin language courses. These courses, or their equivalents, are required:

- 14:1-2 Elementary Greek 8 s.h.
- 14:11-12 Second-Year Greek 8 s.h.
- 20:2-2 Elementary Latin 8 s.h.
- 20:18-19 Intermediate Latin 6 s.h.
- 14:121-122 Homer and Herodotus
  1-2 6 s.h.
- or 20:21 Age of Cicero 3 s.h.
- or 20:22 Age of Augustus 3 s.h.
- 14:171 Elementary Greek
  Composition 5 s.h.
- or 20:171 Elementary Latin
  Composition 3 s.h.

**Major in Ancient Civilization**

This major is sponsored by the School of Art and Architecture and the departments of Classics, History, and Religion. The major concentrates on the ancient civilization of the Mediterranean world and draws on courses currently offered by various departments of the University. It is not primarily a preparation for a graduate degree program; nevertheless, it could be used as a very sound base for preparation of teachers at the secondary and junior college levels. In addition to the normal college requirements for the B.A. degree, the following are the specific requirements of the major:

- Ancient art 8 s.h.
- Ancient history 8 s.h.
- Ancient philosophy or religion 6 s.h.
- Classics—either "Classics in English" courses, or Latin or Greek language courses 6 s.h.

Appropriate courses in art, history, philosophy, religion, or
Linguistics 5-6 s.h.

- 14:194 Senior Seminar in Ancient Civilization 3 s.h.

**Honors**

For exceptional seniors who attain a 3.5 grade-point average in their first three years of college studies, two courses are offered in honors reading, one each semester of the senior year, for 3 semester hours of credit each semester. The readings and discussions are on either an ancient author or a field in ancient history or literature chosen by the student and the instructor. During the first semester the student presents an essay every other week; at the end of the second semester the student presents a long paper which is examined by at least three members of the department.

**Language for Nonmajors**

Students wishing to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 14:1-2
Elementary Greek and 14:11-12 Second-Year Greek. Students who wish to meet the requirement by studying Latin may elect 20:1-2 Elementary Latin or 20:15

**Graduate Program**

For the general requirements of the Graduate College, including the comprehensive examinations, see the "Graduate College" section of the Catalog.

Graduate students in classics may include in their programs no more than 6 semester hours of courses numbered 101-199.

**Master of Arts**

The department offers the M.A. degree in Latin, Greek, or Classical Studies. The candidate must earn a minimum of 30 semester hours of major credit in courses numbered 101 and above. Normally, students in the Latin program who have had no Greek are also expected to include at least elementary Greek in their programs.

**Doctor of Philosophy**

The department offers the doctoral degree in classics. The candidate must meet these requirements:

- Ability to read and write Greek and Latin, as tested in qualifying examinations
- The reading of considerable portions of Greek and Latin literature as outlined on a reading list prepared by the student and his or her advisor and approved by the department

A tested reading knowledge of German and French

Passing written comprehensive examinations on ancient history, Greek, Latin literature, and a special field or author, together with a one-hour oral final examination

Writing and defending a dissertation embodying original research or interpretation of a classical subject

**Required courses are:**

- 14:204-205 Rapid Readings in
  Greek 6 s.h.
- 20:204-205 Rapid Readings in
  Latin 6 s.h.
- 14:173 Advanced Greek
  Composition 3 s.h.
- 20:172 Advanced Latin
  Composition 3 s.h.
- Ancient art above 200 level 3 s.h.
- 20:286 Sappho 3 s.h.
- 14:203 Hes-Eur-Philo Phili 3 s.h.
- 14:208 Greek Paleography 3 s.h.
- 14:281-292 Greek Seminar 6 s.h.
- 20:281-292 Latin Seminar 6 s.h.

**May be satisfied by examination.**

One of the seminars normally is taken after comprehensive examinations.

**Special Facilities**

Extensive collections of classical texts and periodicals in the University library and the art library facilitate research in the major areas of Greek and Roman civilization. The department has a varied collection of slides on classical subjects, and a small library. Associated with the department, the classical museum contains a valuable collection of coins, vases, and halluciae from bronze from Mycenean, Pompel and Herculanum.

The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vergilian Society thereby making their facilities available to its faculty and graduates.

**Courses**

**Greek**

For Undergraduates Only

- 14:111 Elementary Greek 4 s.h.
- Fundamentals of New-Testament Greek and basic concepts of Greek civilization.

- 14:121 Elementary Greek 4 s.h.
- Selections from Greek authors. Continuation of 14:11, which is prerequisite.

- 14:126 New Testament Greek 3 s.h.
- Fundamental concepts of New Testament Greek; practice in learning language of New Testament, but not expected, nor in classes with any other foreign language. Offered summer sessions.
**Communication and Theatre Arts**

**Department chair:** John W. Sowers  
Faculty: professors J. Darrell Ackerman, Samuel L. Barner, John W. Sowers, Colette Casella, Lewis Goff, Bruce C. Grothaus, Richard Havelkin, Robert D. Meier, Frank Miller, Denise J. Ooka, David Radek, David Thayer

**Profs:** Ronald A. G. Bryan, Hugh C. Vonderheide, Arnold Oliva, W. Clay Woodruff, Orville Hinchliff, Hugh P. Baskory, John Winn  
**Associate professors:** Charles L. Adams, Nancy L. Heuvel, George Klugner, John Luce, Michael Cottle, Judi Wilkins, Robert Pepper, Douglas Welty, Charles Mackenzie

**Assistant professors:** Julie Burke, Ann Chancellor, Robert Hush, Stewart Lowry, Charlotte MacIntire, Howard Miller, Elizabeth Menden, Paul Trush

**Instructor:** Sue Rudder

**Adjunct Faculty:** Jennifer Martin, James Wardenhouse

**Degrees offered:** B.A., M.A., M.F.A., S.B., M.T., M.A.T.

The Department of Communication and Theatre Arts is concerned with communication as a means of personal expression and development, with communication as the major means by which people adjust themselves to their society and society to themselves; with communication as the essential process for the operation of any society, especially the highly technological society; and with artistic work as well as functional communication. These concerns with communication are manifested in two ways: faculty attempts and attempts of the department's students to better understand communication processes, and to improve abilities to communicate effectively, whether as authors or directors, community leaders, supervisors, participants in a group, filmmakers, broadcasters, designers, playwrights, teachers, spouses, or parents.

The department has six major divisions, whose emphases and distinctive courses are described under the headings "Communication," "Communication Education," "Theatre Arts," "Theatrical Studies," "Communication Research," and "Broadcasting and Film."

**General Departmental Degree Requirements**

**Bachelor of Arts**

Regardless of area of specialization, a student seeking a Bachelor of Arts degree in the department must earn:

- A minimum of 24 semester hours in the department, including at least two courses outside the division of concentration.
- A minimum of eight semester hours of production/performance courses; and
- A minimum of eight semester hours of nonproduction/research/forensics courses in the department.

A student may specialize in communication, theatre arts, broadcasting, and film, or communication education. The additional requirements for these majors are offered in the division sections.

**Master of Arts**

A student can earn a graduate M.A. degree in the department or a more specialized degree either in one of the divisions or in some combination of divisions.

**Departmental requirements for the Master of Arts degree**:

A minimum of 30 semester hours, including 30-350 Introduction to Research or its equivalent;

A research thesis or, for the nonthesis degree, a graduate seminar involving significant original research;

Successful completion of a six-hour written examination, the scope of which is determined by the candidate's division and graduate committee; and

At least a 3.0 cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is February 1 preceding, for maximum probability of admission. The minimum cumulative undergraduate grade-point average required for admission in good standing is 2.5.

**Master of Fine Arts in Dramatic Art**

See "Theatre Arts" section.

**Educational Specialist (for Junior College Teaching)**

**Departmental requirements for the Educational Specialist degree are:**

A minimum of 60 semester hours, including 30-350 Introduction to Research; a course in the teaching of communication as approved seminar; and at least 19 semester hours completed in the College of Education and Social Sciences higher education; and successful completion of a research report.

A semester's internship in an assigned teaching position.

Satisfactory performance on a nine-hour written examination covering areas of learning agreed upon by the student and his or her graduate committee; and

Successful completion of such additional work as is specified by the departmental division in which the student's work is concentrated.
Majors must meet general departmental requirements. Of the 24 semester hours required, at least 15 must be in the Division of Communication. The department and division sponsor an internship program providing for non-credit work experience, and an active intercollegiate forensics organization. Internships provide opportunities to apply communication knowledge and skills in a variety of settings, e.g., advertising, public relations, organizational development, politics, personnel, research, and writing. In the forensics program, communication majors and minors have an opportunity to expand research skills, to develop improved listening habits, to work on methods for organizing and amplifying ideas, and to practice communication skills before audiences outside the classroom. Students may choose to work in debate or in a variety of individual events. Scholarships are available.

Courses

3610 Principles of Speech Communication 3 a.h.
3610 Principles of Public Speaking 3 a.h.
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3630J Senior: Speech Arts
   Studies in the analysis of speech arts, with special attention to the work of Aristophanes and Socrates.
3630K Senior: Communication, Culture, and the Popular
   Examines of ways in which cultural and communicative forces shape the popular arts and vice versa.
3630L Senior: Semiotic Audits
   Examination of major semiotic theories and the role of different kinds of communication and communicative artifacts.
3630M Senior: Broadcasts
   Studies in the theory of the media, and their ability to cater to the general population.

Broadcasting and Film

Professor in charge: Dufton Andrews, Fredric Miller, Robert Pepper

Degrees offered: B.A., M.A., Ph.D.

Bachelor of Arts

This program is intended for students interested in mass communications as the focus of a general liberal arts education or in broadcasting and film careers. The program assumes that anyone pursuing a career in film or broadcasting must not only acquire technical expertise, but also ground that expertise in an understanding of the media and their place in society. Conversely, it assumes that no one can understand the history, theory, and criticism of the media totally apart from the experience and knowledge of the students.

Students emphasizing production will learn how to write, plan, shoot or record, edit, and present film, radio, or television programs. In addition, they will obtain a background in the history of the media so that they understand the relationship to the industry's present state.

A grounding in media theory and criticism teaches the student to differentiate between good and mediocre programming, in appropriate ways to understand the complex and multifaceted field of broadcasting and film studies.

For non-production students, theories of aesthetics, sociology, and communication all come together in our discipline, making it an excellent place to study people and their institutions, aspirations, and creations.

In short, broadcasting and film major is one that vocationally concerned students and general liberal arts students interact constantly and profitably.

Requirements for a major in the division include 3600-3630 Introduction to Broadcasting and Film Production, a minimum of 6 semester hours of advanced production, a minimum of 9 semester hours of core-production courses (of which at least 6 must be 100-level courses or above), and two
courses from other divisions of the department. A total of 24 hours is required.

Graduate Programs

The Master of Arts degree emphasizes research in critical, theoretical, historical, and policy issues relating to broadcasting and film. M.A. candidates in film can earn a specialized degree in a plan of study balancing the artistic and scholarly aspects of the field. The Ph.D. programs in both broadcasting and film are individually tailored by each candidate and an advisory committee to develop competence in research.

Facilities

The broadcasting and film division is housed in the University's Television Center. The center houses fine broadcasting and film production facilities dedicated exclusively to instruction. A large television studio/ sound stage is equipped with modern television equipment, including color cameras. Students have the opportunity to use a variety of types of video and audio recording equipment in both studio and on-studio production settings, along with video as well as audio editing facilities.

The University's two radio stations, WUSP (AM) and KSFM (FM), offer facilities for radio production classes and independent study. A large pool of film equipment is also available for students in broadcasting and film courses. Film students can gain experience with a variety of cameras, sound and lighting equipment, editing equipment (including fields editing machines), and all film courses except the 1100 series use 16mm equipment. The University Library contains an outstanding collection of films and broadcasting materials.

Courses

380.32 Mass Media and Mass Society 3 sh.
Introduction to the theory and history of the mass media of communication, with emphasis on radio, television, and the movie picture. Same as 380.14.

380.35 Broadcasting and the Linear System 3 sh.
Principles and techniques of linear television transmission, including signal detection and transformation. Prerequisite: 380.32.

380.36 Broadcasting and Production 3 sh.
Survey of contemporary production and broadcasting techniques, with emphasis on a selected number of television and radio programs. Prerequisite: 380.32.

380.42 Film and Society 3 sh.
The role of the motion picture in contemporary society. Consideration of the nature and function of society, and the role of the individual in society. Prerequisite: 380.32.

380.60 History of Broadcasting and Film 3 sh.
Historical development of broadcasting and film production. Prerequisite: 380.32.

380.61 Television Production Workshop 3 sh.
Practices and techniques of contemporary television production and programming. Prerequisite: 380.32.

380.64 Radio Production Workshop 3 sh.
Practices and principles of contemporary radio production and programming. Prerequisite: 380.32.

380.65 Documentary and Nonfiction Film 3 sh.
Principles and techniques of nonfiction film and television production. Prerequisite: 380.32.

380.66 Audio/Visual Production 3 sh.
Principles and techniques of audio/visual production. Prerequisite: 380.32.

380.75 Television Production: Basic Techniques 3 sh.
Emphasis on the studio as a production facility, with emphasis on the equipment, technical operation, and production techniques. Prerequisite: 380.32.

380.14 Communications and Media Studies 3 sh.
Study of selected media on stage, screen, and networks; reception of messages; media criticism; media selection; communication strategies; statistics in media. Prerequisite: 380.15.

380.15 Communication and Mass Media Design 3 sh.
Study of mass media on stage, screen, and networks; reception of messages; media criticism; media selection; communication strategies; statistics in media. Prerequisite: 380.15.

380.27 Television Production: Studio Techniques 3 sh.
Emphasis on the studio as a production facility, with emphasis on the equipment, technical operation, and production techniques. Prerequisite: 380.32.

380.28 Television Production: Broadcast Techniques 3 sh.
Emphasis on the studio as a production facility, with emphasis on the equipment, technical operation, and production techniques. Prerequisite: 380.32.

380.32 Documentary and Nonfiction Film 3 sh.
Principles and techniques of nonfiction film and television production. Prerequisite: 380.32.

380.39 Broadcast Production 3 sh.
Principles and techniques of nonfiction film and television production. Prerequisite: 380.32.

380.42 Film and Society 3 sh.
The role of the motion picture in contemporary society. Consideration of the nature and function of society, and the role of the individual in society. Prerequisite: 380.32.

380.60 History of Broadcasting and Film 3 sh.
Historical development of broadcasting and film production. Prerequisite: 380.32.

380.61 Television Production Workshop 3 sh.
Practices and techniques of contemporary television production and programming. Prerequisite: 380.32.

380.64 Radio Production Workshop 3 sh.
Practices and principles of contemporary radio production and programming. Prerequisite: 380.32.

380.65 Documentary and Nonfiction Film 3 sh.
Principles and techniques of nonfiction film and television production. Prerequisite: 380.32.

380.75 Television Production: Basic Techniques 3 sh.
Emphasis on the studio as a production facility, with emphasis on the equipment, technical operation, and production techniques. Prerequisite: 380.32.

380.14 Communications and Media Studies 3 sh.
Study of selected media on stage, screen, and networks; reception of messages; media criticism; media selection; communication strategies; statistics in media. Prerequisite: 380.15.

380.15 Communication and Mass Media Design 3 sh.
Study of mass media on stage, screen, and networks; reception of messages; media criticism; media selection; communication strategies; statistics in media. Prerequisite: 380.15.

380.27 Television Production: Studio Techniques 3 sh.
Emphasis on the studio as a production facility, with emphasis on the equipment, technical operation, and production techniques. Prerequisite: 380.32.

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Emphasis on the studio as a production facility, with emphasis on the equipment, technical operation, and production techniques. Prerequisite: 380.32.

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380.64 Radio Production Workshop 3 sh.
Practices and principles of contemporary radio production and programming. Prerequisite: 380.32.
360-356 Social Impact of Mass Communication
360-357 New Communicative Processes and
360-358 Selected American Films and American
360-359 National Cinema
360-359 Film Criticism
360-359 Film Theory
360-359 The Screen and Film
360-359 Theatrical and Related Film Forms
360-359 The Street and Cinema
360-359 Theatrical and Related Art Forms
360-359 Research Methods in Mass Communication
360-359 Mass Communication Advertising
360-359 Mass Communication Production
360-359 Pre-enrollment in Theatre Arts courses requires special permission
360-359 Audition requirements and procedures for departmental productions usually vary from the first week of each term. Audition materials and information may be picked up at the Theatre Arts office, room N-2, E.C. Mables Theatre.

Degree Requirements

The following courses comprise the basic experience for all undergraduate theatre majors. These students who can demonstrate readiness/proficiency for higher level work may seek permission for advanced standing by notifying their advisor of their desire to do so. It is the responsibility of faculty in each interest area to set their own criteria of evaluation, and determine the student's qualification for advanced standing. Students wishing to be considered for special emphasis programs must seek the guidance of the undergraduate program chair.

Transfer Students

Students transferring to The University of Iowa from other accredited two-or four-year institutions must demonstrate that they have successfully completed coursework equivalent to the basic requirements before they may undertake advanced level electives or seek admission to a special emphasis program.

Minimum Requirements (required of all theatre majors)

360-356 Art of the Theatre (3 s.h.)
360-356 Theatre History I (3 s.h.)
360-356 Theatre History II (3 s.h.)
360-356 Acting I (3 s.h.)
360-356 Acting II (3 s.h.)
360-356 Directing I (3 s.h.)
360-356 Directing II (3 s.h.)
360-356 Stage Makeup (3 s.h.)

Bachelor of Arts

Undergraduate Program in Theatre Arts

The major in theatre arts provides a liberal arts education and preparation for professional or educational work in the theatre. The Bachelor of Arts degree provides a strong background in theatre art and dramatic literature with the major interest areas of acting, design, directing, playwriting, and theatre history. The program provides ample opportunity for performance experience and workshop activities. Students demonstrating special aptitude may participate in special emphasis programs in acting, directing, design, or theatre history and criticism.

Advising

Inquiries advising for theatre arts majors should be directed to the undergraduate program chair. The undergraduate program chair will assign the student a faculty advisor in that area. Although an advisor is necessary for enrollment, no student is required to accept any advisor, and may request a change at any time by consulting with the professor in charge of theatre arts. Faculty advisors also have this right to request a change.

Design Emphasis

Pre-enrollment in many theatre arts courses requires special permission.
subcultures? How are lingustic and nonlinguistic symbols expressed in various media? What are the effects of lingustic and nonlinguistic symbols on attitudes and behavior? What evaluative criteria are appropriate for various classes of symbol using behavior? Diversity methods are appropriate for the study of communication. The scientific approach includes hypothesis generation, theory building, measurement, and other standard features of social science. Communication also can be studied with the critical and creative tools of Historians and philosophers. The undergraduate program requires a minimum of 27 semester hours of major credit to be earned in consultation with an advisor in order to emphasize multidisciplinary approaches to communication. Four courses are required for all majors:

122:101 Introduction to Linguistics 3 s.h.
122:80 Communication and Contemporary Culture 3 s.h.
122:81 Mass Media and Mass Society 3 s.h.
or
122:82 Communication Theory in Everyday Life 3 s.h.
122:100 Cultural and Historical Foundations of Communication 3 s.h.
or
122:103 Social Scientific Foundations of Communication 3 s.h.
122:98 Senior Seminar 1-3 s.h.

Courses
122:80 Communication and Contemporary Culture 3 s.h.
122:81 Mass Media and Mass Society 3 s.h.
122:82 Communication Theory in Everyday Life 3 s.h.
122:98 Senior Seminar 1-3 s.h.

Communication Studies

Program chair: John Walla Bowers
Faculty: Associate professor Adam Wirth Bowers (Communication), Harvey R. Giddens (Communication), Robert R. Winters (Communication), Barbara S. McDermott (Communication)
Degree offered: B.A.

In communication studies, the phenomenon of primary interest is interpersonal symbolic behavior. Important questions include: How do we learn to use symbols? How do symbols usage differ across cultures and

Comparative Literature

Program chair: Rolf E. Kusiel
Faculty: Associate professor Adam Andrew, Steven Delignil, Paul Hooten, Rolf E. Kusiel, Donald Haim, Adam P. Magid, and associate professor Charles P. Atanas, R. C. Kusiel, Maureen Robinson, Steven Upsal, Daniel Wasternak, and Assistant professor Thomas E. Lewis, Geoffrey West

Faculty assisting in the program: In addition to its own faculty, the Program in Comparative Literature calls upon the service of the students in various other areas, including Classics, Asian Languages and Literatures, Comparative and Transcultural Studies, English, History, Latin American Studies, Near and Middle Eastern Studies, English, Spanish and Portuguese, and Russian.

Degree offered: B.A., M.A. Ph.D.

The program in Comparative Literature presents literature as an undisciplinary and interdisciplinary study and provides a basis for innovative work in literature, literary theory, and critical method.

Bachelor of Arts

The undergraduate major in comparative literature provides an individualized program of literary and interdisciplinary study designed to promote cultural awareness, increase skills of expression, and develop capacities for systematic reasoning. Students who major in comparative literature may expect to acquire training in foreign language, to gain an international perspective on literature, and to become acquainted with the interdisciplinary approaches that characterize cultural study. Therefore, in conjunction with an appropriate major curriculum, it can offer effective preparation for professional studies in fields such as law, medicine, and business. It is also suitable preparation for graduate work in the humanities.

The successful pursuit of comparative literature requires study of a foreign language and literature in their historical context. Further, knowledge and understanding of literature extend beyond national boundaries and this is true of the relationships between literature and other cultural processes. Students explore the relationships among literatures, between literatures and other arts (such as film, art, history, or translation) and by theoretical inquiry concerning the nature of literature itself.

Majors in comparative literature do not proceed through a strictly prescribed common curriculum toward the B.A. degree. Working closely with faculty advisors, students develop coherent, individualized programs of study that reflect their interests and developing skills.

In addition to completing general education requirements for the B.A. degree, majors complete a minimum of
Comparative Literature/LIBERAL ARTS

36 semester hours in courses distributed as follows:

Comparative Literature
48:40-41 Major Texts of World Literature 3 s.h.
48:65 Seminar in Comparative Literature 3 s.h.
48:100 Introduction to Critical Problems 3 s.h.
Two elective comparative literature courses at the 300 level 6 s.h.

Foreign Literature
Courses in one foreign literature (read in the original language) beyond those courses taken to satisfy the general education requirement in foreign language: 9 s.h. (one course in composition and conversation may count toward the major).

Related Areas
Courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature: 9 s.h.

Master of Arts
The degree of Master of Arts in comparative literature requires 36 semester hours of study in literature of an international context, concentrating on two or more national traditions and on the theory and study of literature in general. The student, in consultation with faculty advisers, combines courses in the program and in the individual allied departments to design a coherent course of study.

Formal degree requirements may be satisfied by a written examination on reading lists agreed upon by student and adviser, or by a written thesis and oral examination on the thesis and its relation to problems and issues in comparative literature. The M.A. may also be awarded after 45 semester hours of graduate study with a grade-point average of 3.50, and successful completion of the comprehensive examination for the Ph.D.

Doctor of Philosophy
Students seeking the doctorate in comparative literature study at least three literatures, concentrating in one in historical depth, and two others in limited areas of specialization. An interdisciplinary area of concentration is encouraged. All candidates devote a portion of their programs to comparative study that brings the several areas into focus. Specific areas and interrelations of these areas are chosen by the student in consultation with appropriate faculty members.

Some typical critical and comparative areas are:

- European Renaissance
- Romanticism
- Structuralism and post-Structuralism
- Narrative theory
- Symbolist poetics and modern literature
- Post-Kantian philosophy and literature
- Satire, rhetoric, and the theory of social interaction
- Literature, history, and criticism
- The Ph.D. dissertation should demonstrate the candidate's ability to write a substantial piece of scholarship that is original or critical. A translation of a work of significant significance and logical complexity, preceded by a critical introduction, may be acceptable as a dissertation. The oral examination centers on the dissertation and its background.

Admission
A study of literature across linguistic boundaries requires special training in languages. A thorough knowledge of at least one foreign language is required for admission to the M.A. course of study; knowledge of at least two foreign languages is a prerequisite for doctoral study.

For further information, consult the procedural guide for graduate students in comparative literature, available by request from the program office.

Courses
48:40 Major Texts of World Literature 3 s.h.
Reading and analyses of major literary texts from Human to the Renaissance in chronological sequence, emphasis on the Internationalism of Structure and history. Same as 48:41.

48:41 Major Texts of World Literature II 3 s.h.
Reading and analyses of major literary texts from the Renaissance to the medieval period in chronological sequence, emphasis on the internationalism of literature and history. Same as 48:40.

48:60 Introduction to Film Analysis 3 s.h.
Methods of analyzing various kinds of films; with emphasis on "classic" works from the American and European traditions. The course aims to develop the ability to see "the whole" of a film, and include shots by-shot breakdowns, narrative sequence, source and genre. Same as 60:54.

48:65 Seminar in Comparative Literature 3 s.h.
Courses taken with focus on a single text or critical problem; course content varies to reflect current interests and regular teaching faculty: students will develop independent research projects.

48:69 Hours Toward 18 s.h.

48:78 Individual Studies 6 s.h.

48:100 Introduction to Critical Problems 3 s.h.
Methods and methods courses providing an introduction to a variety of critical approaches. Same as 100.

48:108 European Literature of the Hundred Years 3 s.h.
European literature of the Hundred Years in internal and international perspectives on literary movements, works, and styles before the 15th century. Same as 108.

48:110 Library Seminar in European Literature 3 s.h.
Course of 1115. Same as 110.

48:118 History and Theory of Translation 3 s.h.
Survey of the tradition of translation, primarily from the 15th century to the present; emphasis on the development of ideas about translation from the ancient period to the present day, including key contemporary areas. Same as 118.

48:123 Comparative Studies in Poetry 3 s.h.
Same as 123.

48:150 Modern Poetry and Prose 3 s.h.
Same as 150.

48:158 Contemporary Poetry in Fiction 3 s.h.
Same as 158.

48:210 Literatures and Society 3 s.h.
Same as 210.

48:211 Literatures and Anthropology 3 s.h.
Same as 211.

48:255 The Literary Text 3 s.h.
Examination of canonical and less well-known works of literature and of social and cultural contexts in which they were written. Students develop two 250-level courses. Same as 255.

48:300 East-West Literary Studies 3 s.h.
Same as 300.

48:301 Romance Studies 3 s.h.
Same as 301.

48:317 Literary and Psychological 3 s.h.
Study of central literary and psychological themes from a variety of chronological periods. Same as 317.

48:344 Dynamics of Past Political Studies 3 s.h.

48:417 Literature and Art 3 s.h.
Same as 417.

48:430 Augustan to Rococo 3 s.h.
Same as 430.

48:482 Taste and Romance Poetry 3 s.h.
Same as 482.

48:520 Renaissance and the Baroque 3 s.h.

48:522 Romanesque Literature 3 s.h.

48:540 Renaissance 3 s.h.

48:560 Transition Workshop 3 s.h.
Prerequisites: least one second-year modern language and permission of instructor. Same as 560.

48:561 History of Comparative Literature 3 s.h.
Survey of the history of comparative literature from Human to the Renaissance and Internationalism to the age of Romanticism. Same as 561.

48:562 History of Criticism 10 s.h.
History of literary theory from classical antiquity through Renaissance and Internationalism to the age of Romanticism. Same as 562.

48:563 Issues in Contemporary Criticism 3 s.h.

48:567 Problems of the Renaissance 3 s.h.

48:574 Theory of Poetry 3 s.h.

48:578 Reaction to Asian Poetry 3 s.h.

48:579 Theory and Practice of Oral Literature 3 s.h.
Experiments in oral composition among various cultures in modern and medieval worlds. Same as 579.

48:580 Etruscan Literature 3 s.h.

48:581 Greek Literature 3 s.h.

48:582 Roman Literature 3 s.h.

48:585 Medieval Literature 3 s.h.

48:586 English Literature 3 s.h.

48:590 English Literature 3 s.h.

48:591 German Literature 3 s.h.

48:592 French Literature 3 s.h.

48:593 Spanish Literature 3 s.h.

48:594 Italian Literature 3 s.h.

48:595 British Literature 3 s.h.
Economics

Department chair: Donald N. McCalley
Finance: Professor William Atwell, Bernard Baron, "Mr. Peter" James; Jeffrey; Hannah Joseph; Mitchell (Dean) Professor; Donald N. McCalley, Bernard McQuade, Thomas Price, Larry Spilimberto, "Mr. G." Yee
Accounting: Anthony Capristo, Paul Olson, Richard Portocarrero, Jack Reinhart, Joseph Stoffel, Frank Zanetti, Raymond Zisman, Samuel Weltman
Assistants: Charles M. Michael, George A. S. McConnell, Raymond Zisman, John Stoffel, Charles Weltman
Degrees offered: B.S., B.B.A., M.A., Ph.D.

Economics is concerned primarily with the analysis and description of the production, distribution, and consumption of goods and services in society. It involves the systematic study of topics such as wealth and poverty, money and banking, income and consumption, government expenditure and taxation, prosperity and depression, inflation and unemployment, and hundreds of other matters which intimately affect the way people live.

The Department of Economics teaches students how complex economic systems work and underlines to train them in methods of economic analysis that can be applied to a broad set of economic problems. The department offers a wide array of course work to meet the needs of the nonmajor as well as the major.

Undergraduate Programs

The bachelor's degree programs in economics provide an excellent background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations, and in federal, state, and local government agencies dealing with economic policy, regulations, and analysis. Economics is also considered excellent preparation for law school for undergraduate study in such fields as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and electricity.

The department offers three undergraduate degrees--the Bachelor of Science and Bachelor of Arts in the College of Liberal Arts, and the Bachelor of Business Administration in the College of Business Administration. The B.A. and B.B.A. have similar major requirements, but their course requirements differ. The B.B.A. program is designed to provide a background in the business fields of accounting, finance, marketing, business law, and management. The B.S. program is designed to prepare the student for graduate work in economics or related business and technical fields. The B.A. program is designed for the student seeking a less technical liberal arts background.

Bachelor of Arts

These are the requirements for the B.A. degree with a major in economics:

22:35 Elementary Statistics and Inference 3.0

22:7 Quantitative Methods I 4.0

22:8 Quantitative Methods II 4.0

Twenty semester hours of credit in 600- level economics courses, including 6E:105 Microeconomics and 6E:106 Macroeconomics.

Most 1000-level courses in economics have no prerequisites except either E1 Principles of Economics and E6:2 Principles of Economics, or senior standing. E6:1 and E6:2 satisfy the general education requirement in social sciences.

Credit gained in 6E:100 Price, Employment, and Protection Theory cannot be counted toward the 20 semester hours of 1000-level economics course credit required for the B.A. degree.

Bachelor of Science

The B.S. program in economics requires these courses and electives:

22:25-26 Calculus I-II


Two semester hours of 1000-level economics courses, including 6E:103 Microeconomics, 6E:105 Macroeconomics, and 6E:184 Methods of Quantitative Economics.

Credit gained in 6E:100 Price, Employment, and Protection Theory or 6E:182 Statistical Methods in Economics cannot be counted toward the required 20 semester hours of 1000-level course credit.

Minor

A student is the College of Liberal Arts may complete a minor in economics by earning at least 18 semester hours of credit in courses offered by the Department of Economics, including at least 12 hours in courses numbered 100 or above. Students interested in an economics minor should obtain information concerning course selection from the department office.

Computer Science

See "Mathematical Sciences."

Dental Hygiene

See "College of Dentistry."

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Honors
Undergraduate students working toward the B.A. or B.S. degree with a major in economics are eligible to participate in the Honors Program in Economics. The Honors Program offers the highly achieving student an opportunity to pursue special research interests. Honors students must complete four 100-level economics courses, including EIE103 and EIE105, before the senior year. They must also register for EIE157 Senior Thesis in Economics for three hours of credit both semesters of the senior year, complete a senior thesis under direction of an economics faculty member of professional rank, and take (during the final semester of the program) an examination covering their departmental honors work. A student satisfactorily completing the honors Program receives his or her degree "with honors.

Bachelor of Business Administration
The program for the B.B.A. degree is described in the "College of Business Administration" section of the Catalog.

Course Work for Nonmajors
Departmental course EIE1-2 Principles of Economics satisfies the College of Liberal Arts general education requirement in social sciences, and provides an introduction to specialized topics of upper-division courses. Students with limited background in economics may examine the economics behind critical issues and take EIE1-2 Contemporary Economic Problems and Policy.

Course work in economics can be related to majors in many other fields—for example, environmental studies majors might take EIE133 Economic Growth and Environmental Decay and EIE103 Microeconomics; political science majors might take EIE119 Economics of the Government Sector and EIE141 Economics of American Industries. A number of students combine related interests by pursuing double majors in economics and in fields such as computer science, geography, history, mathematics, political science, sociology, or statistics.

Graduate Programs
The department offers Master of Arts and Doctor of Philosophy degree programs. Each program has a separate theory and quantitative core enhanced by a set of field courses.

The M.A. degree program is designed to provide students with a strong foundation in economics, without the requirement of specialization. Students in the M.A. program usually complete it within 18 months.

Within the M.A. program, the department offers concentrations in economic development, econometrics, economic history, health economics, history of economic thought, industrial organization, international economics, labor economics, economic theory and mathematical economics, monetary economics and policy, public finance, and regional and urban economics.

The Ph.D. program is designed to provide students with rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years.

Special Seminar
Each year the department offers a seminar program involving eminent economists from other universities and government, as well as presentations by faculty and student members of the department.

Courses Primarily for Undergraduates
Note: EIE1 and EIE2 may be taken in either order or concurrently, but should be taken simultaneously; they satisfy the general education requirement in social sciences.

EIE100 Cooperative Education Training Internship 6 sh.

EIE11 Principles of Economics 4 sh.
Organization and functions of modern economic systems. Role of society and the individual in a market oriented economy. Private and public choice. National income and product accounting; international trade. Prerequisite: satisfactory performance on University entrance examination.

EIE12 Principles of Economics 4 sh.
National income and product analysis, employment and income, money and credit, government finance, monetary and fiscal policy, economic growth and development. International finance. Prerequisite: satisfactory performance on University entrance examination.

EIE133 Economic Growth and Environmental Decay 3 sh.

EIE15 Contemporary Economic Problems and Policy 3 sh.
Emphasis on interpretation and analysis of current economic events, problems, and policy issues. Not open to students who have taken EIE101 or EIE103.

EIE166 Passing Internship 3 sh.
Open only to students participating in the Washington Internship Center for Learning Achievement. May be taken up to two times for a maximum total of 6 hours. Prerequisite: consent of instructor.

EIE191 Internship, Employment, and Production Theory 3 sh.

EIE200 Microeconomics 4 sh.
Introduction to the theory and policy determination under various conditions: national income analysis, employment, growth, monetary and fiscal policy, alternative economic systems. Accelerated introduction to principles of economics, not open to students with previous economic courses. Prerequisite: senior or past graduate standing.

EIE213 Econometrics
Econometric theory of consumer behavior, producer behavior, and role of markets in coordinating economic decisions; conditions for efficient resource allocation by the market mechanism. Prerequisite: satisfactory performance on University entrance examination.

EIE230 National Accounts 3 sh.
Measurement of national product, consumption, income, and distribution of income. Problem of valuation of services, measurement of income flows, and measuring the effect of inflation. Prerequisite: EIE11 and EIE103 or senior standing.

EIE264 Labor Economics 3 sh.
Introduction to labor market behavior of workers and employers; labor supply decisions made by workers; labor demand decisions made by firms, and resulting patterns of employment and wage changes; economic pressure of unions, causes of unemployment, and policies for labor market intervention. Prerequisite: EIE11 and EIE103 or senior standing.

EIE271 Health Economics 3 sh.
Structure of America's medical care industry; applications of economics to public health; health care financing and delivery systems; the economics of medical care, the role of physicians and public health professionals. Prerequisites: EIE111 and EIE111 or consent of instructor.

EIE281 Money and Banking
Monetary institutions, theory, practice, and policy with respect to the role of money in the determination of income, employment, and prices in domestic and world economy. Prerequisites: EIE11 and EIE103, or senior standing.

EIE289 Economics of the Government Sector 3 sh.
Economic functions of government in output, income distribution, economic development, and stabilization of national economy; government's role in the definition of fairness and efficiency in economic transactions; the role of prices and government policies. Prerequisites: EIE11 and EIE103, or senior standing.

EIE293 Political Economy of the Military-Industrial Complex
Basic research literature on the theory of the "military-industrial complex," concentrates these views on why the American military establishment is so influential and expands these studies along lines of how the military establishment gains its power and how the country's economic growth and stability are affected. Prerequisites: EIE11 and EIE103, or consent of instructor.

EIE295 Political Economy of the Military-Industrial Complex
Basic research literature on the theory of the "military-industrial complex," concentrates these views on why the American military establishment is so influential and expands these studies along lines of how the military establishment gains its power and how the country's economic growth and stability are affected. Prerequisites: EIE11 and EIE103, or consent of instructor.

EIE297 Natural Resources in the World Economy and Conflict 3 sh.
Economics issues concern with the "new wars," the resource aspects of national and international security issues, and the relations between economic conditions, military readiness and military expenditures and economic growth, stability and international conflict. Prerequisites: EIE11 and EIE103, or senior standing.

EIE298 Economic Development: International Aspects 3 sh.
Aims and techniques of understanding Third World countries: examination of theories and policies of economic development in the Third World and in advanced economies. Prerequisites: EIE11 and EIE103.

EIE302 Land and Agricultural Policy
Examination of major elements in the land policy area. Describes social, economic, legal, and institutional factors affecting the land policy area. Prerequisites: EIE11 and EIE103.

EIE303 Economics Growth and Environmental Decay 3 sh.
Change and determinants of economic growth in developed countries; pollution, resource and energy utilization, or economic growth, measurement of national income and product, valuation of non-income factors, measurement of environmental impact and value problems; policies for environmental quality and environmental regulation. Prerequisites: EIE11 and EIE103, or senior standing, or consent of instructor.

EIE306 Economic Development in the Third World: Industrialization, urbanization, and relocation policies, measurement and assessment of economic policies. Prerequisites: EIE11 and EIE103, or senior standing, or consent of instructor.
06.0504 Monetary Theory
2.5 h
Opinion on monetary theory, monetary theory, monetary theory, and monetary theory. The analysis of the economic effects of interest rate changes and the economic effects of the effect of interest rate changes on the economic, financial, and monetary environment. Prerequisites: consent of instructor.

06.3101 Labor Economics
2.5 h
General review of current research trends in labor economics. An overview of the economics of labor markets, labor markets, labor markets, and labor markets. Prerequisites: 4B.205, 4F.291.

06.3115 Health Economics
2.5 h
Econometric analysis of health care issues. Topics include health care policy, health care policy, health care policy, and health care policy. Prerequisites: 4B.205, 4E.290.

06.3200 Economic History of the North American Economy
2.5 h
A survey of the long-term growth patterns of American economic growth. The development of economic growth, development of economic growth, development of economic growth, development of economic growth, development of economic growth. Prerequisite: consent of instructor.

06.3201 History of Economic Thought
2.5 h
An analysis of the economic thought of the five main schools of thought, the economic thought of the five main schools of thought, the economic thought of the five main schools of thought, the economic thought of the five main schools of thought. Prerequisites: 4B.205, 4E.291.

06.3206 European Economic History
2.5 h
An analysis of the long-term growth patterns of European economic growth. The analysis of the long-term growth patterns of European economic growth, the analysis of the long-term growth patterns of European economic growth, the analysis of the long-term growth patterns of European economic growth, the analysis of the long-term growth patterns of European economic growth. Prerequisites: 4B.205, 4E.291.

06.3211 Industrial Organization
2.5 h
Current issues in industrial organization. The study of market structure and market behavior. Prerequisites: 4B.205, 4E.291.

06.3217 Regional and Urban Economics
2.5 h
Regional and urban economics. The analysis of regional and urban economics, the analysis of regional and urban economics, the analysis of regional and urban economics, the analysis of regional and urban economics. Prerequisites: 4B.205, 4E.291.

06.3221 Advanced Graduate Seminars
2.5 h
Advanced graduate seminars. Prerequisite: consent of instructor.

06.3225 Education
2.5 h
See "College of Education."
In conference with their academic advisors, students work out programs of study designed to satisfy their curricular interests and secure their more distant goals. Many begin with courses emphasizing close reading of poetry, fiction, drama, and expository or argumentative prose. Later they study particular literary forms and the literature and culture of selected historical periods.

English majors enroll in courses in a diverse subject such as folklore, literature and film, or printing and book-design. They may also study the history and structure of the English language, or they may do major work in either imaginative writing (poetry, fiction, and drama) or functional writing (exposition or argument is the focus of journalism, business, science, or the arts).

To histrionics their understanding of literature, English majors are encouraged to choose elective courses from such fields as history, classical or modern reviews in literature, speech, and the fine arts. Students planning to teach in primary or secondary schools will add appropriate courses in education. Those seeking careers in other fields may elect courses in business pre-law, or the sciences.

As soon as students decide to undertake an English major, they should consult the director of undergraduate study in the English department office, who will advise them in choosing courses. In the English office, too, they may obtain information on the English major, and other printed material in English, programs, courses, and special events.

Minor

A minor in English requires 16 semester hours in English Department of English courses. Twelve of these hours should be in advanced courses (311 and above) in English literature, creative writing, or English play. General education requirements do not contribute toward the minor in English.

Honors

The English major with honors is designed to encourage talented students to explore a wide range of literary experience and to achieve mastery of English literature. Until the junior year, an honors student takes a specialized program in the major. The examination qualifies the student to continue in the major. At the end of the second semester of his or her junior year, the student was able to complete all the paper, either critical or creative, which is advised by any faculty member and evaluated by the honors committee. Honors study is planned in consultation with the course instructor, honors advisor, and members of the honors committee. The sequence and content of the course are adapted to the student's needs, but students interested in earning honors in English are urged to consult the chair of honors as soon as possible.

Creative Writing

Many undergraduates come to the University of Iowa because of the excellence of its creative writing program. With the consent of the advisor, any student may elect the undergraduate courses in this program. These are ENG 23 Creative Writing, CM 131 Fiction Writing, and CM 132 Poetry Writing.

Admission to the undergraduate workshops in fiction and poetry (ENG 23 Undergraduate Writers Workshop: Fiction and ENG 23 Undergraduate Writers Workshop: Poetry) is only by application of the instructor, whom the student who wishes to take part in these workshops must submit a sample of their poetry or fiction to the Writers Workshop no earlier than a week before registration, and no later than the last day of registration.

English and Education

The department offers a flexible undergraduate program for students planning to teach English in elementary and secondary schools. Students completing this program satisfy the requirements for a general major in English and for teaching certification. Students who wish to be certified to teach English in secondary schools should select courses which follow the state guidelines for teachers of English. It is graded seventh through twelve.

Literary study for those planning to teach English should emphasize a range of close-reading experiences in different kinds of literature. Each of the four quarters of English literature of the ancient world, Shakespeare, British literature of the nineteenth and twentieth centuries, American literature, literature of literature of children, and literature of American ethnic groups, literature by women, folk literature, and literature, as well as modern methods for exploring a literary text. Students planning courses which will help them in their first teaching experiences should remember that they will have to work with details of expression in English.

They will need advanced training in writing — composition, poetry, and fiction are all important — because these courses will help students understand and utilize linguistic, meterical, and stylistic devices in various kinds of writing.

They will need to understand the nature of the English language, including syntax, phonology, and semantics, because this knowledge should help students understand language development and use language can be adapted to meet various speaking and writing situations.

Since communication also occurs visually, students should explore the relationships between written, oral, and visual media.

Finally, students should explore the processes of reading, from the first acquaintance with the initial stages of learning to the advanced stages when a reader comes to a complete understanding and respond to details of meaning and nuances of expression.

All these areas of study can be satisfied by courses within the department except the exploration of the processes of reading. That area can be satisfied by courses in the College of Education.

Prospective English teachers should remember that an undergraduate degree represents only minimal training, so they should plan a program which will permit graduate study at a later time.

English majors seeking teacher certification must plan with their advisor appropriate courses to be taken concurrently with courses in English. In addition, they must complete one semester of the senior year to professional training apart from any other course work.

The department also participates in a joint major in English and elementary education. Those interested in such a program should consult their advisor in elementary education.

Students who seek certification for secondary teaching in fields other than English may seek minor certification in English. This is particularly appropriate for students planning to teach English in high school, or elementary school. This student must complete 20 semester hours of English, excluding freshmen courses in rhetoric, speech, or writing.

The English minor certification program must include a course in each of these areas: advanced composition, literature, linguistics, Shakespeare, American literature of the eighteenth and nineteenth or twentieth centuries. In addition, 20 semester hours of English, the student is required to take 25-150 English: Methods of English in the College of Education's Division of Secondary Education.

While this program meets minimum requirements for certification, the department does not consider it a "desirable" to teach English should have considerably more training in the field.

Graduate Programs

Master of Arts in English (Literary Studies)

This program offers an introduction to the professional study of literature. It provides a general knowledge of the periods, movements, and major works of English and American literary history, as well as expanded sensitivity to artful language as a medium of expression. Each student, in consultation with an
Doctor of Philosophy
The Ph.D. program is designed as preparation for the teaching, publishing, and research required of college- and university faculty members. The doctorate requires 72 semester hours of graduate credit, of which at least 30 must be earned in residence at The University of Iowa.

Concentrations are possible in areas of literary history, literary criticism, writing, rhetorical theory and stylistics, folklore, bibliography, pedagogy, comparative literature, and linguistics.

Requirements for the Ph.D. include:
- Formal addition to candidacy by a vote of the department.
- Demonstration of a high level of competence in two foreign languages or mastery of a single foreign language and its literature.
- Distributed course work in specified historical areas, two seminars.
- A part-written, part-oral comprehensive examination in three areas, one of which must be a historical period of English and American literature.
- A dissertation, which may be either a scholarly work or a piece of imaginative writing.
- A final examination in defense of the dissertation.

All doctoral candidates are required to gain approval of their dissertation in the rhetoric and literature core programs of the College of Liberal Arts.

Interested students should write to the department's director of financial aid and for information on graduate fellowships and teaching assistantships. Aid is awarded on a competitive basis. Since sources are limited, normally less than half the new doctoral students receive aid. Most, but not all, advanced doctoral students are supported.

Financial Aid applications are considered only from students who have been admitted to a degree program in the Graduate College. All applications and all necessary supporting material must be submitted by February 15 of the following academic year. Forms are available from the department and the University Office of Admissions.

Admission
Applicants for admission to any graduate program in English must meet the general requirements for admission to the Graduate College, and must submit at least two letters in support of the application. In addition, M.F.A.
Writing Programs

For the past 50 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing. In 1952 it became the first institution of higher education to accept creative dissertations for advanced degree programs.

Founded in 1926, the Writers' Workshop was a pioneer in the field of creative writing; it numbers scores of distinguished poets and novelists among its alumni. The Workshop provides opportunities for students at all levels to work with outstanding teacher-authors, and also brings numerous prominent authors to campus each year for lectures and readings. The International Writing Program, founded in 1966, brings numbers of prominent foreign writers to campus each year.

The University of Iowa has also been a leader in the field of creative writing and rhetorical theory. It is one of the few academic institutions in the nation which offers a full range of graduate creative work in this area.

Facilities

The University Library is strong in all areas of English and American literature. It is especially noteworthy for its collections of original British and American editions, its holdings in nineteenth- and twentieth-century works, including the Leigh Hunt collection, and its manuscript collections of works by famous American authors.

The department provides a wealth of opportunities for student involvement in critical and creative publications. The Iowa Journal of Literary Studies is a quarterly publication edited by graduate students, which features creative and scholarly work in English and related areas. Students may also gain editorial experience by working with The Iowa Review, Philological Quarterly, and the Windhover Press.

Students are welcome to participate in the activities of the English Graduate Student Society, the Humanities Society, the Friends of Old-Time Music, and the Midwest Modern Language Association. Visiting writers and lecturers are on the campus almost every week, and various conferences and literary "festivals" complement the schedule of class work.

Courses

Individual descriptions for the English courses listed below are not included because the content and emphasis of many courses varies considerably from one semester to another. Detailed course descriptions (or offers offerings in a specific semester) are available in the English department office well in advance of the beginning of each semester.

For Undergraduates

Lecture courses are open to all undergraduates who have satisfied the rhetoric requirement.

6200 Creative Writing Internship 3 s.h.
6201 Modern Fiction 3 s.h.
6202 Modern Poetry 3 s.h.
6203 Modern Drama 3 s.h.
6204 The Short Story 3 s.h.
6205 Chaucerian and Medieval Literature 3 s.h.
6206 Shakespeare 3 s.h.
6211 The Renaissance in Europe 3 s.h.

Introductory Close Reading of Texts

The following are limited-enrollment discussion courses in which a small number of texts are read carefully to illustrate representative problems in interpreting and evaluating literature.

6310 Critical Approaches to Literary Works 3 s.h.
6335 Reading Poems 3 s.h.
6350 Major Texts of World Literature I (Same as 48.50) 3 s.h.
6351 Major Texts of World Literature II 3 s.h.
6455 Survey of British Literature 3 s.h.
6456 Survey of British Literature 3 s.h.
6457 Survey of European Literature 3 s.h.
6458 Major British and American Poets 3 s.h.
6459 Major British and American Poets I 3 s.h.
6460 Selected Plays 3 s.h.
6461 American Literary Classics 3 s.h.
6465 Selected Works of the Middle Ages 3 s.h.
6466 Shakespeare's Contemporaries 3 s.h.
6467 Selected Works of the Eleventh Century 3 s.h.
6468 Middle-English Century English Works 3 s.h.
6469 Selected American Works Before 1900 3 s.h.
6470 Selected Early Modern Works 3 s.h.
6471 Selected Works of the Twentieth Century 3 s.h.
6472 Renaissance in the Renaissance 3 s.h.
6475 Renaissance in the Renaissance 3 s.h.

Major Authors

The following are limited-enrollment discussion courses. Each author is represented by several major works. Combinations of authors are changed regularly. With permission of the instructor, a student may repeat registration for same course number if authors have been changed.

871 Chaucer 3 s.h.
872 Shakespeare 3 s.h.
873 Selected American Authors 3 s.h.
874/Round the Person 3 s.h.
875 Selected Modern Authors 3 s.h.
876 Selected Authors 3 s.h.

Seminars for Undergraduate Majors

860 Language, Literature, and Law 3 s.h.
861 Rhetoric: English major or consent of instructor 3 s.h.
862 Undergraduate Seminar 3 s.h.
Prerequisite: English major or consent of instructor.

For Undergraduate and Graduate Students

Literature and Culture

Primarily for upperclass students and beginning graduate students, these lecture courses are designed to present major works and authors within the context of the social, political, intellectual, and artistic movements of their time. Students who have established backgrounds in history or related arts are especially welcome. Undergraduate majors in English are urged to include at least one course of this type in the latter half of their major.

6100 Introduction to Critical Problems 3 s.h.
Same as 48.10

6101 Literature and Culture of the Middle Ages 3 s.h.

6132 Literature and the Culture of the Renaissance 3 s.h.

6150 Literature and the Culture of the Eighteenth-Century England 3 s.h.

6151 Literature and the Culture of the Nineteenth-Century England 3 s.h.

6152 Literature and the Culture of the Twentieth-Century Europe 3 s.h.

6153 Literature and the Culture of the Twentieth-Century America 3 s.h.

6154 Literature and the Culture of the Twentieth-Century Africa 3 s.h.

6155 Literature and the Culture of the Twentieth-Century Asia 3 s.h.

6156 Literature and the Culture of the Twentieth-Century India 3 s.h.

6157 Literature and the Culture of the Twentieth-Century China 3 s.h.

6158 Literature and the Culture of the Twentieth-Century Japan 3 s.h.

6159 Literature and the Culture of the Twentieth-Century Russia 3 s.h.

6160 Literature and the Culture of the Twentieth-Century Latin America 3 s.h.

6161 Literature and the Culture of the Twentieth-Century Middle East 3 s.h.

6162 Literature and the Culture of the Twentieth-Century Australia 3 s.h.

6163 Literature and the Culture of the Twentieth-Century New Zealand 3 s.h.

6164 Literature and the Culture of the Twentieth-Century Canada 3 s.h.

6165 Literature and the Culture of the Twentieth-Century South Africa 3 s.h.

6166 Literature and the Culture of the Twentieth-Century South America 3 s.h.

6167 Literature and the Culture of the Twentieth-Century Eastern Europe 3 s.h.

6168 Literature and the Culture of the Twentieth-Century Western Europe 3 s.h.

6169 Literature and the Culture of the Twentieth-Century Middle East 3 s.h.

6170 Literature and the Culture of the Twentieth-Century South Asia 3 s.h.

6171 Literature and the Culture of the Twentieth-Century East Asia 3 s.h.

6172 Literature and the Culture of the Twentieth-Century Southeast Asia 3 s.h.

6173 Literature and the Culture of the Twentieth-Century Central Asia 3 s.h.

6174 Literature and the Culture of the Twentieth-Century Western Asia 3 s.h.

6175 Literature and the Culture of the Twentieth-Century North Africa 3 s.h.

6176 Literature and the Culture of the Twentieth-Century Southern Africa 3 s.h.

6177 Literature and the Culture of the Twentieth-Century Eastern Africa 3 s.h.

6178 Literature and the Culture of the Twentieth-Century Southern Africa 3 s.h.
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**Literary Genre**

Limited to the discussion of a single genre, and usually further restricted to a limited era and nation, these lecture or large discussion courses are appropriate for any upperclass student or graduate student interested in the area.

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**Fiction**

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**Theoretical Studies**

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**Authors**

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French and Italian

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Special Interest

These courses are designed to serve the special interests and needs of advanced undergraduates and graduates in particular academic and professional areas of the University. Their offer practice in specialized forms of writing for specialized purposes and audiences.

EN 116 Writing for the Humanities
EN 117 Writing for the Sciences
EN 131 Writing for Business and Industry
EN 132 Creative Writing for Journalism Writing
EN 153 Fiction Writing
EN 154 Four-Act Play Writing
EN 156 Free-Verse Workshop
EN 175 Computer Text Editing
EN 190 Internship Project in Expository Writing
EN 191 Workshop in Expository Writing
EN 240 Critical Writing
EN 260 Seminar in American Writing

Theory and Practice

These courses are designed to serve the interests and needs of advanced undergraduates and graduates who aim to become not only practitioners, but also critics or teachers of expository writing. They combine theory and analysis of expository writing with practical experimentation in writing.

EN 101 The Art of the Essay
EN 102 Approaches to the Teaching of High School Writing
EN 103 Fiction Writing Workshop for Teachers
EN 104 History of the Essay
EN 105/106 Theory of Style
EN 107/108 Essay in Modern English
EN 110 Philosophy of Language and the Study of Writing
EN 120 Statistical Theory: Analysis and Application
EN 130 Studies in Old and Middle English
EN 140 Approaches to Teaching College Writing
EN 141 Methods in Teaching Freshmen
EN 142 A Colinquique in the Teaching of Writing
EN 143 Support for Teachers in Writing
EN 144 Problems in Technical Writing
EN 145 Media and Special Project in Expository Writing
EN 146 Special Project in Teaching of Writing

Creative Writing

General Interest

These courses are designed to serve the general interests and needs of undergraduates and graduate students in all areas of the University. They offer practice in various forms and types of creative writing.

EN 102 Creative Writing
EN 118 History and Theory of Translation
EN 181 Fiction Writing
EN 182 Poetry Writing
EN 183 Basic Playwriting
EN 184 Playwriting II
EN 185 Advanced Fiction Writing

Professional Workshop

These courses are designed to serve specific interests and needs of graduate and graduate students who have substantial background and experience in a specific area of creative writing. They are open only to students who have received permission of the instructor or who have been admitted to work in the Writers Workshop.

EN 151 Internship Project in Creative Writing
EN 155 Undergraduate Workshop/Workshop
EN 156 Undergraduate Workshop/Workshop
EN 157 Playwriting Workshop
EN 151 Fiction Writing
EN 152 Poetry Workshop
EN 153 Translation Workshop
EN 154 Poems in Poetry
EN 155 Questions: Modern Fiction
EN 156 Seminar: Problems in Poetry

Independent Study

EN 110 Comparative and Exemplary of High School Writing
EN 150 Undergraduate Project in Creative Writing
EN 180 Graduate Project in Creative Writing
EN 190 U.S. Novel in Expository Writing
EN 191 Great American Novel

French

Department chair: Jean L. Horvath
French professors: Joseph A. Breveglieri, Florida
V. Cervantes, Julian L. Horvath, John T. Houghton, Gustave Hoynck van Geldern, associate professor Charles T. Allen, James G. Allen, Roscoe Deluty, Marguerite Spencer, Barbara Unger

Undergraduate Programs

The department's purpose is to introduce students to the cultures of France and Italy, provide an understanding of three cultures' historical and contemporary importance, facilitate development of proficiency in the French or Italian language, and foster critical appreciation of French and Italian literature and civilization.

EN 102 Creative Writing
EN 118 History and Theory of Translation
EN 181 Fiction Writing
EN 182 Poetry Writing
EN 183 Basic Playwriting
EN 184 Playwriting II
EN 185 Advanced Fiction Writing

Professional Workshop

These courses are designed to serve specific interests and needs of graduate and graduate students who have substantial background and experience in a specific area of creative writing. They are open only to students who have received permission of the instructor or who have been admitted to work in the Writers Workshop.

EN 151 Internship Project in Creative Writing
EN 155 Undergraduate Workshop/Workshop
EN 156 Undergraduate Workshop/Workshop
EN 157 Playwriting Workshop
EN 151 Fiction Writing
EN 152 Poetry Workshop
EN 153 Translation Workshop
EN 154 Poems in Poetry
EN 155 Questions: Modern Fiction
EN 156 Seminar: Problems in Poetry

Independent Study

EN 110 Comparative and Exemplary of High School Writing
EN 150 Undergraduate Project in Creative Writing
EN 180 Graduate Project in Creative Writing
EN 190 U.S. Novel in Expository Writing
EN 191 Great American Novel

French and Italian

Department chair: Jean L. Horvath
French professors: Joseph A. Breveglieri, Florida
V. Cervantes, Julian L. Horvath, John T. Houghton, Gustave Hoynck van Geldern, associate professor Charles T. Allen, James G. Allen, Roscoe Deluty, Marguerite Spencer, Barbara Unger

Course description: B.A. French or Italian, M.A. (French), Ph.D. (French)

Undergraduate Programs

The department's purpose is to introduce students to the cultures of France and Italy, provide an understanding of three cultures' historical and contemporary importance, facilitate development of proficiency in the French or Italian language, and foster critical appreciation of French and Italian literature and civilization.

The department offers a variety of major programs in French and Italian, electives for students with preprofessional linguistic skills, and flexible tracks to meet the foreign language requirements of the College of Liberal Arts and to satisfy individual needs and interests.

Students studying in French or Italian may consider their studies with courses in education (see the "College of Education" section of the Catalog) to prepare for jobs in high school teaching. They may also consider graduate study in such areas as French, comparative literature, or history, as preparation for college-level teaching. Or, in combination with other skills and studies, a major in French or Italian may prepare the student for challenging career opportunities in the international areas of government, business, finance, travel, or communication, where the knowledge of a foreign language is essential.

Bachelor of Arts in French

The undergraduate major in French may be combined with an emphasis in literature, civilization, teaching, or applied French.

Courses taught in English do not count for credit toward the French major; nor does a grade of D or C required in any required French course.

Literature Track

Designed for students who are interested in French literature by combining the study of French literature with a major in another field, such as English, comparative literature, cinema, or history, the literature track requires a total of 36 semester hours of credit in French, including:

9:27-28 2nd-Year Composition and Conversations 6 s.h.
9:11-11:12 Third-Year Composition 6 s.h.
1:16 Advanced French Conversation: Third Level 2 s.h.
1:16 Advanced French Conversation: Fourth Level 2 s.h.

9:17 Advanced French Pronunciation 2 s.h.

A minimum of four 100-level courses in literature (at least two of which must be above the 180 level) plus a fifth 100-level course to a choice of literature, advanced language, or civilization, totaling 15 semester hours.

Civilization Track

Designed for students interested in French culture, politics and culture, and recommended for students wishing to combine studies in French with a major in another area such as history, political science, pre-law, or journalism, the
Graduate Programs
Master of Arts in French without Thesis
The candidate must earn a minimum of 30 semester hours of graduate credit and pass a written and oral examination. The program must include:
- Literature and Language
- Two advanced courses (6 s.h.)
- A comprehensive examination
- A thesis (6 s.h.)
- Oral examination
- Approval of the thesis

Master of Arts in French with Thesis
The requirements for the thesis program are the same as for the M.A. without thesis, except that in the thesis program the candidate may earn up to six semester hours' credit for his or her thesis work. The candidate must defend the thesis at the time of the comprehensive examination.

Master of Arts in French Education
This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 36 semester hours of graduate credit. Of this total, it must be in education courses, and at least 9 must be in graduate (200 level) courses in French literature. The following courses are also suggested:
- 671 Stylistics: Analysis and Application
- 644 Textual Analysis
- 649 Advanced Comparative Grammar and Lexicology
- 651 Comparative Stylistics
- 652 Comparative Stylistics
- 653 French Civilization
- 654 Methods: Foreign Language
- 655 Language Laboratory Equipment Procedures
- 657 Contemporary French
- 658 Advanced French Pronunciation

Candidates must pass a final written and oral examination.

Doctor of Philosophy
Requirements for the Ph.D. degree in French include completion of at least three years of graduate study, of which at least one must be spent in residence at the University; the passing of a comprehensive examination; and the successful oral defense of a dissertation.

Specific requirements include:
- 9251 Introduction to Old French Grammar, and four semester of college French or equivalent proficiency in a foreign language other than French.
The candidate must also complete three graduate courses for a minimum total of 8 semester hours of credit in a related field, such as another literature, or history, philosophy, etc. and must earn at least 6 semester hours of credit in French 2077 Thesis.

Students working toward the doctorate are required to spend at least one year teaching as graduate assistants in the department.

Graduate Admission
To be considered for admission to the Ph.D. program in French, the applicant must have completed the equivalent of The University of Iowa's undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. in French is prerequisite to admission to the Ph.D. program in French. Successful completion of the M.A. process, however, does not necessarily qualify a student for doctoral studies.

For students earning the M.A. at The University of Iowa, the M.A. comprehensive examination committee will make a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy with the M.A. earned at another institution are, when admitted, placed on conditional status, and this status is reviewed periodically.

In addition to the Graduate Record Examination score required by the Graduate College, the department requires that all applicants for admission to graduate programs in French submit scores from the GRE Advanced Test in French.

Appointments
Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students. See the "Graduate College" section of the Catalog. The department may also offer Teaching / Research Fellow annually. Inquiries should be addressed to the departmental office.

Exchange sponsorship agreements with the French Institute of Education, the University of Poitiers, and the University of Picardy provide a limited number of graduate students one year of residence in France.

French Courses
A detailed description of courses offered each semester is available in the department office. All courses are given in French unless otherwise indicated. Courses numbered from 150-198 are intended primarily for advanced undergraduates; a graduate student should consult with his or her advisor before registering for these courses.

For Undergraduates and Graduates

Primarily for Undergraduates

S1 Elementary French
For students who have no knowledge of French.
Prerequisite: 0.1 or equivalent.

S2 Elementary French
First-year French in one semester.
Prerequisite: 0.1 or equivalent.

S1 French for Travelers
Basic conversational French for the traveler. Given in Saturday and evening class programs.

S2 French for Travelers
Continuation of S1, with emphasis on practical vocabulary. Given in Saturday and evening class programs.

S3 French for Americans
From Château-Thierry and the Loire Valley to contemporary authors. Given in Saturday and evening class programs.

S4 French for Americans
From Château-Thierry and the Loire Valley to contemporary authors. Given in Saturday and evening class programs.

S1 Intermediate French
For students who do not plan to continue the study of French after the second year. Not for majors. Prerequisite: 0.2 or equivalent.

S2 Intermediate French
Continuation of S1 for majors. Prerequisite: 0.2 or equivalent.

S2B Advanced French:
May be taken in cooperation with 0.7, 0.8, 0.11, 1.15.

S3 French Conversation Fund Level
May be taken immediately or in cooperation with 0.11, 0.12, 0.13, 0.22. Prerequisite: 0.2 or equivalent.

S2 Second-Year Conversation and Composition 3.4A
Recommended for students who intend to continue study of French or who want to improve their active command of the language. Prerequisite: 0.2 or equivalent.

S2 Second-Year Conversation and Composition 3.4B
Recommended for students who intend to continue study of French or who want to improve their active command of the language. Prerequisite: 0.2 or equivalent.

S2 French Conversation Second Level
Prerequisite: 0.2 or equivalent.

S3B French I
For students with previous experience in other departments who desire to continue their studies in French.

S3C French II
For students with previous experience in other departments who desire to continue their studies in French.

S3D French III
For students with previous experience in other departments who desire to continue their studies in French.

S4 Introduction to Commercial and Technical Translation
Prerequisite: 2.12 or 2.29 or equivalent.

S5 Introduction to the French Business World
Prerequisite: 2.12 or equivalent.

S6 Special Topics
Prerequisite: 2.12 or equivalent.

For Undergraduates and Graduates

S10 Reports Seminar Program in France
An advanced seminar in the study of the Reports Seminar Program in France.

S10A Salaries, Salaries, Salaries
An advanced seminar in the study of the Reports Seminar Program in France.

S10 Introductory Seminar in French Literature
Prerequisite: 0.2 or 0.25 or equivalent.

S117 Themes in French Literature
Prerequisite: 0.2 or 0.25 or equivalent.

S118 Introduction to French Literature: Twentieth Century
Prerequisite: 0.12 or 0.25 or equivalent.

S119 Introduction to French Civilization
Given only in Spring Academic Program.

S118B History of Civilization
Prerequisite: 0.12 or 0.25 or equivalent.

S118C History of Civilization
A survey of French social history from the Middle Ages to 1789. Prerequisite: 0.12 or 0.25 or equivalent.

S112 French Civilization
A survey of French social history from 1790 to the present. Prerequisite: 0.12 or 0.25 or equivalent.

S113 Business French

S114 Business French

S115 Business French

S116 Business French

S117 Business French

S118 Business French

S119 Business French

S111 Business French

S112 Business French

S113 Business French

S114 Business French

S115 Business French

S116 Business French

S117 Business French

S118 Business French

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S119 Business French

S111 Business French

S110 Business French

S115 Business French

S116 Business French

S117 Business French

S118 Business French

S119 Business French

S111 Business French

S110 Business French

S115 Business French

S116 Business French
Italian Courses

Primary for Undergraduates

10.111 Vocabulary Studies
Prerequisite: 10.110 or equivalent.

10.112 Vocabulary Studies II
Prerequisite: 10.111 or equivalent.

10.116 Special Work
Prerequisite: 10.115 or 10.112 or 10.110, or consent of instructor.

For Undergraduates and Graduates

10.111 Literature of the Middle Ages
May be given in English for non-majors.

10.119 Italian Literature
Open to undergraduates with a minimum of two years in another foreign language, and in precedent subjects.

10.120 Italian Literature from the Renaissance to the Present
May be given in English for non-majors. Prerequisite: 10.110 or equivalent.

10.121 Literature of the Twentieth Century
Prerequisite: 10.110.

10.110 Sanks and the Times
May be given in English for non-majors.

10.117 Sanks and the Times
May be given in English for non-majors.

10.112 The Italian-American Heritage
A survey of Italian-American cultural and political history, with emphasis on the immigrant's diverse origins, processes of acculturation, and major centers of activity. Open in English.

Primary for Graduates

10.122 Writers of Modern Italy: Blons, Verlatti, Cervantes
Given in Italian.

10.123 Partenzo and Early Italian Lyric
Given in Italian.

10.121 Literature of the Renaissance
Given in English.

10.122 Italian Literature of the Middle Ages
Given in English.

10.123 Early Italian Comedy
Given in Italian.

10.124 Romance Literature
Given in Italian.

10.125 Italian Literature in the Baroque
Given in Italian.

10.126 Italian Literature of the Romantic Period
Given in Italian.

10.127 Italian Literature of the 20th Century
Given in Italian.

10.130 Special Work
prerequisite: 10.115 or 10.112 or 10.110, or consent of instructor.

10.131 Advanced Composition and Conversation
Prerequisite: 10.110.

10.132 Advanced Composition and Conversation
Prerequisite: 10.110.

10.133 Advanced Composition and Conversation
Prerequisite: 10.110.

10.134 Advanced Composition and Conversation
Prerequisite: 10.110.

10.135 Advanced Composition and Conversation
Prerequisite: 10.110.

10.136 Advanced Composition and Conversation
Prerequisite: 10.110.

10.137 Advanced Composition and Conversation
Prerequisite: 10.110.

10.138 Advanced Composition and Conversation
Prerequisite: 10.110.

10.139 Advanced Composition and Conversation
Prerequisite: 10.110.

10.140 Advanced Composition and Conversation
Prerequisite: 10.110.

10.141 Advanced Composition and Conversation
Prerequisite: 10.110.

10.142 Advanced Composition and Conversation
Prerequisite: 10.110.

10.143 Advanced Composition and Conversation
Prerequisite: 10.110.

10.144 Advanced Composition and Conversation
Prerequisite: 10.110.

10.145 Advanced Composition and Conversation
Prerequisite: 10.110.

10.146 Advanced Composition and Conversation
Prerequisite: 10.110.

10.147 Advanced Composition and Conversation
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10.148 Advanced Composition and Conversation
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10.149 Advanced Composition and Conversation
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10.150 Advanced Composition and Conversation
Prerequisite: 10.110.

10.151 Advanced Composition and Conversation
Prerequisite: 10.110.

10.152 Advanced Composition and Conversation
Prerequisite: 10.110.

10.153 Advanced Composition and Conversation
Prerequisite: 10.110.

10.154 Advanced Composition and Conversation
Prerequisite: 10.110.

10.155 Advanced Composition and Conversation
Prerequisite: 10.110.

10.156 Advanced Composition and Conversation
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10.157 Advanced Composition and Conversation
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10.158 Advanced Composition and Conversation
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10.159 Advanced Composition and Conversation
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10.160 Advanced Composition and Conversation
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10.161 Advanced Composition and Conversation
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10.162 Advanced Composition and Conversation
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10.163 Advanced Composition and Conversation
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10.164 Advanced Composition and Conversation
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10.167 Advanced Composition and Conversation
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10.168 Advanced Composition and Conversation
Prerequisite: 10.110.

10.169 Advanced Composition and Conversation
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10.170 Advanced Composition and Conversation
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10.171 Advanced Composition and Conversation
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10.172 Advanced Composition and Conversation
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10.173 Advanced Composition and Conversation
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10.179 Advanced Composition and Conversation
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10.180 Advanced Composition and Conversation
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10.181 Advanced Composition and Conversation
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10.182 Advanced Composition and Conversation
Prerequisite: 10.110.

10.183 Advanced Composition and Conversation
Prerequisite: 10.110.

10.184 Advanced Composition and Conversation
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10.185 Advanced Composition and Conversation
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10.186 Advanced Composition and Conversation
Prerequisite: 10.110.

10.187 Advanced Composition and Conversation
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10.188 Advanced Composition and Conversation
Prerequisite: 10.110.

10.189 Advanced Composition and Conversation
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10.190 Advanced Composition and Conversation
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10.191 Advanced Composition and Conversation
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10.192 Advanced Composition and Conversation
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10.193 Advanced Composition and Conversation
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10.194 Advanced Composition and Conversation
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10.195 Advanced Composition and Conversation
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10.196 Advanced Composition and Conversation
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10.197 Advanced Composition and Conversation
Prerequisite: 10.110.

10.198 Advanced Composition and Conversation
Prerequisite: 10.110.

10.199 Advanced Composition and Conversation
Prerequisite: 10.110.

10.200 Advanced Composition and Conversation
Prerequisite: 10.110.

10.201 Advanced Composition and Conversation
Prerequisite: 10.110.

10.202 Advanced Composition and Conversation
Prerequisite: 10.110.

10.203 Advanced Composition and Conversation
Prerequisite: 10.110.

10.204 Advanced Composition and Conversation
Prerequisite: 10.110.

10.205 Advanced Composition and Conversation
Prerequisite: 10.110.

10.206 Advanced Composition and Conversation
Prerequisite: 10.110.

10.207 Advanced Composition and Conversation
Prerequisite: 10.110.

10.208 Advanced Composition and Conversation
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10.209 Advanced Composition and Conversation
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10.210 Advanced Composition and Conversation
Prerequisite: 10.110.

10.211 Advanced Composition and Conversation
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10.212 Advanced Composition and Conversation
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10.213 Advanced Composition and Conversation
Prerequisite: 10.110.

10.214 Advanced Composition and Conversation
Prerequisite: 10.110.

10.215 Advanced Composition and Conversation
Prerequisite: 10.110.

10.216 Advanced Composition and Conversation
Prerequisite: 10.110.

10.217 Advanced Composition and Conversation
Prerequisite: 10.110.

10.218 Advanced Composition and Conversation
Prerequisite: 10.110.

10.219 Advanced Composition and Conversation
Prerequisite: 10.110.
A student who is admitted to The University of Iowa College of Dentistry or College of Medicine or to a University of Iowa professional program in medical technology, pharmaceutical technology, or physical therapy before completing requirements for the bachelor's degree, may apply up to 30 semester hours of credit earned in the first year of professional training toward the 124-hour requirement for a bachelor's degree with a major in general science, including a total of 8 semester hours of science credit toward the major requirement and, of these, 4 semester hours toward the 20-hour concentration requirement.

To be eligible to receive a Bachelor of Arts or Bachelor of Science Degree from The University of Iowa, a transfer student in any of the units programs in general science must earn at least the last 30 semester hours of credit for the bachelor's degree in The University of Iowa College of Liberal Arts.

No credit earned in a science course in another college of the University may be utilized toward the major credit requirements in general science unless the department of Biochemistry, Botany, Chemistry, Geology, Physics, and Astronomy, Microbiology, or Zoology certifies in writing that the course is equivalent to one offered by that department.

Students majoring in a science subject may apply up to 20 semester hours of science credit toward the major concentration in education (see "Secondary Education") in the "Secondary Education" section of the College Catalog. Students majoring in general science are urged to take equivalent courses in basic and applied mathematics to prepare them for graduate study and quantitative research.

All general science students who are not in the science education program or one of the health-related programs must complete at least ten semester hours of mathematics courses, or an equivalent course, in the higher-level mathematics course above.

225:4 Quantitative Methods 4 s.h.
240:11 Fundamental Concepts of Mathematics 4 s.h.
254:18 Calculus for the Biological Sciences 3 s.h.
252:20 Elementary Functions 3 s.h.

Any 225 course except 225:1

Students majoring in general science are expected to meet the College of Liberal Arts language requirement with German, French, Russian, or Spanish, unless the student's academic advisor gives written approval of another language.

Completion of a minor in general science requires at least 20 semester hours of credit in any of the fields of the science mathematics area listed for the major (above); or, at least, 12 semester hours must be in 100-level courses.

This preceding description pertains only to The University of Iowa College of Liberal Arts requirements for a bachelor's degree with a major in general science, and no inference should be drawn from it concerning the specific requirements of any professional training program.

Genetics

Program chair: J. Graves (PhD) Faculty: professors Fago, Chetry (Bacteriology), Thomas Conse (Biology, Microbiology), Rayman Oyen (Microbiology), John Donnell (Biology, Genetics), Mildred Fays (Microbiology), Joseph Franke (Zoology), Gary Guas (Zoology), Joseph Herrgen (Zoology), Victor Issaens (Zoology), John Kiviranta (Zoology), William L. Schott (Microbiology), Ernest M. Beers (Zoology), Frederick Wright (Zoology), George W. Procak (Zoology), associate professors Diane Carus, Brand, James, Hensler (Bacteriology), Frank Jandt, (Botany), Vernon Kais, (Zoology), associate professors Marc Blakeslee, Ira Blakeslee, Robert Wright (Zoology), associate professors Diane Carus, Brand, James, Hensler (Bacteriology), Frank Jandt, (Botany), Vernon Kais, (Zoology), associate professors Marc Blakeslee, Ira Blakeslee, Robert Wright (Zoology).

The interdepartmental Ph.D. program in genetics is established to promote collaborative investigations and intellectual interactions among students and faculty personnel affiliated with the program.

Students enrolling in the program are encouraged to obtain a broad background in genetics, ranging from molecular to population genetics. Within the context, however, courses requirements are flexible enough to permit students to tailor their general coursework to fit their individual needs. All students enrolled in the program are required to take 90:300 and 202 Genetics Seminar. In addition, they are required to earn at least three semester hours of credit in molecular and microbial genetics, cell and developmental genetics, and quantitative and population genetics.

More important than formal coursework is the opportunity to do meaningful research. Students are encouraged to begin their own research as quickly as possible. Research interests of the participating faculty range from biochemistry to human medical genetics. In each area of genetics there is a group of faculty members with closely related interests. The University is also strong in a number of related disciplines, including microbial physiology, immunology, enzymology, biochemistry, and developmental, cell, and immunology biology, all of which contribute significantly to the overall training program.

In addition to completing research coursework, students must also pass a comprehensive examination, which they should take within the first two years of the program.

Admission

The prospective doctoral student in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, introductory physics, and mathematics, and a strong commitment to research and teaching in genetics. A student with deficiencies in a particular area can make up their deficiencies during the first year of graduate study.

Admission to the program is based on the assessment of the applicant's undergraduate academic record, performance on the Graduate Record Examination (GRE), verbal, quantitative, and analytical aptitude tests, and letters of recommendation. Requirements for admission are not rigid. Although almost all students currently working toward the Ph.D. in genetics at The University of Iowa College of Liberal Arts have grade-point averages greater than 3.0 and GRE totals (verbal plus quantitative) exceeding 1500, students with lower grade point averages may be admitted, depending on other indicators of academic potential.

The program accepts admission applications at any time.

Financial Aid

Highly qualified applicants will be supported as National Institutes of Health predoctoral trainees. Traineeships include stipends of $9,040 for 12 months, complete tuition scholarships, and additional support for trainees' research. In addition, stipends may be supplemented by occasional teaching or research.trainees are encouraged to seek some teaching as part of their development as scientists and teachers.

Other students will be supported by half-time teaching or research assistantships, with stipends in excess of $8,500 per year. Students receiving assistantships are expected to carry a full or partial tuition scholarship.
Geography

Department: Geography

Faculty: J. B. Lofaro, Ph.D.

Undergraduate Program

The Geography faculty has developed an undergraduate instructional program which provides educational opportunities for a variety of students: for the nonmajor interested in one or more elective courses as they relate to a liberal education; for students interested in electing a cluster of courses in conjunction with another discipline or for the B.A. or B.S. degree; and for students interested in acquiring a major in geography. The department also offers significant interdisciplinary programs focusing global, urban, and environmental concerns.

Programs for the Undergraduate Major

Students majoring in geography may choose alternative programs depending on their interests. The substantive strengths of the department fall into three areas: environmental studies, urban and regional studies, and international development studies. Students may choose to develop expertise in one of these areas, or they may choose to develop an individualized program within the curriculum offered by the department.

Students planning advanced training or seeking careers in geography should elect the Bachelor of Arts degree. Those who wish to pursue a liberal arts objective are advised to elect the Bachelor of Arts degree.

Requirements

All geography majors must complete at least 26 semester hours of geography courses, of which at least 15 of which must be at the 200 level. Many students choose to complete their degree program with more than the minimum requirements for mastery of a specific subject.

All geography majors must complete both: 110:101 Spatial Organization and 140:102 Undergraduate Seminar for Geography Majors and one of the following statistical courses: 225:127 Applied Statistical Methods and 225:135 Elements of Statistics and Inference 225:101 Biostatistics or 225:102 Introduction to Statistical Methods, in addition, Bachelor of Science students must complete a mathematics requirement covering at least 9 credits, and at least 9 credits in mathematics and computer science.
and
22:20 Elementary Functions or
22M:16 Mathematics for the Biological Sciences or
22M:16 Calculus for the Biological Sciences or
22M:25 Calculus I or
22M:35 Engineering Calculus I and a computer science requirement consisting of:
22:67 Introduction to Computing with FORTRAN or
22C:18 Introduction to Programming with PASCAL.
With the consent of the geography faculty, equivalent courses, which have similar objectives as these, may be accepted in fulfillment of the following, mathematical, and computer science requirements.

Requirements
Students majoring in geography are advised to:
Take both the introductory level courses:
• 41 Introduction to Human Geography and 44:2 Introduction to Physical Geography during their freshman or sophomore years.
• Take the first 44:110 Spatial Organization seminar for Geography Majors during their sophomore year.
• Take the statistical and mathematical requirements as early as possible because many advanced level geography courses assume prior knowledge of the subjects.

Students are also strongly recommended to also take 22M:25 Calculus I and a computer science requirement for this major.

Courses for the Nonmajor
Students in the College of Liberal Arts or other liberal arts colleges at the University may find geography courses meaningful to their own program of study. The beginning-level courses 44:1 Introduction to Human Geography and 44:2 Introduction to Physical Geography, 44:110 Introduction to Social Geography, and 44:16 Contemporary Environmental Issues, and 44:30 Introduction to Economic Geography are available for general education credit in social science, and serve as part of a liberal education.

Other courses may also be attractive as individual electives. These include 44:15 Introduction to Political Geography, 44:25 World Cities, 44:15 Locational Conflict, 44:125 Drainage Basin Form and Process, and 44:162 The Third World, 44:191 Energy in Contemporary Society. Students in related disciplines may take groups of courses leading to a minor in geography. Bachelor of General Studies students may also take a group of geography courses as part of their degree. The geography courses listed below are other programs for the major in geography will serve as a guide to course selection. Additional information about a minor in geography is available in the directory.

Environmental Studies
The undergraduate program in environmental studies is designed for students with career aspirations or personal interests in resource management or environmental education, or who have interests in physical geography per se. The program provides a knowledge of physical processes in landform development, atmospheric conditions, soil development, and biotic communities. It stresses the interactions among those processes and gives the student knowledge necessary to assess the impact of human activities on physical systems. Training in field observation, quantitative analysis, computer methods, and cartographic representation should be included in this concentration.

Students concentrating in environmental studies should take 44:2 Introduction to Physical Geography and 44:19 Contemporary Environmental Issues at the beginning of their program. They are advised to select additional geography courses from the following:
• 44:1 Introduction to Human Geography
• 44:30 Introduction to Economic Geography
• 44:15 Environmental Health and Climate
• 44:151 Locational Conflict
• 44:150 Natural Hazards
• 44:152 Urban and Regional Planning
• 44:125 Environmental Conservation in the United States
• 44:153 Geography of Natural Resources
• 44:124 Introduction to Global Environment
• 44:125 Environmental Impact Analysis
• 44:126 Drainage Basin Form and Process
• 44:128 Water Resources Management
• 44:126 Field Studies
• 44:129 Energy in Contemporary Society
• 44:127 Remote Sensing and 44:128 Hydrogeology

Computer Methods in Geographical Analysis are strongly recommended.

Under the direction of an advisor, students should select courses (at least 12 semester hours) from among one of the following clusters:

Physical Systems
12:5 Introduction to Geology
12:126 Introduction to Oceanography
12:110 Introduction to Remote Sensing
12:180 Hydrogeology
12:171 Geomorphology
52:950 Principles of Environmental Engineering

12:181 Irrigation and Drainage
12:180 Water Resources Systems

Environmental Science
11:22 Ecology and Evolution
11:25 Chemistry and Physics of the Environment
11:29 Technology and Man
2:11 Plant Diversity
2:05 Human and Urban Affairs
2:11 Plant Ecology
1:19 Plant-Animal Interactions
2:16 Field Ecology
2:12 Ecology
37:133 Topics in Ecology
37:135 Quantitative Field Ecology
37:159 Quantitative Methods in Ecology

Environmental Management
6E:1 Principles of Economics
6E:2 Principles of Economics
6E:103 Microeconomics
6E:105 Macroeconomics
6E:119 Economics of the Government Sector
6E:127 Natural Resources in the World Economy: Control and Conflict
6E:133 Economic Growth and Environmental Decay
6E:100 Administrative Management
6E:161 Individual Behavior in Organizations
6E:163 Design and Management of Organizations
102:101 Introduction to Planning and Policy Development
102:102 Case Studies in Urban and Regional Planning
102:104 Introduction to Environmental Planning
91:136 Resource Planning
527:102 Technology of Environmental Pollution
527:104 Environmental Planning and Policies

Urban and Regional Studies
Students with interests in urban and regional planning and analysis will find this concentration relevant, either as background training for graduate work or as a basis for entry-level positions in government and private businesses. This concentration focuses on the problems and potentials of towns, cities, and regions, and the decision-making processes of individuals and institutions. Dealing with such problems as assessing sites for development potential, locating public facilities, and gauging neighborhood change brings the student inside the dynamic of contemporary cities. Required skills are quantitative analysis, cartographic, and computer usage are developed. Opportunities for experience in working with real problems are included. Students concentrating in urban and regional studies are advised to select at least 21 semester hours from the following:

44:1 Introduction to Human Geography
44:2 Introduction to Physical Geography
44:11 Introduction to Social Geography
44:15 Introduction to Political Geography
44:30 Introduction to Economic Geography
44:35 World Cultures
44:115 Local Political Context
44:116 Urban Political Geography
44:125 Environmental Impact Analysis
44:130 Location of Services
44:131 Medical Geography: Health Services
44:132 Industrial Location
44:133 Introduction to Transportation
44:134 Urban Transportation
44:135 Urban Geography
44:136 The Global City
44:137 Urban and Regional Modeling
44:138 Urban Problems

Also strongly recommended:
44:107 Maps and Mapping
44:109 Computer Methods in Geographical Analysis

Under the direction of their advisors, students should select courses in related disciplines from the following:
113:118 urban Anthropology
18:187 At-the-American History 1914- Present
30:111 Municipal Government and Politics
34:172 Social Dynamics of Urban Life
102:101 Introduction to Planning and Policy Development
102:102 Case Studies: Urban and Regional Planning
102:110 Regional Development Policy and Planning
96:113 Health Economics
96:135 Regional and Urban Economics
96:137 Problems in Urban Economics et al. Marketing Research

International Development Studies
The concentration in international development studies is designed for students interested in international affairs, in international relations, and political development of new and old nations; in the solutions of problems that have global implications; and in international comparisons. This concentration aims to give students a deeper understanding of the world in which they will live and work by emphasizing the variety of cultures and societies which exist outside of the United States and to which our country must adapt.

Students concentrating in international development studies are advised to select courses (at least 21 semester hours) from among the following:
44:1 Introduction to Human Geography
44:2 Introduction to Physical Geography
44:11 Introduction to Social Geography
44:15 Introduction to Political Geography
44:30 Introduction to Economic Geography
44:107 Maps and Mapping
44:115 Local Political Context
44:125 Environmental Impact Analysis
Under the direction of an advisor, students should select courses in related disciplines from among the following:
30:90 Introduction to World Politics
30:127 Policy Problems in Industrial Societies
30:150 The Political Economy of the Third World
30:160 International Politics
30:165 Politics of War and Peace
66:123 Political Economy of the Military-Industrial Complex
66:126 Economic Development of the Developed Areas
18:89 Culture and Politics of Latin America
18:90 Introduction to Modern Latin America
18:170 Modern African History
18:196 China: Opium War to Mao
Appropriate foreign language training might also be a part of the student's degree program.

The department co-sponsors in the interdisciplinary Global Studies Program.

Individual Programs
Students with more general interests who wish to pursue a Bachelor of Arts degree may design their own individual programs of instruction with the help of their advisors. Such programs must include 26 semester hours of geography, at least 15 of which must be at the 300 level. They must include the following courses:
44:110 Spatial Organization
44:150 Undergraduate Seminar for Geography Majors
and
one of the following statistics courses:
225:137 Applied Statistical Methods and Computation
225:25 Elementary Statistics and Inference
225:101 Biostatistics
44:325 Undergraduate Introduction to Statistical Methods

The Cooperative Education Program
The Department of Geography is a participant in the University's Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.

Graduate Program
The goals of the department at the graduate level are to prepare students to carry on creative and productive research in geography involving the use of theory, modeling, and formal verification methods, and to prepare students for positions in research, teaching, or some area of applied geography. The achievement of these goals is demonstrated in large part by the demand for University of Iowa graduates by the public and private sector employment agencies. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or through other supervised teaching duties.

Master of Arts
The department offers an M.A. program that emphasizes the acquisition of problem-solving skills. Within an overall analytical framework, students develop a broad area of competence that can be tailored to meet the contemporary demands of business, government, or the teaching profession. Recent graduates have obtained positions in health planning, community planning, transportation, and market research. The M.A. degree is also frequently taken by students whose ultimate goal is the Ph.D. degree.

As soon as possible during the first year of residence, students, in close consultation with their advisor and other faculty members, will select two areas from among the following courses for their degree program. This should not necessarily be a reflection of the student's interests and should identify clearly the general area (or areas) within which geography in which the student wishes to concentrate. The program of study should also emphasize relevant problem-solving methods, and philosophy and epistemology in geography.

The M.A. degree requires a minimum of 30 semester hours of graduate work, of which 18 semester hours must be at the 500 level and at least 9 of these hours must be in geography or related fields.

Additional courses in geography or related fields complete the student's program.

Students who enter with sufficient background are frequently able to complete the program in one full year. The M.A. degree is available with or without thesis. A maximum of 8

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semester hours of credit may be earned for thesis work. Students must pass a written and/or oral final examination.

**Doctor of Philosophy**

The Doctor of Philosophy program is designed to prepare students for positions in college and university teaching and in advanced research. It provides programs of study leading to (1) broad knowledge of a field of geography and its literature as well as (2) specific field of competence and special expertise. The former might represent the general area in which the Ph.D. holder seeks employment, whereas the latter would represent the area of active research involvement. Students whose objective is the Ph.D. degree in geography are required to complete 8 semester hours of 44201- 202 Geographical Analysis I and II and 44203-205 Quantitative Analysis I, II, and III. The eight mini-courses comprising 44201-202 should be taken within the first two years in residence, and must include mini-courses offered by at least six different faculty members. The courses 44203-205 Quantitative Analysis I-II should be taken during the first year in residence. Students may meet these requirements with a satisfactory performance in written examinations.

All doctoral students must also complete two research seminars, preferably during the second year in residence, under the direction of different faculty members. Unless excused by the faculty, Ph.D. candidates are also required to register for 44350 Research Seminar: Staff each semester while they are in residence.

The remainder of the Ph.D. program includes appropriate graduate courses, seminars, and workshops in geography; courses in disciplines closely related to geography, with particular objectives and interests; and courses which satisfy the university requirements. Research tool requirements for Ph.D. candidates are the course 44208 Quantitative Analysis II and another appropriate course, as approved by the faculty at the time the student declares his or her specific area of specialization.

By their fourth semester in residence, doctoral students should submit a written report that includes a timeline and an assessment of progress to date, an outline of the area within geography in which they intend to specialize, and a proposed plan of study for the following year. Preferably during the second year in residence, doctoral students who have been admitted to the graduate program without formal credit must submit an original research paper to the faculty, with the approval of their advisor(s).

Students who have been admitted with advanced graduate credit of 24 semester hours or more, are encouraged to submit this paper earlier. The faculty will pass upon the merits of the research thus demonstrated. Students become Ph.D. candidates when their qualifying papers have been accepted. All doctoral candidates are expected to have supervised experiences as classroom instructors and research assistants before being awarded the Ph.D. degree.

**Regional Science**

The department also offers graduate study in regional science. In addition to the requirements for the M.A. or Ph.D. degree in geography, students selecting regional science as their field of study are required to take courses in location theory and analysis, regional economic development, atmospheric regional analysis, macroeconomic theory, and operations research. Doctoral candidates in the field of regional science are also expected to complete courses in philosophy and epistemology in geography and in economics as well as three courses in a field of specialization such as location theory, regional economic development, environmental systems management, transportation modeling and policy, or population studies. Students may choose to apply to the Department of Economics to earn master's degrees in economics as a foundation for their master's and doctoral degree in Geography, because completing the Ph.D. degree in regional science requirements entails satisfying most requirements for the master's in economics.

**Graduate Admission**

In addition to the general rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, the department considers the applicant's undergraduate grade-point average, especially in major courses of study, and senior and junior years; scores on the Graduate Record Examination Aptitude Test; three letters of recommendation; and an essay in which the applicant sets forth the reasons for wanting to study geography at The University of Iowa.

An applicant with an undergraduate grade-point average of 3.2 and 2.75 will be admitted only for the M.A. degree and on the condition that he or she achieves a grade-point average of 3.25 or better on the first 12 semester hours of graduate work as approved by the department.

Foreign students and those from undergraduate institutions that evaluate students on a basis other than grade-point average, will be considered according to their relative academic standing in their respective institutions.

**Financial Assistance**

A number of graduate appointments as teaching or research assistants are available. Awards are based on merit and a student must ordinarily have achieved a combined score of 1100 on the Graduate Record Examination verbal and quantitative sections, and have a 3.0 undergraduate or graduate grade-point average, to be appointed to an assistantship. The graduate appointments should ordinarily be renewed by February 15.

**Facilities**

The department possesses a unique and complete graphics hardware system in the MLAC PDS-4 mini-computer that supports a GRAP PEN OPT-3 text digitizer. The PDS-4 is a 24K system with a CRT for on-line editing and an accompanying software support package, DIGIT SERIES, developed locally that allows for a broad range of computer graphic applications. This system is linked to one of four PRIME 750 systems, each supporting 48 terminals and all linked to the IBM 370/ 168. Complementing these hardware systems are an increasing number of sophisticated software packages that will dramatically improve interactive computing capabilities.

The Map Library contains more than 75,000 maps, a total of 2,000 atlases and reference works, and about 80,000 serial geographic publications, primarily of Iowa. The library is a depository for maps of the United States and of the U.S. Army Corps of Engineers, formerly Army Map Service.

The Geology Library contains approximately 60,000 maps, including both geologic maps and U.S. Geological Survey topographic maps. The department of Geography has its own collection of topographic maps, maps of large urban centers, and aerial photographs for use by students in laboratory exercises.

**Courses**

Most courses open to undergraduate students may be taken in any order or simultaneously as recommended, however, 44101, 44111, 44112, 44113, 44114, 44115, and 44119 and 4420 are available on a walk-in basis for the general education requirement in social sciences.

**Primarily for Undergraduates**

44000 Cooperative Education Training Assignment 6 cr.
461 Introduction to Human Geography 3 cr.
463 Application of geographic principles to contemporary problems of urban growth, problems of the ghettos, urban decay, and urban social and economic conditions related to these urban growth problems and processes of the ghettos, urban decay, and urban social and economic conditions related to these urban growth problems and processes.
agencies. Some inted to enter law, business, or other fields such as urban planning, environmental studies, engineering, archeology, science education, or oceanography in advanced areas. Geology is suited to all these.

The program stresses the basic aspects of geology more than the engineering or agricultural phases of the discipline. The department specializes in relating scientific thought to the study of the earth. Its resources include a major paleontology facility (Invertebrata, vertebrata, palynology), a terminal link to the University computing center, the Iowa Geological Survey (located in the same building as the department), and research equipment for fields such as mineralogy, petrology (igneous, sedimentary, and economic), remote sensing, and exploration geophysics.

Geology majors receive at least an academic year's work in allied scientific areas—physics, chemistry, biology, and mathematics—in addition to a course in each major area of geology.

Each year more than 1,000 students enroll in 11.23 Earth History and Resources and 11.24 Man and His Physical Environment, a team-taught, laboratory-lecture course designed to fulfill the College of Liberal Arts general education requirement for natural science studies. Other offerings for nonmajors include a lecture sequence for persons interested in a general geoscience program, and several advanced courses with few prerequisites—paleontology, geology of Iowa, energy in contemporary society, a planet in crisis, remote sensing, geomorphology, and oceanography.

Undergraduate Programs
Students majoring in geology must meet the degree requirements of the College of Liberal Arts. It is recommended that they satisfy the language requirement with French, German, or Russian, and the social science requirement with appropriate courses in economics, geography, and/or anthropology.

Bachelor of Science
The Bachelor of Science professional programs include a number of courses as preparation for graduate study and for employment in industry. Required courses in this program:

12.5 Introduction to Geology 4 s.h.
12.56 Evolution of Earth 4 s.h.
12.41 Mineralogy 4 s.h.
12.52 Elementary Petrology 4 s.h.
12.113 Summer Field Course 6 s.h.
12.121 Principles of Paleontology 3 s.h.
12.191 Structural Geology I 4 s.h.
12.192 Structural Geology II 3 s.h.

At least two elective geology courses 8 s.h.
Total 35 s.h.

(Note: The student may substitute 11.23 Earth History and Resources for 12.5 Introduction to Geology, but 12.5 is preferred.)

The geology major requires at least 10 semester hours of college mathematics including 22.52 Calculus II or 22.36 Engineering Calculus II. Computer science or statistics courses may be counted toward the ten-hour requirement. Additional mathematics is strongly recommended.

Eight semester hours of physics, 6 semester hours of chemistry, and a one-semester lab course of college zoology or botany are also required.

Bachelor of Arts
The Bachelor of Arts program is designed to provide a general background in geology, with a broader choice of electives than in the B.S. program, for students who are not planning to become professional geologists. With appropriate coursework in education, the B.A. program provides a base for high school community college teaching. A general background in geology and allied fields is also available in such areas as conservation and environmental problems. Course requirements for the B.A. in geology:

12.5 Introduction to Geology 4 s.h.
12.56 Evolution of Earth 4 s.h.
12.41 Mineralogy 4 s.h.
12.52 Elementary Petrology 4 s.h.
12.121 Principles of Paleontology 3 s.h.
12.116 Field Trip (two sections) 4 s.h.
Geology electives 12 s.h.
Total 35 s.h.

(Note: The student may substitute 11.23 Earth History and Resources and/or 11.24 Man and His Physical Environment for 12.5 Introduction to Geology, but 12.5 is preferred for the major.)

The B.A. in geology requires at least 10 semester hours of university-level mathematics, which may include computer science or statistics.

Eight semester hours of chemistry are also required, and courses in other sciences and social sciences appropriate to the student's objectives are recommended.

Joint Programs
Joint programs can be arranged, typically with chemistry, physics, zoology, and anthropology.

Original Research
A junior or senior who is ready to pursue original research for credit in geology may elect a faculty member or graduate student with a current research project, or initiate a small-scale project involving a combination of field, laboratory, and library investigation. Independent study is encouraged. Undergraduate classes have produced term reports which subsequently were published.

Honor's
A student "with honors" in geology is offered. Students in the honors program can elect a senior thesis.

Graduate Programs
Students planning to take graduate work in geology should have completed geology and supporting courses equivalent to those required for an undergraduate major in geology at The University of Iowa. Students with deficiencies may remedy them at the beginning of graduate study.

All beginning graduate students in geology meet 12:07 Geology Orientation. All graduate students in geology must perform fieldwork, research, or related supervised services as part of the degree program.

Prospective graduate students in geology should consult the "Notes and Regulations" in the "Graduate Catalog" section of the Catalog for general admission and graduate study requirements.

Master of Science
The M.S. degree programs are designed to complete the student's broad, fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology, or for more advanced and specialized studies—although in certain situations and with faculty approval the student may pursue an already specialized program at the master's level.

Entering graduate students are assigned to a general graduate adviser. Before the end of the second semester, the student should have selected a research area and related thesis topic. The chair then approves a thesis adviser and two additional faculty members who form the student's advisory committee. The student is responsible for getting the committee's approval of a suitable program of course work, and for satisfactory development of research plans as outlined in a thesis proposal which is submitted for departmental approval.

The degree requires at least 30 semester hours for the graduate level course work, including not more than 12 semester hours of research credits and, at least 24 semester hours in residence at The University of Iowa.

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Master's degree candidates complete at least one-half of the Ph.D. language and tool requirements as part of the master's program. Course work taken to satisfy these requirements will not count toward the semester-hour requirements for the degree.

To qualify for admission to the final master's examination, the candidate must have a 3.0 grade-point average on those graduate courses which are being offered toward the 30 semester hours minimum requirement for the degree. Additionally, the grade-point average on all graduate geology courses is to be at least 3.0. Not more than 8 semester hours of thesis and research may be counted toward the 30 semester hours minimum required for the degree program.

**Master of Science with Thesis**

Students are encouraged to select thesis topics involving a variety of geological subdisciplines and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

**Master of Science without Thesis**

The department encourages few students to pursue the M.S. without thesis, which requires that the applicant have approximately three months' experience working under supervision of a professional geologist, or equivalent experience in some other geologic activity.

If possible, the student should receive prior faculty permission to apply the experience toward the degree.

The student will submit a formal report on the activity and on the geologic principles involved with a listing of the broader applications and implications. No college credit is granted for this activity.

The M.S. degree without thesis requires at least 36 semester hours of graduate course work, of which at least 8 hours must be taken in other departments of the University.

The faculty may also require the student to write a formal scientific report dealing with an appropriate subject or project. Credit may be granted for this report.

The final examination covers course work and work done in lieu of the thesis.

**Master of Arts in Teaching (Earth Science)**

The program enables students to combine certification to teach secondary school with participation in a specialized graduate curriculum. Awarded by the College of Education, the M.A.T. degree requires at least 20 semester hours of graduate study in professional education and at least 16 hours of graduate course work in earth science.

**Doctor of Philosophy**

The Ph.D. degree in geology requires at least 72 semester hours of graduate course work, including at least two full-time semesters of residence beyond the first 24 semester hours of graduate study.

Departmental language and tool requirements for the Ph.D. degree may be met either by achieving competence in two languages or in one language and one tool, or by achieving proficiency in one language. Proficiency is normally achieved by satisfactory completion of a one-semester course appropriate to the degree, or by satisfactory completion of a one-year sequence of appropriate courses, proficiency by satisfactory completion of a one-year sequence.

French, German, and Russian are languages which meet departmental requirements; statistics and computer science are suitable tool areas. In exceptional circumstances the faculty may approve other languages or tool areas. Courses in such related disciplines as astronomy, chemisty, geophysics, and geology are not regarded as satisfying tool requirements, although they may provide indispensable background for the various areas of geological specialization.

Course work taken to satisfy language and tool requirements may be applied to credit requirements for the degree.

These are the minimum requirements:

- Satisfactory course requirements for the M.S. degree in geology at the University of Iowa. Where appropriate, additional work in one area may be approved as satisfying requirements in another.

- An appropriate graduate course in another discipline. Courses cross-listed between geology and other departments are not generally considered to meet this requirement.

- At least 24 semester hours of graduate course work, exclusive of credits for dissertation research and beyond course work applied toward the M.S. degree.

The comprehensive examination covers, in depth, all subdivisions of one major field and one subdivision in each of three other major fields. It is also presumed that the doctoral candidate is proficient in the basic elements of general geology, as presented by current elements textbooks.

These are the major and minor fields:

- **Major Fields**
  - Economic Geology
  - Petroleum
  - Economic Deposits
  - Mineral Economics

- **Minor Fields**
  - Crystallography
  - Determinative Mineralogy
  - Crystal Chemistry and Mineral Chemistry
  - Igneous and Metamorphic Petrology
  - Igneous Petrology
  - Metamorphic Petrology
  - Ancient Geology and Thermodynamics

- **Structural Geology**
  - Geosystematics
  - Structural Analysis
  - Remote Sensing

- **Geophysics**
  - Exploration Geophysics
  - Gold-Earth Geophysics

- **Rock Properties**
  - Stratigraphy

- **Physical Stratigraphy**
  - Biogeography

- **Depositional Environments**
  - Sedimentary Petrology

- **Sedimentation**
  - Sandstone and Carbonate Petrology

- **Physical Stratigraphy**
  - Pleistocene Studies

- **Pleistocene Geology**
  - Varialbre Paleoecology

- **Quaternary Petrology**

- **Paleontology**
  - Palynology

- **Palaeocology**
  - Biogeography

- **General Geology**
  - General Geology

- **Glacial and Pleistocene Geology**

- **Environmental Geology**
  - Hyrology

- **Remote Sensing**
  - Engineering Geology

- **Other Minor Subjects**

- **Biology**
  - Zoology

- **Chemistry**

- **Physics**

- **Materials Engineering**

- **Geography**

- **Hydraulics**

- **Archeology-Antropology**

- **Science Education**

- **Othras**

**Facilities**

Resources and equipment available for research in the Department of Geology include mineralogy/petrology lab (X-ray diffractometers, powder cameras, wet chemistry lab, A.A. spectrophotometers, microscopes); sedimentology lab (thin-section lab, petrographic facilities, cathodoluminescope), paleontology
remains 9% palaeontological and archaeological sites. Departmental Award: Prerequisite: introductory geology or equivalent and junior standing.
1.125.1 Structural Geology 3 h.
Lectures, laboratory, and field study of geologic structure, formation, and occurrence of significant geologic events. Prerequisites: Geology major; 2687 recommended.
1.126.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.127.0 Forestry 3 h.
An introduction to the scientific study of plant and animal communities and their environment. Prerequisites: Same as 269.0, 2687, or 269A, 268.0, or consent of instructor.
1.128.0 Forestry 3 h.
An introduction to the scientific study of plant and animal communities and their environment. Prerequisites: Same as 269.0, 2687, or 269A, 268.0, or consent of instructor.
1.129.0 Geomorphology 3 h.
Lecture and laboratory survey of pollen and assemblages in paleoecologic history. Paleobotany, palynology, and archaeology--problems, lecture, laboratory, hand samples. Prerequisites: Geology or biology major. Same as 268.0.
1.130.0 Palynology and Pollen Analysis 3 h.
Lectures and laboratory survey of pollen and assemblages in paleoecologic history. Paleobotany, palynology, and archaeology--problems, lecture, laboratory, hand samples. Prerequisites: Geology or biology major. Same as 268.0.
1.131.0 Geomorphology and Pollen Analysis 3 h.
Lectures and laboratory survey of pollen and assemblages in paleoecologic history. Paleobotany, palynology, and archaeology--problems, lecture, laboratory, hand samples. Prerequisites: Geology or biology major. Same as 268.0.
1.132.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.133.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.134.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.135.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.136.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.137.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.138.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.139.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.140.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.141.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.142.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.143.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.144.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.145.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.146.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.147.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.148.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.149.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
1.150.0 Geomorphology 3 h.
Survey of current applications in geology, topics include text editing, data management, integrated software solutions, and data visualization for geoscience. Prerequisites: Geology major; 2687 recommended.
German

Department chair: James P. Paeschl Faculty positions: Edward Overstreet, James P. Saunders, Karin L. Schick, John A. Cupit for Upper class upperclassmen: Judith A. Ahl, Wolfgang Stift, Fred S. Parke-Parrish, James P. Paeschl, Richard M. Rempke

The primary function of the Department of German is to transmit to Interested American liberal arts students a knowledge of the language, literature, and culture traditionally designated as German, including West and East Germany, Austria, and Switzerland.

University graduates with degrees in German frequently enter the teaching profession. They may also find positions in government, foreign service, and commercial enterprise.

Undergraduate Program

Students majoring in German choose one of two major tracks: the humanities track or the applied German track.

The humanities track enables the student to concentrate in German language, literature, and culture, both past and present. It is recommended for students who wish to explore the German word of ideas and their influence through the ages. The track is required for students who plan to pursue graduate study in German and for those who plan a career in teaching.

The applied German track is designed to give the student practical skills and proficiency in the language for use in business and government. It is especially useful when combined with a business-oriented curriculum.

Each track normally requires 24 semester hours of course work in the department, beyond the basic program. The following course sequences, or their equivalents, are required for students who begin a major in German with no previous experience with the German language.

Basic Program

13.11 First-Semester German 4 s.h.
13.12 Second-Semester German 4 s.h.
13.21 Third-Semester German 4 s.h.
13.32 Fourth-Semester German: Reading and Writing 3 s.h.
13.23 Fourth-Semester German: Elementary Composition and Conversation 3 s.h.

Humanities Track

13.31 Introduction to Modern German Literature 3 s.h.
13.32 Introduction to Modern German Literature 3 s.h.
13.33 Intermediate Composition and Conversation 3 s.h.
13.34 Intermediate Composition and Conversation 3 s.h.

Fourth Year

13.101 Advanced Composition and Conversation 3 s.h.
13.102 German Cultural History 3 s.h.
13.111 Survey of German Literature 3 s.h.
13.112 Survey of German Literature 3 s.h.

Students who intend to go on for an advanced degree are encouraged to enroll in 13.103 German Philology (three semester hours) to the above.

Applied German Track

Third Year

13.30 Intermediate Composition and Conversation 3 s.h.
13.33 Intermediate Composition and Conversation 3 s.h.
13.34 Intermediate Composition and Techniques of Translation 3 s.h.
13.107 Translation: Projects and Colloquium 2-4 s.h.
13.114 Business German 3 s.h.
13.115 Contemporary German Civilization 3 s.h.

Fourth Year

13.101 Advanced Composition and Conversation 3 s.h.
13.114 Business German 3 s.h.
13.115 Contemporary German Civilization 3 s.h.

The student in applied German must also complete at least one additional German literature or culture course.

German majors, graduate as well as undergraduates, are urged to supplement their degree programs with relevant courses in German history, philosophy, business, etc.

A student with native proficiency in German should declare German only as a second major, and is expected to complete a full first major in a subject in which he or she has no such obvious advantage over his or her peers.
Teacher Certification

Because the College of Education requirements for teacher certification could conflict with the sequential requirements of the major in German, it is imperative that the student consult with the undergraduate adviser to help secure the successful completion of the certification program.

In addition to the basic program requirements for the first and second year, a student must take the following courses or their equivalents for teacher certification in German:

- 12.31 Introduction to Modern German Literature I 3 h.e.
- 12.32 Introduction to Modern German Literature II 3 h.e.
- 12.33 Intermediate Composition and Conversation 3 h.e.
- 12.34 Intermediate Composition and Conversation 3 h.e.
- 12.101 Advanced Composition and Conversation 3 h.e.

Honors in German

This program is open to junior and senior students who are majoring in German and have grade-point averages of at least 3.0 overall and 3.5 in German. During the junior and senior years the honor student in German is expected to engage in extra readings and discussions, and to write a term paper (20-25 pages) for each of the courses in which he or she is enrolled. A senior essay, written under the supervision of a faculty member, and a comprehensive oral examination terminate the program.

Special Facilities

Students have the opportunity to improve their comprehension and command of German by working with records in the Language Media Center. Students may also benefit from our Computer-Assisted Instruction program.

An extensive collection of works and periodicals in the University Library is available to all students in all major areas of German literature and Germanic linguistics at all levels of study.

The Foreign Language House is available to undergraduate and graduate students as an on-campus housing option.

Foreign Study

The Department of German participates in the Regents Summer Program in Austria. Sponsored by the three Iowa regents universities, this program is open to students in all disciplines.

A three-week session is conducted at St. Radegund, Austria. All instruction in both language and culture is provided on a residential basis. A second four-week session is held in Vienna, where faculty of the international University at the University of Vienna conduct morning classes daily, again on several levels. An independent travel period is scheduled during the program.

To participate, the student must be admitted to one of the three Iowa regents universities for the summer session. Applicants should have a good basic knowledge of German—normally two years of college-level German or the equivalent. Students with less than two years may be accepted with the approval of the campus coordinator.

Graduate students are eligible to apply. All students are expected to speak only German while participating in the program. Program grants are available for qualified applicants.

For further information, write to the Department of German.

Master of Arts with Thesis

Graduate students of German who demonstrate an interest in and potential for productive scholarship and who plan to continue to the doctorate should elect the master's degree program with thesis. The thesis program requires a minimum of 36 semester hours, or equivalent, of graduate-level work, and fulfillment of other requirements by the Department of German and the Graduate College (see the "Graduate College" section of the Catalogue).

If the student has not completed major courses, or equivalents, in the department's undergraduate program, he or she will include them along with the courses required for the Master of Arts. Under some circumstances, the candidate may qualify for graduate credit for such make-up work.

With the graduate advisor's approval, some of the 30 semester hours required for the degree may be taken outside the department, in related subjects such as philosophy, history, linguistics, or other languages.

Normally, the student may receive two semester hours of credit for satisfactory completion of the thesis. The thesis may be either linguistic or literary, and is subject to the approval of the faculty.

Before the M.A. exam can be administered—after acceptance of the M.A. thesis—the candidate must demonstrate competence in a foreign language other than German, at a level equivalent to two years of college study or four years of high school study, with a grade of B or higher.

Master of Arts without Thesis

A graduate student preparing for secondary school teaching, government service, translation, etc., may elect the master's degree program without thesis. This program requires a minimum of 38 semester hours of course work and is considered a terminal degree.

The same course requirements outlined for the M.A. with thesis apply to candidates for the M.A. without thesis; however, students in the latter program should, with the approval of the graduate adviser, select those courses which will best prepare them for their chosen careers.

Doctor of Philosophy

The Ph.D. degree is awarded upon the satisfactory completion of a minimum of 72 semester hours of graduate credit, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalogue), with a concentration in either Germanic linguistics or German literature.

Credit received toward the M.A. degree is normally applied to the Ph.D. The student may earn up to 12 additional semester hours of credit for satisfactory completion of the Ph.D. dissertation.

Graduate courses outside the department in related subjects may be counted toward the degree with the approval of the graduate adviser.

A candidate concentrating in literature must demonstrate a reading knowledge of one or more foreign languages which he or her adviser considers pertinent to the student's research interests. For doctoral candidates in Germanic linguistics, a reading knowledge of French or Russian and of a modern European language other than Dutch is required. Competence in these languages may be demonstrated by two years of college study or four years of high school study, with a grade of B or higher, or through testing. The student must meet the language requirements before taking the comprehensive exam.

Financial Aid

Teaching assistantships, research assistantships, fellowships, and tuition scholarships are available to qualified graduate students. The department awards the Wilson and the Funk prizes to students of distinction.

Courses

Primary for Undergraduates

120.11 First Semester Dutch 4 h.e.
120.12 Second Semester Dutch 4 h.e.

120.11 First Semester German 4 h.e.
120.12 Second Semester German 4 h.e.

Prerequisites: 120.11 or equivalent.
For Undergraduates and Graduates

13-100 Individual German
Raphael (5 credit hours in German). Available only by arrangement with instructor.
Prerequisites: 13-105 or 13-140, or by special permission of the instructor.

13-102 German Poetry
Choral and written exercises required of upper-level German students, and others may be required. Prerequisites: 13-105 or 13-140.

13-106 German Philosophy
An analysis of selected central ideas of German-language philosophy and an introduction to problems of German philosophy and literature. Prerequisite: 13-105 or 13-140.

13-110 The Third Reich and Literature
Major literature and literature of the Nazi period. Prerequisite: 13-105 or 13-140.

13-111 Cultural History of Germany
Study of German cultural history from 18th to present, with special emphasis on development of arts, philosophy, and Gaustop. Prerequisites: 13-105 or 13-140.

13-120 Traditions, Projects and Cultures
For students willing to prepare individual translation projects on an advanced level in their own fields of interest; discussion of common problems and initial evaluation of work by participants. Prerequisites: 13-106 or equivalent.

13-130 German-American Studies
A major historical perspective of the German-American experience, 1733-1914, in the United States. Prerequisites: 13-105 or 13-140.

13-140 German Modern Literature
Survey of German literature from 1870 to 1914, 1914-1945, and 1945-present. Prerequisites: 13-105 or 13-140.

13-145 Current German Literature
Survey of German literature of the last thirty years. Prerequisites: 13-105 or 13-140.

13-160 Early German Literature
Survey of German literature of the early Middle Ages. Prerequisites: 13-105 or 13-140.

13-165 Medieval Literature
Survey of German literature of the high middle Ages. Prerequisites: 13-105 or 13-140.

13-170 German Drama
Introduction to the world of German drama and to the modern German-speaking world. Prerequisite: 13-105 or 13-140.

13-180 German Film
Survey of the development of German film from its beginning to the present. Prerequisites: 13-105 or 13-140.

13-190 Advanced Seminar in German
Special topics in German literature, culture, linguistics, or other areas. Introduction to comparative, representative, or composition, Prerequisites: 13-105 or equivalent.

13-203 Historical Development of the Modern Languages
A study of the development of the modern languages and their relationship to one another. Introduction to comparative, representative, or composition. Prerequisite: 13-105 or equivalent.

13-210 Historical Development of the Modern Languages
A study of the development of the modern languages and their relationship to one another. Introduction to comparative, representative, or composition. Prerequisite: 13-105 or equivalent.

13-220 History of German Literature
Introduction to the development of German literature from the Middle Ages to the present. Prerequisite: 13-105 or 13-140.

13-240 Contemporary German Literature
An introduction to contemporary German literature, with emphasis on the novel and on the essay. Prerequisites: 13-105 or 13-140.

13-245 Contemporary German Literature
An introduction to contemporary German literature, with emphasis on the novel and on the essay. Prerequisites: 13-105 or 13-140.

13-250 Contemporary German Literature
An introduction to contemporary German literature, with emphasis on the novel and on the essay. Prerequisites: 13-105 or 13-140.

13-260 Contemporary German Literature
An introduction to contemporary German literature, with emphasis on the novel and on the essay. Prerequisites: 13-105 or 13-140.
two years' study of a foreign language and will be encouraged to go beyond this minimal requirement. Each student completing the program will be awarded a certificate, and the concentration in global studies will be noted on his or her transcript.

The Global Studies Program requires the completion, with at least a 2.0 grade point average, of 24 semester hours of approved courses, distributed as follows:

Introductory Course
The student normally takes this course, 471: Global Interdependence and Human Survival, in the freshman or sophomore year. It is designed to provide an introduction to the four basic problem areas of the Global Studies Program: basic information relative to each of the problems, clarification of their inter-connectedness, and identification of some current efforts to deal with them.

Multidisciplinary Senior Seminar
This course, 472: Global Studies Seminar, is offered at least once a year and is required of all students in the program, normally in their senior year. It is designed to provide an in-depth exploration of a particular global problem or geographic area. Course content will vary from year to year, but in any case the seminar will be multidisciplinary and will feature distinguished speakers from on and off campus.

Global Studies Courses
Two special courses offered by the Global Studies Program are 471: Contemporary Africa, a multidisciplinary survey of the political, economic, and cultural life in sub-Saharan Africa, and 472: Problems in Global Studies. The subject of the latter course may change from year to year.

Other courses are occasionally offered by University departments, organized for Global Studies program purposes under four major headings. The student usually elects one course (3 semester hours) under each major heading; and two additional courses (6 semester hours) under one of the headings, for a total of six courses (18 semester hours). The four major program headings and the courses offered under these headings are indicated below.

I. War, Peace, and Security
This component of the Global Studies Program deals with the use of armed force for purposes that have an impact on a continuum ranging from potential global nuclear war to the individual act of terrorism. The various approaches will consider causes, effects, limitation, and resolution of violence in the contemporary setting.

All students must take either:
30:184 Military Affairs or
16:146 War and Society
Students who elect to take these courses in this area would, in addition, take one of the following:
30:187 Arms Races and Arms Control or
65:123 Political Economy of the Military-Industrial Complex

And one from this group:
30:148 The Politics of Southern Africa
32:181 The United Nations
30:183 Political Economy of Peace and War
30:167 Arms Races and Arms Control
32:172 Introduction to International Law
16:96 Historical Background of Contemporary Issues

(When the course deals with issues of particular relevance to global studies students)

16:146 War and Society
16:179 United States in World Affairs, 1900-1975
16:188 U.S.A. in a World at War, 1931-1945

(Also 16:96 Literature of Peace and War)
65:123 Political Economy of the Military-Industrial Complex

II. Development
This component of the Global Studies Program deals with the problems of poor and developing countries, as analyzed along economic, sociological, and political lines. Of special interest are the ways in which developed and developing countries interact, and how these interactions are thought to influence the character of and prospects for the developing countries.

All students must take either:
113:161 Sociology of the Third World (same as 54:151) or
8:126 Economic Development: Underdeveloped Areas

Students who elect to take three courses in this area would, in addition, take any two courses from this list:
30:148 African Development (same as 44:153)
30:150 The Political Economy of the Third World
8:125 International Economics
8:127 Natural Resources in the World Economy: Control and Conflict
8:128 Economic Development: Underdeveloped Areas
8:188 The Political Economy of Social Change
44:35 World Cities
44:162 The Third World
113:151 Sociology of the Third World (same as 54:151)
34:174 World Political Problems
77:104 Education in the Third World

Global Studies/LIBERAL ARTS 113
19:191 Development Support Communication

Certain area studies courses, drawn from the same area, may also be elected, subject to the program committee's approval, to fulfill this requirement.

III. Environmental Concerns and Global Resources

This component of the Global Studies Program is concerned with the availability, use, and disposal of global resources. A social-scientific review of the environmental problems arising from the transformation of these resources by humans using modern technology. All students must take either:

44:198 Contemporary Environmental Issues or
44:194 Introduction to Global Environment

Students who elect to take three courses in this area would, in addition, take any two of the following courses:

44:199 Contemporary Environmental Issues
44:123 Geography of Natural Resources
44:124 Introduction to Global Environment
44:181 Energy in Contemporary Society
37:125 A Planet in Crisis (same as 12:125)
34:174 World Population Problems

IV. Cross-Cultural Understanding

Global issues will require for their analysis and solution persons educated to understand that perceptions, values, and beliefs vary among societies; that these differing values complicate the process of people communicating about and arriving at possible solutions to global problems; and that it is likely to accommodate the examination, the perceptions, values, and beliefs of any one society.

The goals of this program component are to highlight cross-cultural differences themselves as a major contemporary global issue; to address some of the sources, dimensions, and policy implications of these value differences; to help foster the cross-cultural understanding and sensibilities required for dealing constructively with global issues; and to encourage students to clarify their own values, as these bear on the analysis of global problems and proposals for their amelioration.

Two options are available for fulfilling the requirements of this program component:

Option 1
Students electing Option 1 must take either:

32:159 World Order and Conflicting Values
or
115:3 Introduction to the Study of Culture and Society

Students who elect, through Option 1, to take three courses in this program component must also take two additional courses from the following list:

32:158 World Order and Conflicting Values
42:157 World Futures
30:155 Human Rights
91:153 Human Rights in the World Community: Problems of Law and Policy (emphasizes enforcement)
69:165 The Political Economy of Socialism
19:150 Comparative Communications Systems
18:191 Contemporary Asian News Cogulation (same as 19:102)
47:7 Contemporary Africa
115:3 Introduction to the Study of Culture and Society
115:10 Anthropology and Contemporary World Problems
115:14 Language and Human Behavior
115:168 Women's Roles: A Cross-Cultural Perspective
113:172 Language and Culture
113:361 Race, Ethnicity, and Intercultural Relations (same as 45:15)

Option 2
Students selecting Option 2 may fulfill the requirements of this program component by taking three courses in the history and culture of one of the principal world geographical areas. The selection of the three courses is subject to the approval of the program's faculty committee. It is especially desirable for students electing this option to fulfill the program's language requirement through the study of a language of the geographical area.

In addition to supervising its academic program, the Global Studies Committee organizes talks and conferences of interest to the general public as well as students.

Courses

47:1 Global Interactions and Human Survival 3.0 A major in the four basic problem areas of the global studies program, based on reading lists related to each point and problems, analysis of their interconnections, and identification of current approaches to deal with them.

47:5 Contemporary Africa 10.0 A multidisciplinary survey of the political, economic, and cultural life in sub-Saharan Africa.

47:30 Politics in Global Studies 3.0A Current social issues as the subject matter of a particular seminar. It could substitute for one of the listed courses among the four divisions of Global Studies. May be repeated with consent of instructor.

44:156 Global Studies Seminar 3.0A In-depth exploration of a particular global problem or geographical area. course content will vary from year to year, but in all cases the approach will be interdisciplinary and include one or more guest speakers from on or off campus. May be repeated with consent of the Global Studies Committee chair.

Greek

See "Classics."

History

Department chair: John B. Heppner

Professor of History: Daniel Ashken, J. Delbert Meek, John L. L. McVea, Paul Oudshoof, David S. Meier, Alan Meyd, Stephen Varcie

Assistant Professor of History: Stephen J. Pype, Sheldon M. Riemer, Jonathan Kallen

Degrees offered: B.A., M.A., Ph.D.

The purpose of the Department of History is to increase knowledge of human experience and to provide students with opportunities to gain information about and learn methods for understanding the world in the light of its past. In addition to offering the essential elements of liberal education, the department trains professional historians and teachers of history, serves those who require a knowledge of a world or aspect of history as background for their own specialized interests in other fields, and participates in several interdisciplinary programs such as American civilization, Afro-American studies, Asian studies, Latin American studies, and women's studies.

Undergraduate Program

Baccalaureate graduates in history go into a variety of positions in business, public service, or the professions, plan further training in history, law, religion, library science, or social work.

A major in history includes work in other fields which will illuminate and expand the meaning of history courses as well as introduce the undergraduate to different bodies of information and approaches to understanding the ways societies and cultures work. It is, for example, strongly recommended that the College of Liberal Arts degree requirement in a foreign language be met by selecting a language which fits in with the major student's interest.

The general major is for students with a general interest in history. The program requirements are:

A minimum of 44 semester hours' courses offered by the Department of History, or of which at least 12 semester hours are in courses numbered 100 or above.
hours must be in non-U.S. history courses. This limitation is imposed to assure students the opportunity of at least one other society besides their own.

Three semester hours in 18:51
Colloquium for History Majors. A colloquium consists of a small number of students collectively studying ways in which give training and experience in group discussion, analysis, and criticism. It is taken after the student has finished a number of other history courses.

Of the 24 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio art), geography, jurisprudence, political science, psychology, religion, and sociology, or a second major in one of these areas. Courses taken to satisfy requirements in general education will not be counted toward the related-area requirement.

Students majoring in history may waive three semester hours of the general education requirement in historical perspectives. They may not receive credit toward this requirement by taking 11:29-30 Problems in Human History, 16:41-42 Foundations of Western Civilization, and 16:45-46 Civilizations of Asia (a total of 3 semester hours) but may count such a course toward the general education requirement in historical perspectives. They must complete the professional courses in the College of Education which are required for the History major certification (a total of 23 semester hours). They must also take 18:51 Colloquium for History Majors.

They must choose an area concentration in history and meet these requirements:

American History Concentration
Courses in U.S. history
20 s.h.
Courses in related areas
36-44 s.h.

Students must select at least six of the following six related areas: economics, geography, world history (except L.G.), political science, psychology, sociology. They must take 15 semester hours of courses in each of these six areas choose, except psychology, in which they must take 20 semester hours.

Courses in these subjects which have been taken to satisfy the general education requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

World History Concentration
Courses in non-U.S. History
20 s.h.
Courses in the College of Liberal Arts
8 s.h.

Students must select three of the following six related areas: economics, geography, American history, political science, psychology, sociology. They must take 20 semester hours. Courses in these subjects which have been taken to satisfy the general education requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area. Three semester hours from general education courses in historical perspectives (11:29-30, 11:31-32, 11:33-35) may be counted toward the required 30 semester hours in non-U.S. history.

Students seeking the teaching major in history should consult an adviser in social studies education (see the "College of Education" section of the Catalog).

Honor's

The honors major is for students of superior ability who want a flexible program enabling them to pursue special interests and enjoy the experience of individual research. To undertake the honors major in history, the student must be admitted to the College of Liberal Arts, Honors Program by the director of that program, and to the honors program in history by the department. Application should be made by the end of the junior year, but the honors major may be completed in 3 years. Successful completion of the honors program leads to the Bachelor of Arts degree with honors in history.

Requirements are:

A minimum of 24 semester hours in courses offered by the Department of History of which at least 12 hours must be in non-U.S. history; minimum of 12 hours in history related courses (See General Major in History); at least 9 hours in history related courses for honors offerings, which may include up to 6 semester hours of honors essay credit.

Successful defense of an honors essay.

Honor's credits may be obtained in honors seminar, honors tutorial, and supervised research for the honors essay. (This seminar seminar fulfills the colloquium requirement of the general major.)

The honors essay should be a 30 to 40 page paper based on some research in primary sources. A committee of three faculty members will hear a defense of the essay, usually in the student's last semester.

Graduate Programs

The graduate program in history prepares students to teach in high schools or colleges, and for such occupations as publishing, commercial research, and government or other public service. Additional work for those students of history, who have completed the requirements, may be considered for qualifications for careers in archival work, library work, or historical site preparation and display. Some students enter the program leading to the degrees in both law and history (see the "College of Law" section of the Catalog).

Qualified graduate students are invited to apply for fellowships and assistantships. Inquiries should be directed to the departmental office.

Master of Arts

There are two M.A. programs in the history department. The first is for students who plan to work for the Ph.D. degree. It requires a minimum of 30 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours of credit in the history department, including at least 2 seminars or one seminar and one reading course. The remaining must be taken within the first two semesters of residence. Twelve semester hours must be in the area of the student's essay topic, and at least 6 must be in a second division, including either a seminar or a readings course.

The essay in the major division must be based on the student's work and should be in the vicinity of 10,000 to 15,000 words in length. Work on the essay will normally begin in the seminar in the major division and will be continued with 15-20 individual study. Graduate, in which context will be continued under the guidance of the supervisor. In exceptional cases where the essay is completed in seminar it is judged to be of outstanding quality, other courses may be substituted for 16:295.

Students who complete the M.A. under the above regulations may not become candidates for the doctorate in history. The M.A. candidate must earn at least 30 semester hours of graduate credit, 24 semester hours of which must be in history. Of these, at least 12 must be taken in one division, and must include at least 18 hours beyond introductory course. The program must also include at least 6 hours in a course in one of the other divisions in history, or 6 hours in one other division in history and 6 hours in a related department. These hours must
The committee may define and delineate the individual fields for examination; it shall have the power to examine the candidate orally, either as a seminar paper or by oral examination. The committee may then make its final report of the candidate's fitness to receive the degree of Ph.D. or M.A. for the given area.

Guide to Graduate Study

Further information on graduate study is contained in the Guide to Graduate Study, which is available at the University of Iowa. This guide is designed to provide guidelines to students, advisors, and faculty members on the selection of courses, and on the general requirements for graduate study.

Special Facilities

The University Library is strong in all fields, with excellent holdings in the humanities, social sciences, and natural sciences. The library is open to the general public and is open from 8:00 a.m. to 10:00 p.m. Monday through Friday.

Courses

Courses are offered in the fall, spring, and summer semesters. A wide range of courses is offered, including courses in the humanities, social sciences, and natural sciences.

Cost

Tuition and fees vary according to the student's field of study. Students are responsible for paying all tuition and fees on time.

Financial Aid

Fellowships, grants, and loans are available to students. Information on financial aid is available from the Office of Student Financial Aid.

Conclusion

The University of Iowa is committed to providing a high-quality education for its students. The University encourages students to take advantage of the many resources available to them, including the University Library, the University of Iowa Research and Development Office, and the Office of Student Financial Aid.
assist individuals and families with their needs and problems.

Through study, understanding, and use of design and technology development, food and nutrition, home economics education and textiles and clothing, home economics contributes to the physical, psychological, social, and aesthetic development of people. Home economics as a career offers a wide range of opportunities: teaching, dietetics, merchandising, interior design, product development and quality control in textile and food industries, consumer relations, family life education and services, food service systems management, and service with community or government agencies.

Undergraduate Program

The undergraduate program prepares students for immediate employment as professional home economists, and also for advanced study.

Concentration in family development: food and nutrition; home economics education; interior design, textile design, housing; or textiles and clothing makes it possible for undergraduate majors to develop specialization. The home economics core provides a central body of knowledge and a basic understanding of relationships among the various areas of specialization with home economics. Joint programs may be arranged with other fields such as journalism, art, social work, and home economics.

Meeting the general requirements for the B.A. or B.S. degree of the College of Liberal Arts, students majoring in home economics need to select courses in other departments which are prerequisite for home economics courses.

All students majoring in home economics complete this core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:106 Basic Aspects of Aging</td>
<td>2-3 h.</td>
</tr>
<tr>
<td>17:112 Personal Financial Management</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:118 Marriage and Family Interaction</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:114 Parent-Child Relationships</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:115 Parent-Child Relationships in the Exceptional Family</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:119 Great Ideas in Family Development</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:122 Materials and Methods in Family Education</td>
<td>3 h.</td>
</tr>
<tr>
<td>31:1 Elementary Psychology Principles</td>
<td>3-4 h.</td>
</tr>
<tr>
<td>34:1 Introduction to Sociology: Principles</td>
<td>3-4 h.</td>
</tr>
<tr>
<td>17:149 The Family in Various Societies</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:161 The American Family</td>
<td>3 h.</td>
</tr>
<tr>
<td>Electives from home economics, education, social work, economics, psychology, and sociology are recommended.</td>
<td></td>
</tr>
</tbody>
</table>

Food and Nutrition

This program prepares students for careers in dietetics and the food industry, and for service with community and government agencies. A concentration in food and nutrition requires:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:151 Food Study</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:152 Food Study Laboratory</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:153 Meal Management</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:154 Experimental Food I</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:155 Experimental Food II</td>
<td>2 h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>17:146 Nutrition Laboratory</td>
<td>1 h.</td>
</tr>
<tr>
<td>17:142 Nutrition</td>
<td>1 h.</td>
</tr>
<tr>
<td>4:13-14 Principles of Chemistry I</td>
<td>6 h.</td>
</tr>
<tr>
<td>4:16 Principles of Chemistry</td>
<td>2 h.</td>
</tr>
<tr>
<td>1:121 Organic Chemistry I</td>
<td>3 h.</td>
</tr>
<tr>
<td>4:141 Intermediate Chemistry Laboratory I</td>
<td></td>
</tr>
<tr>
<td>61:10 General Microbiology</td>
<td>4 h.</td>
</tr>
<tr>
<td>7:22:100 Nanos Physiology</td>
<td>4 h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>17:110 Biochemistry</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Electives should be selected from home economics and the natural sciences.

A concentration in nutrition with emphasis on dietetics requires:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:131 Food Study</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:155 Food Study Laboratory</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:133 Meal Management</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:134 Experimental Food I</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:16 Food Service Systems Management</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:147 Food Service Systems Administration</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:142 Nutrition</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:148 Nutrition Laboratory</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:145 Organic Chemistry I</td>
<td>3 h.</td>
</tr>
<tr>
<td>4:13-14 Principles of Chemistry I</td>
<td>6 h.</td>
</tr>
<tr>
<td>4:16 Principles of Chemistry</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:110 Biochemistry</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Bachelor of Arts

Family Development

This program prepares students for careers with agencies and services concerned with the total family and its functions, and for the extension service. The following courses are required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:105 Growth and Development of the Young Child</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:118 Adolescence and the Family</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

92:110 Biochemistry                                     3 h.  
SE:1 Principles of Economics                          4 h.  
6:158 Personnel Management                            3 h.  
7P:79 Educational Psychology and Measurement           3 h.  
or                                                    3 h.  
7P:131 Educational Psychology                         3-4 h. 
34:1 Introduction to Sociology: Principles           3-4 h. 
or                                                    3 h.  
31:1 Elementary Psychology                             3 h.  
61:157 General Microbiology                           4 h.  
72:130 Human Physiology                               4 h.  
113:3 Introduction to the Study of Culture and Society 4 h.  

Electives should be selected, according to the student's professional objective, from the natural sciences, business administration, psychology, computer science, statistics, education, and home economics.

This program follows minimum academic requirements of the American Dietetic Association Plan IV. All students applying for internships should have this program centrally screened the first semester of the senior year.

Home Economics Education

This program leads to certification and professional approval in home economics. Graduates are qualified to teach home economics in vocational and nonvocational secondary schools, to work in home economics extension and other agricultural and home teaching in nonschool settings. Required courses for this concentration are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:131 Introductory Food Study</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:132 Food Study, Food Study Laboratory</td>
<td>4 h.</td>
</tr>
<tr>
<td>17:133 Meal Management</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:134 Experimental Food I</td>
<td>3 h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>17:110 Biochemistry</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

17:121 Curriculum: Home Economics Management                       3 h.  
17:133 Meal Management                                              2 h.  
17:165 Houssay: Planning and Structural Management                  3 h.  
or                                                                    |         |
| 17:166 Houssay: Social and Psychological Aspects                    | 3 h.    |
| 17:170 Custom and Contemporary Tailoring                            | 3 h.    |
| or                                                                    |         |
| 17:171 Fitting Problems and Flat Pattern Design                     | 3 h.    |
| 18:1 Elements of Art                                                 | 2-3 h.  |
| 18:5 Elements of Art                                                 | 2-3 h.  |
6E:1 Principles of Econometrics 4 s.h.
or
6E:2 Principles of Economics 4 s.h.
31:1 Elementary Psychology 3-4 s.h.
34:1 Introduction to Sociology: Principles 3-4 s.h.
In addition, students must complete the course work generally required for teacher certification. The methodology course required in home economics education is 75:125 Methods: Home Economics (3 seminar hours).

In addition to the general requirements to be eligible for student teaching (see the "College of Education" section of the Catalog), the student in home economics education must complete 28 semester hours of home economics courses with a 2.0 grade point average in that work, and must have received no grade less than "C" in the home economics courses required for home economics endorsement and vocational approval.

For the general requirements to be eligible for student teaching and for certification, see the "College of Education" and "Secondary Education" sections of the Catalog.

Students are required to have 400 hours of paid employment in a home-economics-related occupation (for example, food service, diet care center, retailing) for certification. This work experience can be through 17:100 Cooperative Education Training Assignment (or verification of work experience). Electives should be selected from education, journalism, psychology, sociology, and commoditisation.

Interior Design, Textile Design, Housing
A concentration in interior design, textile design, housing prepares students to pursue careers in the following areas: residential and contract interior design, home planning, design consulting, merchandising, fabric design, and weaving. The requirements for this concentration are:

17:52 Presentation Graphics 3 s.h.
17:54 Interior Design: Principles and Practices I 3 s.h.
17:155 Survey of Historic Interiors 4 s.h.
17:180 Textile Design: Printing and Dyeing 3 s.h.
17:185 Housing: Planning and Structural Analysis 3 s.h.
Two of the following:
11:22 Understanding the Visual Arts 3 s.h.
11:26 Western Art and Culture before 1800 3 s.h.
14:1 Western Art and Culture since 1800 3 s.h.
11:24 Introduction to Asian Art 3 s.h.
18:1 Elements of Art 2-3 s.h.
or
18:2 Elements of Art 2-3 s.h.

An approved two-dimensional studio art courses
17:4 Basic Design 2 s.h.
or
An approved three-dimensional studio art course
6E:1 Principles of Economics 4 s.h.
6E:2 Principles of Economics 4 s.h.
One of the following, depending on major emphasis:
17:153 Interior Design: Principles and Practices II 3 s.h.
17:162 Textile Design: Weaving 3 s.h.
or
17:164 Textile Design: Process and Fibers 3 s.h.
17:166 Housing: Social and Psychological Aspects 3 s.h.
Also, one other interior design, textile design, housing course 2-3 s.h.
Electives from home economics, business administration, urban and regional planning, art history, studio art, social sciences, and theater are recommended.

Textiles and Clothing
This program prepares students for careers in merchandising and related areas.

Concentration in fashion merchandising requires:
17:70 Introductory Clothing Construction 3 s.h.
17:73 Apparel, Fashion, and Selection 3 s.h.
17:170 Custom and Contemporary Tailoring 3 s.h.
17:171 Fitting Problems and Fat Pattern Design 3 s.h.
17:173 Fashion Merchandising 3 s.h.
17:174 Merchandising Communication 3 s.h.
17:180 Textile Technology and Analysis 3 s.h.
17:181 Textile Finishing, Dyeing, and Detergency 3 s.h.
17:183 Textile and Apparel Economics 3 s.h.
4-7 General Chemistry I & II 8 s.h.
4-9 General Chemistry Laboratory 2 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
6E:1 Principles of Economics 4 s.h.
6E:2 Principles of Economics 4 s.h.
6M:100 Introduction to Marketing 3 s.h.
6L:100 Administrative Management 3 s.h.
6M:135 Consumer Behavior 3 s.h.
A course in computer science
A course in communications
Courses in business administration, computer science, journalism, communication, and home economics are recommended as electives.
Concentration in textiles technology requires:
17:70 Introductory Clothing Construction 3 s.h.
17:72 Apparel, Fashion, and Selection 3 s.h.
17:165 Textile Technology and Analysis 3 s.h.
17:161 Textile Finishing, Dyeing, and Detergency 3 s.h.
17:182 Experimental Textiles 3 s.h.
17:183 Textile and Apparel Economics 3 s.h.
17:170 Custom and Contemporary Tailoring 3 s.h.
17:185 Historic Textiles and Apparel 3 s.h.
4-7 General Chemistry I & II 8 s.h.
4-9 General Chemistry Laboratory 2 s.h.
6E:1 Principles of Economics 4 s.h.
22B:135 Quality Control, Reliability, and Engineering Statistics 3 s.h.
Two other courses in statistics 6 s.h.
A course in computer science 3 s.h.
Electives from computer science, statistics, engineering, psychology, chemistry, economics, and home economics are recommended.

Bachelor of Science
The B.S. program is recommended for students who want greater depth or breadth in the natural sciences, and for those interested in research positions in colleges and universities or in industrial, governmental, or medical research laboratories.

Food and Nutrition
In addition to the requirements for the B.A. degree emphasizing food or nutrition, the B.S. degree requires the following courses:
22M:2-3 Mathematical Techniques 3 s.h.
22M:20 Elementary Functions 3 s.h.
22M:25 Calculus I 4 s.h.
29:11-12 College Physics 8 s.h.
4:130 Physical Chemistry for the Life Sciences 3 s.h.
or
98:140 Experimental Biochemistry 4 s.h.

Home Economics Education
Graduates can enter the careers described by the B.A. degree in home economics education. The B.S. program enables students to obtain greater depth and breadth in the natural and social sciences. In addition to the course and work experience listed for the B.A. degree, the B.S. requires:
4-7 General Chemistry I & II 8 s.h.
4-9 General Chemistry Laboratory 2 s.h.
A course in statistics 3 s.h.
Two courses from the natural sciences and/or courses numbered 100 or above in anthropology, economics, psychology, or sociology 8-8 s.h.
Textile Science

This program prepares students for work in the textile and apparel industry. Graduates have positions in textile technology, design, color, and materials. The curriculum includes courses in textile structure, physics, chemistry, color, and fashion design.

Cooperative Education/Internship Program

Students are required to complete a minimum of two semesters of cooperative education or internship experience. The program provides opportunities for students to gain practical experience in their field of study and to develop professional skills.

Master's Degrees

Master's degrees are available in Textile Science and Textile Technology. The programs prepare students for careers in industry, government, or academia.

Food and Nutrition

Graduate study in this program emphasizes food science, nutrition, and public health. Students learn about the nutritional needs of individuals and populations, and the factors that influence food choice and consumption.

Graduate Programs

Graduate programs are designed to provide advanced training in specific areas, such as food science, nutrition, and human development. These programs are available on a full or part-time basis.

Courses for the M.S. degree in Textile Science are offered in the following areas:

- Textile Science
- Apparel Design
- Textile Technology
- Textile Engineering

Other courses may be available, depending on student interest and faculty availability.

Courses for the M.S. degree in Food Science are offered in the following areas:

- Food Chemistry
- Food Nutrition
- Food Technology

Other courses may be available, depending on student interest and faculty availability.

Courses for the M.S. degree in Human Development are offered in the following areas:

- Child Development
- Family Dynamics
- Family Economics

Other courses may be available, depending on student interest and faculty availability.

Courses for the M.S. degree in Nutrition are offered in the following areas:

- Food Science
- Human Nutrition
- Public Health Nutrition

Other courses may be available, depending on student interest and faculty availability.

For more information, contact the Graduate Program Coordinator at the address listed above.
A course in statistics 2 s.h.

Home Economics Education
The graduate student's program in home economic education may be planned for specialization in one area of home economics or for breadth in the whole of home economics. Graduates are prepared for positions in educational institutions at all levels, home economics extension service, social agencies, and business.

Applicants must have completed requirements for a teacher's certificate. At least two of the courses outside the department is the teacher option and three in the nonthesis option must be from the same department.

The program's course requirements are:
17:923 Seminar: Readings in Home Economics Education 2 s.h.
17:925 Research Problems: Home Economics Education 2 s.h.
17:930 Seminar: Home Economics Research 2 s.h.
A course in statistics 3 s.h.
Another 200-level home economics course 2-3 s.h.

Interior Design, Textile Design, Housing
Graduate study in interior design, textile design, housing may be planned as a specialized program in interior design or textile design or as a more general program including a wider variety of courses. Applicants to this program must provide a portfolio which emphasizes the specialization the student intends to pursue, prior to admission.

A variety of career opportunities is available to the M.A. graduate in interior design, textile design, housing. These include design teaching, interior design, textile design, natural preservation and renovation, positions in business and industry. Required courses (depending on previous coursework) are:
17:250 Seminar: Design and Housing 2 s.h.
17:250 Seminar: Home Economics Research 2 s.h.
Course in interior design specialization:
17-153 Interior Design: Principles and Practice 3 s.h.
17-154 Interior Design: Principles and Practice 3 s.h.
17:155 Survey of Historic Interiors 4 s.h.
17:156 Survey of Modern Interiors 2 s.h.
17:250 Research: Problems in Interior Design and Housing 2-4 s.h.
One course in the art history 2 s.h.
One course in housing 3 s.h.
One course in art history 3 s.h.
One course in textile design 3 s.h.
Courses for textile design specialization:
17:156 Survey of Modern Interiors 2 s.h.
or
17:156 Historic Textiles and Apparel 3 s.h.
17:16 Textile Design: Printing and Dyeing 3 s.h.
17:16 Textile Design: Weaving 3 s.h.
17:16 Textile Design: Forms and Fibers 3 s.h.
17:18 Textile Finishing, Dyeing and Dyeing 3 s.h.
17:260 Studio Workshop in Fiber 4 s.h.
17:260 Advanced Studio Problems in Textile Education 3 s.h.

Textiles and Clothing
This program prepares students for careers in merchandising, textile research, teaching, extension service, and communication. Applicants need background courses in textiles, clothing, and chemistry. Courses required for the textile and clothing concentration are:
17:270 Research: Problems in Clothing 3 s.h.
or
17:280 Research: Problems in Textiles 3 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
A course in statistics 3 s.h.

Additional courses in textiles and clothing are required, based on the student's educational background, professional needs, and career goals. Master of Arts in Teaching
The M.A.T. program is designed for students with an undergraduate degree in home economics who have had few or no professional education courses. The program is nonthesis and requires written and oral comprehensive examinations. Graduates obtain a home economics teacher's certificate with vocational approval. Applicants must have a bachelor's degree in home economics and a 3.0 minimum undergraduate grade-point average, and must be admitted to the M.A.T. program in the College of Education.
The program requires 30 semester hours of graduate course work in education and at least 18 semester hours of graduate work in home economics. For certification, the student must have completed (at the undergraduate level) a course in American politics or American government and two courses in each of the following: housing and interior design, family development, food and nutrition, family economics and home management, and textiles and clothing. Other courses required for the M.A.T. program are:
17-121 Curriculum: Home Economics 3 s.h.
17-128 Evaluation: Home Economics 3 s.h.
79-191 Educational Psychology 3 s.h.
75-125 Methods: Home Economics 3 s.h.
78-191-192 Observation and Laboratory Practice in the Secondary Schools 12 s.h.
79-127 History of Western Education 2 s.h.
or
78-117 Philosophies of Education 2 s.h.
78-170 Human Relations for the Classroom Teacher 3 s.h.

Certification-Only Program
Students with the B.A. or B.S. degree in home economics may enroll in the certification program in order to meet requirements for teaching vocational home economics in secondary schools. Courses for this program are selected according to the student's background and professional goals. See the "College of Education" section of the Catalog.

Financial Awards
Several annual departmental awards are available to undergraduates for their outstanding qualities and accomplishments. The Adeline M. Hoffman Writing Award is given to recognize excellent written work completed in home economics courses. The Family Book Award recognizes the sophomore home economics major with the highest grade-point average. The Margaret Foster Holt Award is a fall fall-state tuition scholarship given to a student for his or her senior year. Four Ilaha M. Clachtoll Scholarships are awarded to undergraduate majors with financial need. The Myra Lee Spranger Memorial Award is given to an outstanding home economics senior. Two awards are given for graduate students. The Mary Campbell Tow Scholarship is given to a student beginning graduate study. The other scholarship is provided by the Iowa Home Economics Association. A limited number of scholarships are available to graduate students.

Courses
Primarily for Undergraduates
17:620 Cooperative Education Training Assignment 0 s.h.
17:640 Human Development and the Family 3 s.h.
Introduction to in-home human development; special emphasis placed on way of life family
17:684-686 Research in Human Development 4 s.h.
Study of the physical, cognitive, emotional, and social development of the young child. Emphasis on the relationships between children and families.
Journalism and Mass Communication/LIBERAL ARTS

19-130 Legal and Ethical Issues in Communication 3 s.h.
Total 12 s.h.

After completing the 12 semester hours of foundation courses, students select one of three sequences: required for the 30-semester-hour degree requirement. (during the final semester, all graduating seniors are required to take 19-185 Contemporary Issues and Problems in Mass Communication, for one semester-hour of credit.

News-Editorial Sequence

This sequence is concerned with the gathering, organizing, and effective writing of news and other information from printed, human, and electronic sources. It also involves the processing, packaging, and display of news stories, articles, and illustrations, for printed and broadcast media. Courses provide opportunities for the development of the various technical skills required for work in the student's choice of media. Career possibilities for students in this sequence include daily or community newspapers, magazines, broadcast journalism, public relations and other professional positions in the news media. The sequence is accredited by the Accrediting Council on Education in Journalism and Mass Communication (ACEJMC). These are the required journalism courses:

Foundation Courses
19-112 News Reporting and Writing 3 s.h.
19-114 News Processing 3 s.h.
19-115 Contemporary Issues and Problems in Mass Communication 1 s.h.
19-120 Journalism electives 6 s.h.
Total 30 s.h.

Maximum journalism credits allowed toward graduation: 36 semester hours

Mass Communication Laboratory Sequence

This sequence offers students an opportunity to develop proficiency as professional communicators who can identify and analyze problems that need professional communication products for solutions. Students in this sequence become proficient in research, production and conceptual courses within the context of their intellectual and media interests. Seniors in 19-181 Mass Communication Lab are formed into enterprise teams that complete independent projects, or projects for clients. The lab is the classroom of the communication services. These projects may include development of television scripts, write and present public relations, videography, video productions, brochures and other publications. Career possibilities for students completing the sequence include writing for public relations departments, advertising agencies, public information offices, independent production companies, as well as other print or broadcast journalism.

Foundation courses 12 s.h.
One reporting course, selected from:
19-112 News Reporting and Writing 3 s.h.
19-135 Broadcast Journalism 3 s.h.
One production course, selected from:
19-138 Broadcast Journalism Workshop 3 s.h.
19-152 Phonocmunication 1 3 s.h.
19-160 Graphic Design and Production 3 s.h.
19-181 Mass Communication Lab 3 s.h.
19-185 Contemporary Issues and Problems in Mass Communication 1 s.h.
Journalism electives 6 s.h.
Total 30 s.h.

Maximum journalism credits allowed toward graduation: 36 s.h.

Mass Communication Inquiry Sequence

This sequence emphasizes the acquisition of knowledge about communication and concentrations on the study of communication as a way of comprehending society and human interaction. Students take courses which focus on theoretical, historical, and social-scientific modes of understanding. Career possibilities for students in this sequence include public relations, media research and public opinion polling, or other related careers. Many students will continue with graduate studies in journalism or mass communication or other disciplines. These are the required journalism courses:

Foundation Courses
19-174 Communication Research Methods 3 s.h.
One course, selected from:
19-160 Communication and Public Relations 3 s.h.
19-178 Mass Media and Society 3 s.h.
19-182 Special Topics in Communication 3 s.h.
19-185 Contemporary Issues and Problems in Mass Communication 1 s.h.
Total 30 s.h.

Maximum journalism credits allowed toward graduation: 36 s.h.

Two Degree Programs: B.A. and B.S. Degrees

B.A. Requirements
Four semester hours foreign language; Foundation Courses; Sequence Courses; 19-185 Contemporary Issues and Problems in Mass Communication; Fulfillment of one of school's two areas of concentration required in one of two ways.

B.S. Requirements
Two semesters of a foreign language; Foundation Courses; Sequence Courses; 19-185 Contemporary Issues and Problems in Mass Communication; Six semester-hours of social or natural science methods courses; Fulfillment of the school's two areas of concentration requirement in one of two ways.

A full B.A. major in another department;
A 24-semester hour concentration beyond the general education level.
This concentration should be approved by the student and the student's advisor.

Honors

Freshmen and uppers classmen with outstanding academic records may participate in the Honors Program. They are urged to seek the departmental Honors Program adviser as soon as possible. After admission to the Honors Program, a student must fulfill these requirements:

Carry out additional work under the guidance of an instructor in the content of one of the advanced conceptual courses in journalism or mass communication;
Enroll in 19-186 Honors Colloquium, 3 s.h.
Write an honors thesis under the supervision of a faculty member;
Make a formal presentation of honors work to a committee consisting of a faculty adviser, the coordinator of the Honors Program, and at least three faculty members of the student's choice.

Minor in Journalism

To meet the requirements for a minor in journalism, and mass communication, a student must complete at least 18 semester-hour foundation in journalism and mass communication, 12 of which must be in the following courses:

19-101 Cultural and Historical Foundations of Communication 3 s.h.
19-103 Social Scientific Foundations of Communication 3 s.h.
19-110 Introduction to Journalism Writing 3 s.h.
19-130 Legal and Ethical Issues in Communication 3 s.h.

Transfer work in introductory courses will be considered toward the minor but must be approved by the School of Journalism and Mass Communication. No
Courses for the minor requirement may be taken pass-fail. A student must have at least a 2.0 grade point average in the minor courses. At the time they apply for a degree, students must inform the Office of the Registrar of their desire to have a minor listed on their transcript.

Transfer Students
The school's policy is to accept transfer credit from another institution for up to, but not more than, 30 percent of the student's total number of credits toward a major in journalism at least. Other course work taken elsewhere might be applicable toward fulfilling elective and/or second areas of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be approved by the student's journalism advisor at least.

Graduate Programs

Master of Arts
The School of Journalism and Mass Communication offers a Master of Arts program with two separate emphases: professional journalism, or communication and mass communication. Applicants should indicate the emphasis to which they are seeking admission.

Both emphases require 30 semester hours of approved course work, the completion of a master's research thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.

Professional Journalism Emphasis
This emphasis is intended for students seeking to improve their technical and analytical skills and broaden their understanding of the role and function of mass communication in contemporary society, but who do not plan to engage in Ph.D. work.

Program requirements for students with an academic or professional experience in journalism and communication:
18-200 Master's Seminar 3 a.h.
18-111 News Reporting and Writing 4 a.h.
(does not count toward M.A. degree)
18-240 News Principles and Practice 3 a.h.
18-245 Specialist/Editor Reporting or Editing 3 a.h.
18-181 Mass Communication Lab 3 a.h.
(18-181 option intended for students with special interest in public relations or organizational communication)
Elections 18-251 Master's Research 3 a.h.

Final examination, last period of enrollment
Program requirements for students with professional experience in journalism or communication:
18-200 Master's Seminar 3 a.h.
Elections in the school (minimum) 9 a.h.
Elections in other departments up to 18 a.h.
18-251 Master's Research 3 a.h.
Final examination, last period of enrollment
The student must complete a major professional project (18-251) under supervision of a graduate faculty member during the last period of enrollment.

The student selects elective courses in the school and in other departments in consultation with his or her advisor.

Communication and Mass Communication Emphasis
This emphasis offers a specialization in the study of communication phenomena with special emphasis upon theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work.

Program requirements:
18-200 Master's Seminar (two semesters) 2 a.h.
18-201 Approaches to the Study of Communication Issues and Concepts 3 a.h.
18-180 Communication Research: Descriptive Approaches 3 a.h.
18-251 Communication Research: Behavioral Approaches 3 a.h.
Elections in communication and mass communication in either department 10 a.h.
18-251 Master's Research 3 a.h.
Final examination, last period of enrollment
All students are expected to take course work outside the School of Journalism and Mass Communication; the nature and extent of the outside work is to be determined by the student and faculty advisor.

Doctor of Philosophy
The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Such perspectives imply that an understanding of these phenomena cannot arise solely out of narrowly focused analyses of present conditions. Rather, the approaches emphasize philosophical, evaluative, and critical inquiry into relationships between media and society across time and culture. The program's substantive nature is defined by the scholarly interests of its faculty, who are most frequentially to investigations of historical, legal, and social and cross-cultural aspects of communication, both verbal and visual, and in a series of courses and tutorials.
The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication and other academic units, each student develops a specific course of study that reflects his or her academic background, experience, professional goals, and intellectual preferences. Applicants should be interested in the opportunity to join a small group of faculty and students working to understand mass communication in its cultural contexts.

Iowa Center for Communication Study
The center coordinates and facilitates inquiry into communication problems by faculty members and students. Center services include consultation, training, publication, assistance in obtaining financial support for projects, and assistance in computer use and data analysis. The center also publishes the annual Journal of Communication Inquiry, which is student-edited and seeks to explore different approaches to communication theory and research.

Other Facilities
The School of Journalism and Mass Communication is housed in the three-story Communications Center. The school has special laboratories for photography, typography, audioediting, typewriting, computer preparation, and print production including a small press. Many students use the newsroom and other facilities of the award-winning University student newspaper, The Daily Iowan, housed in the Johnston Communications Center. The school also has its own Research Center/Reading Room and gallery for natural and faculty photography and project displays.

Financial Aid
In addition to research and teaching assistantships for graduate students, more than $2,000,000 in scholarships and financial aid is available to both undergraduate and graduate students. To determine eligibility, write for more information.
Senior Seminar
Seniors in the program enroll in 113:132 Latin American Studies Seminar (same as 30:199 and 3:150), a 4-semester hour interdisciplinary course built around problems of specific interest to Latin America and taught by two faculty members from the primary departments.

Overlapping Credits
While the certificate program requires 40 semester hours of course work, students majoring in any of the program's four primary departments are able to count a significant number of the courses required for their majors toward the Certificate in Latin American Studies, and students majoring in related departments may be able to count a portion of their major requirements toward the certificate.

Minor
To earn a minor in Latin American Studies, students complete 18 semester hours in primary courses, 12 semester hours of which must be in courses numbered above 100. To preserve the interdisciplinary character of the Latin American Studies minor, students majoring in any of the primary departments cannot count more than 6 semester hours from courses in their major department toward the minor.

Primary Courses
For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Anthropology
113:115 Ethnology of South America 3 s.h.
113:118 Ethnology of Mesoamerica 3 s.h.
113:118 Social Anthropology of the Caribbean 3 s.h.
113:131 Latin American Economy and Society 3 s.h.
113:132 Latin American Studies Seminar 3-4 s.h.
113:153 Latin American Civilizations of Mesoamerica 3 s.h.

History
18:85 Introduction to Colonial Latin America 3 s.h.
18:105 Introduction to Modern Latin America 3 s.h.
16:162 The Mexican Revolution 3 s.h.

Political Science
20:144 Latin American Government 3 s.h.
20:145 Major States of Latin America 3 s.h.
20:153 Inter-American Relations 2-3 s.h.

Portuguese
38:103 Modern Brazilian Fiction I Short Story 2 s.h.
38:104 Modern Brazilian Fiction II Novel 3 s.h.
38:105 Brazilian Literature I 3 s.h.
38:106 Brazilian Literature II 3 s.h.
38:109 Nineteenth-Century Brazilian Novel 3 s.h.
38:115 Brazil People and Culture (Taught in English) 3 s.h.
38:159 Latin American Studies Seminar 3-4 s.h.

Spanish
28:8 Contemporay Latin American Narrative 3 s.h.
(Same as 11:18; Taught in English) 3 s.h.
28:100 Readings in Hispanic Literature 3 s.h.
28:103 Contemporary Spanish American Fiction 3 s.h.
28:104 Spanish American Poetry 3 s.h.
28:105 Spanish American Drama 3 s.h.
28:106 Short Story of Spanish America 3 s.h.
28:107 Spanish American Literature of Fantasy 3 s.h.
28:110 Survey of Pre-Columbian Spanish American Literature 3 s.h.
28:113 Contemporary Latin American Novel and Short Story 3 s.h.
38:118 Spanish American Civilization 3 s.h.
28:151 Latin American Studies Seminar 3-4 s.h.

Latin American Studies Related Courses
Anthropology
113:118 Africans in the New World 3 s.h.
113:118 Urban Anthropology 3 s.h.
113:147 Special Topics in Anthropology 3 s.h.
113:151 Sociology of the Third World 3 s.h.

(Same as 34:151.) 3 s.h.

Art and Art History
16:2 Special Art of Tribal Cultures 3 s.h.
11:015 Art of Pre-Columbian America 3 s.h.

Economics
6E:125 International Economics 3 s.h.
6E:127 Natural Resources in the World Economy: Control and Conflict 3 s.h.
6E:128 Economic Development: Underdeveloped Areas 1 s.h.

Geography
44:35 World Cities 3 s.h.
44:182 The Third World 3 s.h.
Political Science
30:80 Introduction to World Politics 3 s.h.

Portuguese
38:160 Black Literature of Portuguese Expression 3 s.h.

(Choose as 48:46/100.)

35:116 Modern Portugal 3 s.h.

(Taught in English.)

35:120 Women, Language and Society of the Hispanic World 3 s.h.

Sociology
34:160 Economic and Political Development: Women’s Roles 3 s.h.

Spanish
35:114 Spanish Civilization 3 s.h.

35:120 Contemporary Hispanic Arts and Letters 3 s.h.

35:123 Introduction to Bilingualism 3 s.h.

(Same as 103:123.)

35:127 Chicano Puerto Rican Literature 3 s.h.

(Taught in English.)

35:130 Business Spanish 3 s.h.

35:133 Terminologies and Institutions of Hispanic Law: A Comparative Approach 3 s.h.

35:145 Chicano Language and Culture for Teachers 3 s.h.

(Taught in English and Spanish.)

35:150 Twentieth-Century Spanish Women Writers 3 s.h.

Library Science

Doctoral: Earl Ogren

Curriculum: Mairette Y. Jeanne Odom associate professor Earl Ogren

associate professor Ann Louise L. Ressinger

assistant professor Teresa Brooke, R. Patrick Gause, James M. Jones, Kathleen L. Williams

professor Patricia Romanelli, Carol Z. Dorn

lecturer Maggie G. Wells

lecturer Thomas G. Gage, Edwin M. Holm

Affiliated faculty: Dale M. Buntz, K.K. Unkler, Jerry Hage

Degrees offered: MA

The School of Library Science offers a program of professional preparation for careers in all types of libraries and information centers—public, school, academic, and special. It seeks to recruit and prepare librarians and information professionals, to contribute to the advancement of librarianship through research, and to provide public service. The program is accredited by the American Library Association.

Program Goals and Objectives

The goals of the School of Library Science are:

To offer a graduate program of basic professional preparation in library and information science which reflects the variety and growth of information needs felt by society and individuals;

To engage in research that increases understanding of the variety of information needs and of the actions that can be taken to provide for those needs;

To provide public service through continuing education and consulting, and through association and other professional service so that growth is fostered beyond the student’s basic professional program, and so that people have the information service they need;

Instructional Objectives

Upon completion of the program the student will be able to:

Demonstrate an understanding of the history and theory of librarianship sufficient to recognize their relationship to the role of the librarian in today’s society, and the library’s importance in the communication process;

Articulate a philosophy of librarianship which includes a commitment to intellectual freedom and to free dissemination of information; a professional attitude toward the librarian’s role as facilitator between user and material; and a determination to improve the quality of library service in response to the needs of all segments of society;

Demonstrate mastery of the techniques and procedures of effective information service (that is, the selection, acquisition, organization, storage, retrieval, and dissemination of information);

Demonstrate an appreciation for the contributions that reading, information, libraries, and lifelong learning can make to the richness of life, and the ability to convey that appreciation to others;

Identify and use bibliographic techniques and sources of information in a broad range of fields and media formats;

Articulate an understanding of management theory sufficient to plan library and information services and perform the professional responsibilities of justifying needs, setting goals, envolving problems, formulating programs and evaluating results;

Observe and evaluate research that helps in the advancement of the profession and utilize the contributions to librarianship made by related disciplines.

Plan for personal and professional career growth.

Research Objectives

To engage in research on library problems and areas related to library services which advance both the theoretical and practical knowledge of librarianship.

To give emphasis to research which directly supports the instructional program of the School of Library Science or which may have special relevance to library service in the state of Iowa.

Public Service Objectives

To offer library personnel and library trustees opportunities for continuing education to advance and update their awareness of current developments in library operations and services.

To provide consulting services to individuals, libraries, and organizations in order to promote better library service for the citizens of Iowa and surrounding areas.

To participate in professional organizations at local, state, regional, and national levels in the pursuit of common goals within the profession.

Undergraduate Study

Although there is no undergraduate major in library science, juniors and seniors may enroll in the introductory courses (102 level). Information Handling is open to all undergraduates.

Master of Arts

Professional preparation for careers in all types of libraries is provided by the school’s master of Arts program.

The school also offers a transitional graduate program for certification in school librarianship, as well as a certification program leading to the master’s degree.

Its graduates hold positions in public, school, academic, and special libraries, serving in such roles as administrators, bibliographers, catalogers, reference specialists, information scientists, and children’s librarians.

The Master of Arts degree in library science requires a minimum of 33 semester hours of graduate credit with a minimum grade-point average of 3.0. In addition, the student must pass a comprehensive examination.

Basic Plan of Study

The program consists of a core of required courses basic to all areas of librarianship, an additional required course in a type of library, and electives. The plan of study must be carefully developed in relationship to career objectives.
Core courses (required of all M.A. candidates) 12 s.h.
21:151 Reference I
21:153 Cataloging and Classification
21:155 Studies in Library Materials
21:201 Management of Libraries and Information Centers
Type-of-library course (one required) 3 s.h.
21:230 Special Libraries
21:231 The Public Library
21:232 The College and University Library
21:233 School Media Center Administration
Electives 18 s.h.

It is strongly recommended that the student's electives include bibliography courses and a course in information science.

Elective courses in other departments of the University must be shown to be an integral part of the student's preparation for library and information science. Although many disciplines offer cultural and intellectual support to preparation for librarianship, these courses cannot be shown to warrant displacement of needed courses in a brief one-year program.

Electives outside the department must be approved following consultation with the School of Library Science, and shall not exceed six semster hours for students having no previous courses in library science, nine hours for those with such previous preparation. Only courses taken for graduate credit may be counted towards the 32-hour requirement.

The thesis option is not intended to replace courses in a student's basic preparation. It is available if the student completes the full 32-hour program in addition to thesis before or concurrently with the thesis if the student comes to the program with extensive background in library science, as early as possible in the work in library science, and completion of 21:249 Research Methods or equivalent.

The purpose of the thesis option, then, is technical to expand research competence in the fields means of independent study to a student with extensive preparation in library and information science.

The program normally requires two semesters and an independent study research project, or, in the case of students attending summer school, a minimum of four summer sessions. Maximum graduate credit is available during the summer semester. 8 credit hours in summer sessions.

Public Library Work
Public funds support public libraries in order to provide information, education, and recreation to the general public. Public libraries may receive a majority of funding from local taxes, but are often organized in a regional or statewide cooperative basis. The variety of services, materials, and organizational structures of public libraries make this area of librarianship a challenging one.

A major concern of public librarians is to design innovative service programs to reach those segments of the population now unserved, as well as to provide a full range of services to all members of the community. Management skills are often needed in these situations.

**Required Courses**

<table>
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<tr>
<th>Course</th>
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<tr>
<td>Core courses</td>
<td>12 s.h.</td>
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<tr>
<td>21:231 The Public Library</td>
<td>3 s.h.</td>
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<td>Suggested Electives</td>
<td>18 s.h.</td>
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<tr>
<td>21:153 Library Services to Adults</td>
<td>3 s.h.</td>
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<tr>
<td>21:221 Multi-Media Concepts in Libraries</td>
<td>3 s.h.</td>
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<tr>
<td>21:246 Introduction to Information Science</td>
<td>3 s.h.</td>
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<tr>
<td>21:251 Advanced Reference</td>
<td>3 s.h.</td>
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<tr>
<td>21:252 Advanced Cataloging</td>
<td>3 s.h.</td>
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<tr>
<td>21:253 Practicum in Libraries</td>
<td>3 s.h.</td>
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<tr>
<td>21:153 Library for Children I</td>
<td>3 s.h.</td>
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<tr>
<td>21:154 History of Children's Books</td>
<td>3 s.h.</td>
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<td>21:156 Library and Storytelling for Children</td>
<td>3 s.h.</td>
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<td>21:162 Library for Adolescents</td>
<td>3 s.h.</td>
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<td>21:204 Library Services to Children and Young Adults</td>
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<td>7E:204 Literature for Children</td>
<td>3 s.h.</td>
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**College and University Library Work**

The academic library, whether in a community college or a university, provides information, education, and research services to students, faculty, and staff. Management or supervisory skill is often required. Special competencies such as a subject or language specialty, or an activity especially well-developed and valued in academic libraries, may be necessary.

**Required Courses**

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<th>Course</th>
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<tr>
<td>Core courses</td>
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<tr>
<td>21:232 The College and University Library</td>
<td>3 s.h.</td>
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<tr>
<td>Suggested Electives</td>
<td>16 s.h.</td>
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<tr>
<td>21:248 Introduction to Information Science</td>
<td>3 s.h.</td>
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<td>21:249 Research Methods</td>
<td>3 s.h.</td>
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<tr>
<td>21:251 Advanced Reference</td>
<td>3 s.h.</td>
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<tr>
<td>21:252 Advanced Cataloging</td>
<td>3 s.h.</td>
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<tr>
<td>21:255 Government Publications</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:257 Medical Librarianship and Bibliography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:260 Law Librarianship, Bibliography, and Research Techniques</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:264 Practicum in Libraries</td>
<td>3 s.h.</td>
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<tr>
<td>7E:171 The Community College</td>
<td>3 s.h.</td>
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Certification in School Librarianship

The school offers approved programs for state certification in these areas: school librarian for kindergarten through grade 12 (endorsement 34); director of library service for kindergarten through grade 12 (endorsement 51); and librarian/learning resource specialist in an area vocational school or community college (endorsement 75).

Students who complete an M.A. degree with the program listed under "School Library Work" and who hold a valid teaching certificate at the elementary or secondary level will qualify for endorsements 34 and 51. Endorsement 34 may also be earned without the M.A. degree by combining 30 hours of undergraduate and graduate course work approved by an adviser. In order to pursue such a non-degree program, however, a student must have been accepted for admission to the School of Library Science.

Endorsement 75 requires completion of the M.A. degree with the program listed under "College and University Library Work." 

Joint Degree Programs

Joint degree programs between the School of Library Science and other units within the University have as their primary goal the integration of the two areas of study. The student is expected to contribute to one discipline the insights and knowledge he has gained in another.

Although there is a mechanism by which departments may approve a joint program, it is not the practice. The School of Library Science has established defined joint programs with the College of Law and the College of Business Administration. The student enrolled in such a joint program will work with an adviser in the School of Library Science to ensure the benefits of integration.

Objectives of a joint program will be consonant with the goals stated above, and as they will vary from student to student, will be a matter of advising. For instance, a student who seeks a career in a law or business library would require a different sequence of courses from one attempting to study the legal basis of librarianship or the management of the library as a complex organization. Yet another student may choose to seek the benefits a joint program could offer in records management and management information systems.

To enroll in a joint program the student must apply to and be accepted by the School of Library Science and the other unit chosen. Up to six hours of such study may be applied toward the M.A. in library science and the J.D. or the M.B.A. or twelve hours to the J.D. In no case can a student receive two degrees with fewer than 90 hours of graduate work, and joint programs would usually require substantially more than this.

Facilities and Resources

The School of Library Science is conveniently located in the south wing of the University's Main Library, providing facilities for the varied instructional and research activities of the school.

Media Lab and Darkroom

A media lab contains equipment and space for slide-tape production, videocassette recording, super-8mm film making, filmstrip production, 16mm film previewing, and simple film editing. A darkroom includes equipment for film developing, enlarging, and dry-mounting.

Computer Facilities

An online lab includes two CRT terminals, one printing terminal, and one portable terminal. They provide access to the University's Weeg Computing Center Prime system, to national bibliographic databases, and to OCLC, a national online library utility. Students, when enrolled, are given access to the Prime system, to conduct online examination searching of databases, and to catalog, recall, and manipulate bibliographic records in the OCLC database.

Statewide Reference Service

The school serves as one unit of a state-wide network of academic and public libraries. Students provide back-up reference service to libraries throughout the state, using learned skills to perform bibliographic verification and to answer reference questions. The service helps students reinforce and integrate classroom instruction and provides reference experience.

Departmental Library

The library science library, one of 12 departmental branches of the Main Library, is located on the second floor of the main building. The collection contains approximately ten thousand volumes and two hundred periodical titles related to the study or practice of library and information science. A portable computer terminal circulates, and carrels contain AV equipment for viewing library materials. Tables, carrels, and easy chairs provide a pleasant and inviting study area, and the atmosphere is casual and friendly.

Univeristy Libraries

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than two billion volumes in the main library, an additional 13 departmental branches. An average of 90,000 volumes is acquired annually. The serial collection is extensive, with more than 22,000 current subscriptions. The third floor of the Main Library includes the government publications, map, and special collections rooms, as well as all bound periodicals. The location of the School of Library Science on this floor allows quick access to these frequently-used collections.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experience, and personal use; the State Historical Society Library in Iowa City; the Iowa City Public Library; the Iowa City Public Library and the public library in West Branch, The Iowa City Public Library, located only four blocks from the Main Library, was one of the first public libraries to convert to a totally computerized catalog. Its service philosophy and contemporary management practices provide students with an innovative public library model.

Other Resources

Located across the street from the Main Library, houses the Learning Resource Center of the College of Education and the Weeg Computing Center. The resource center consists of the Video Lab, Computer Resource Lab, Audovisual Production Lab, and Curriculum Resources Lab. The Curriculum Resources Lab contains an extensive collection of textbooks and non-book instructional materials for children in pre-school through middle school years, especially valuable for library science students interested in school or public library work.

Weeg Computing Center provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the Center's computers for University-related research, thesis preparation, and classroom. Each graduate student is provided with a small funded account by the Graduate College.
Faculty Advising
The School of Library Science has a low student-faculty ratio, a faculty advising system, and an atmosphere of friendly student-faculty interaction. Advising assignments are made when students enter the program, and students are encouraged to discuss career objectives and problems with faculty and other students. The relatively small number of students in the school allows faculty members to get to know students personally and to take an interest in their professional development.

Student Activities

Students have a variety of activities available to aid in their academic and professional development. Conferences, short courses, workshops, seminars, field trips, and conferences provide frequent exposure to contemporary developments in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation.

The Student Advisory Board serves as a liaison between students and faculty, to promote student activities and concerns. A member attends faculty meetings as a student representative. The group also organizes social activities for both students and faculty.

Placement

The School has an active placement assistance to its graduates by means of bulletin board announcement, seminars on employment and interviewing, and personal counseling. The University's Employment Service provides a weekly listing of job openings and provides counseling services to help graduates find positions in all types of libraries. The placement distribution for the past five years was: public libraries 30 percent, school libraries 30 percent, academic libraries 30 percent, and special libraries 8 percent. Those who seek positions in libraries are strongly encouraged to develop research interests and job flexibility, and geographic mobility are important factors in obtaining a position.

Admission

Scholastic requirements for admission to the M.A. program include:

A baccalaureate degree from an accredited college or university, with a minimum grade-point average of 2.5 on a 4.0 scale, and at least 85 semester hours of study in the liberal and professional arts;

A combined verbal/quantitative score of 950 on the Graduate Record Examination (GRE) Aptitude Test.

Personal qualifications and aptitude for library work are assessed by means of letters of recommendation and a personal interview with the director of the school or the director's assistant, and another member of the faculty. In the case of extreme diversity, an alternate interview may be provided nearer the applicant's home. The school does not accept every applicant who meets the minimum admission requirements; an admissions committee selects each class on a competitive basis.

Foreign students are encouraged to apply if they attain a score of 560 or higher on the Test of English as a Foreign Language (TOEFL). Persons with a majorly lower TOEFL scores may be considered for conditional admission with the understanding that they receive remedial assistance in English at the University.

Applicants are requested to write to the School of Library Science for a preliminary information form. If the information provided on the form indicates that the applicant satisfies the basic admission requirements, the student will be scheduled for a personal interview.

Prospective students are urged to begin application procedures early enough to complete all requirements by the deadlines given below. The applicant needs to allow more time if he or she has not already taken the GRE aptitude test.

Completed applications should be received by the school by March 1 for fall-semester consideration, October 1 for the spring semester, or February 1 for the summer session. Decisions of the admissions committee are announced two to three weeks after each deadline. Late applications will be considered if places are still available. Financial assistance, however, is often not available for late arrivals.

Financial Assistance

The School of Library Science awards partial-tuition scholarships, as well as quarterly-grant assistantships. To be considered for a grant, an applicant must have at least a 3.0 undergraduate grade-point average (4.0 scale) and combined verbal/quantitative scores of 100 on the Graduate Record Examination (GRE) Aptitude Test. Those who do not meet these requirements when entering the program may apply for financial aid after completing 12 semester hours of graduate work with a 3.0 grade-point average. Prospective students are urged to apply for these awards before March 1.

Students interested in part-time employment should contact the libraries in the Iowa City area. Positions are usually available in the University Libraries.

Courses

1010 Information Handling 3 s.h.

Designed to provide students with ability to describe and critically evaluate various types of information gathering techniques and media.

1510 Literature for Children 3 s.h.

A selection of books for children.

1515 History of Children's Books Development of literature for children from oral tradition to printed words is traced. Historical and sociocultural factors influencing children's literature is discussed. Required of some experts of children's literature.

1516 Reading for the Welfare of Children 3 s.h.

1610 Librarianship and Storytelling for Children 3 s.h.

1615 Reference 3 s.h.

1616 Link-Wisconsin (or equivalent) bibliographic and reference works courses required.

1710 Cataloguing and Classification 3 s.h.

Syllabus styles to be arranged for each class. Coursework includes all major classification schemes, cataloging, bibliographies, personal and corporate names, analysis of GULC formats and techniques.

1810 Selection of Library Materials 3 s.h.

Philosophical issues relating to principles involved in library collection development and processing tools and procedures used by librarians in implementing selection policy.

1815 Library Literature for Adults 3 s.h.

Survey of principles of professional management of library collections of books and other materials, the role of the library administrator, and library literature.

1816 Management of Libraries and Information Centers 3 s.h.

Survey of principles of public management of library collections, library user services; communication; measurement and evaluation.

2010 Library Services to Adults 3 s.h.

Development of library services and their relationship to community needs and their role in the education of adult and continuing education. Evaluation of the Library's role in community education projects. Offered alternate terms.

2113 School Library Media Centers 3 s.h.

Nature and scope of Library service beyond print media. The school of Library Science in the library media center: administration and basic production. Offered alternate terms.

2115 History of the Book 3 s.h.

Development of the book from 1400 to the present, first published books, and an examination of the place of the book in our society, economics, politics, and culture. Offered alternate terms. Prerequisites: 2115H, 2131.

2120 Special Libraries 3 s.h.

Management, organization, history, scope, and services. Specialized areas in fields of business, law, government, medicine, education, and industry.

2211 Bibliographic Control of Libraries 3 s.h.

Methods of cataloging and classification of academic and research libraries. Literature and basic production. Offered alternate terms.

2410 The Public Library 3 s.h.

Survey of development of the modern public library as a unique agency in society, emphasis on organization and administration, current trends and problems. Offered alternate terms. Prerequisites: 2115 and 2140, or consent of instructor.

2415 The College and University Libraries 3 s.h.

Organization, function, organization, and services of academic libraries of major schools and colleges. The place of the university library in the organization of the university system. Offered alternate terms. Prerequisites: 2115H and 2150, or consent of instructor.

2515 School Media Center Administration 3 s.h.

Organization and administration of media programs at school and district levels; objectives, planning and evaluation, physical and financial aspects, budgeting, and personnel management. Offered alternate terms.
Linguistics

21930 Individual Instruction in Library Science 6 Sh.
Preparation: consent of director.

Linguistics

Department Chair: Gregory K. van Hees
Assistant Professor: Marianne Kwan
Assistant Professor: John C. McGuire
Assistant Professor: Robert E. Whorf
Assistant Professor: Catherine D. Hippe
Assistant Professor: Eileen Brown
Professor: William A. Trask

Degree offered: B.A., M.A., Ph.D.

Linguistics is the science that studies the organizing principles under-lying human language.

There are many indicators that such properties exist in language. Children normally learn to use their native language before they enter school, and without much direct instruction. People can speak and understand sentences they have never heard before. All languages have several ways of saying the same thing and all have ambiguities. All languages change over time. Damage to a particular part of the brain may be related to a particular type of linguistic problem, whatever the language. All languages are systems with some unique properties, some universal properties, and some properties shared with other languages which may or may not be historically related.

Linguists do not attempt to learn many of the things linguists consider. They utilize the languages of the world as data to be analyzed by common principles.

Linguistics is a science with many laboratories. One of such laboratories may consist of a library and pencil and tape. Another consists of Kittredge and audiovisual equipment. Others need computers. Some go into seldom-visited places to study, describe, and analyze little-known languages which may be in danger of extinction. Some go into their own communities to study the relationships between language variation and socioeconomic structure, or may, for example, learn a language change, spend time studying ancient language.

Linguistics is not limited to scientific research for its own sake. Linguists may teach English as a foreign language. They may help design school programs for those who are learning for Chinese, Arabic, and Native Americans. They may help intelligence-test and achievement-test makers avoid discrimination against those who are not middle-class white Americans, or work with speech clinicians to help people with linguistic disabilities.

Undergraduate Program

High scores on verbal, analytic, and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, it is very important to be able to reason logically and explicitly, and to be able to deal with formulas and abstract symbols.

Depending on their vocational goals, prospective linguistics majors should consider either majoring in one of the M.A. in Linguistics with a professiona1 focus, or through the doctorate; or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and elementary, secondary, and special education.

The Bachelor of Arts degree in linguistics prepares the student to do basic language analysis in syntax- semantics (sentence patterns and their relation to meaning) and phonology (sound patterns). Elective courses in a variety of specialties enable students to tailor the program to their own interests.

The major in linguistics requires 24 semester hours of work in the department. It includes a general introduction and courses in syntax, phonology, and language history, as well as special electives to be worked out in consultation with the undergraduate advisor.

Graduate Programs

Emphasis in all graduate programs is on theory and research. Students interested in nonuniversity careers may also consider either taking a number of courses in applied linguistics and other fields with a minor in the field of work or an option of the M.A. program.

Master of Arts

All students take a required set of core courses followed by comprehensive examinations in phonology and syntax-semantics. Students choosing to write a thesis take at least 6 semester hours of elective courses, exclusive of thesis hours, and may not count more than 5 semester hours of thesis credit (for a total of 36 semester hours).

Students choosing to take a degree without thesis must complete a focus area (Comprised of 12 hours of course work) and take at least 9 semester hours of electives courses. The focus area may either be designed in advance by the student (subject to departmental approval), or be one of a set of


For Undergraduates and Graduates

132/133 Introduction to Linguistics 2 ah.
Variety of voices in general linguistics. Some use of SL. 132 and 133.

132/133 Language, Society, and Education 2 ah.
Sociolinguistic conditions attitudinal to language use; development of research on sociolinguistics. Prerequisites: 132 and 133.

132/133 Teaching English as a Foreign Language 2 ah.
Course design of classroom activities teaching foreign language skills. Survey of ELT research, education, and methodology. Prerequisites: 132 and 133.

132/133 Functions in Teaching English as a Foreign Language 2 ah.
Practical experience in teaching English as a second language to native speakers. Prerequisite: 132 and 133.

132/133 Sociolinguistics 2 ah.
Sociolinguistics and the social and cultural diversity of language. Prerequisites: 132 and 133.

132/133 Another Language and Another Place 2 ah.
Study of a single language in its cultural context. Prerequisites: 132 and 133.

132/133 Phonetics and Phonology 2 ah.
Introduction to phonetics and phonology. Prerequisites: 132 and 133.

132/133 Linguistic Field Work 2 ah.

dating and collection of phonological data. Experience in editing data from an intern. Prerequisites: 132 and 133.

132/133 Language Processing 2 ah.
Introduction to computer use, interactive text editing, use of existing programs; conversational and semiformal language analysis. Some use of SL. 132 and 133.

132/133 Women, Language, and Society in Hispanic Spain 2 ah.
Examine early and recent indicators of women's language and sexuality. Examine issues of self-interpreting in a cultural perspective. Prerequisites: 132 and 133.

132/133 Topical in Portuguese Linguistics 2 ah.
Theoretical, historical, and pedagogical issues. Prerequisites: 132 and 133.

132/133 Theoretical Linguistics 2 ah.
Prerequisites: 132 and 133.

132/133 Historical and Comparative Linguistics 2 ah.
Prerequisites: 132 and 133.

132/133 Introduction to Ethnolinguistics 2 ah.
Some use of SP. 132 and 133.

132/133 Introduction to Old English Language 2 ah.
The development of Old English vocabulary and grammar. Some use of Old English; 132 and 133.

132/133 Introduction to Old Norse 2 ah.
Prerequisite: 132.

Division of Mathematical Sciences

Bachelor of Arts

Students must take at least seven additional approved courses from the division beyond one year of calculus (either 22M:35-38 Engineering Calculus I-III or 22M:35-36 Engineering Calculus I-II). Each of these seven courses must carry at least 3 semester hours of credit. Except for students electing the applied mathematical sciences option or those seeking a secondary teaching certificate, at least two of these seven courses must be chosen from the following list:

22C:118 Operating Systems and Concurrent Programming
22C:122 Advanced Computer Organization and Architecture
22C:193 Programming Language Foundations
22C:195 Data: Abstractions, Types and Structures
22C:195 Introduction to Computation Theory

Bachelor of Science

In addition to the requirements outlined above for the Bachelor of Arts degree, the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least 3 semester hours of credit. The programs described below need not be followed exactly; rather, it is expected that the student and his or her advisor will work out a program reflecting the student’s interests. The requirements are flexible enough to accommodate changes in students’ interests.
Suggested Programs

General

Unless a student has a strong interest in a special area in mathematics, a general program is suggested. This type of program should include 222:7 Introduction to Computing with PASCAL and courses in numerical analysis, applied statistics, and operations research.

Actuarial Science

The student who plans to enter the actuarial profession should be guided in course selection by the program of education and examinations carried on by the principal actuarial organizations.


Additional courses of direct professional interest to actuaries include 225:183 Demography and Life Table Construction, 225:184 Risk Theory, and 225:186 Theory of Finance. Students are encouraged to take at least one course in computer science and a substantial program of courses from the College of Business Administration. A student is unable to complete such a program as an undergraduate, he or she may be advised to take a year of graduate work.

Applied Mathematics

All students interested in applied mathematics should take the sequence 222:25-26 Calculus I & II, 222:29 Calculus III, and 222:27 Introduction to Linear Algebra or the sequence 222:38-39 Engineering Calculus I & II and 222:38 Differential Equations for Engineers.


Other general courses which may be of interest are 222:56 Elements of Group Theory, 222:105 Analysis for Applications, 224:116 Introduction to Analysis I, 224:126 Elementary Theory of Numbers, and 224:150 Matrix Theory. Students in applied mathematics should be familiar with computer programming (222:7 Introduction to Computing with PASCAL can be taken easily along with calculus) and with the basic ideas of probability and statistics (the courses 225:183 Introduction to Probability and 225:184 Introduction to Mathematical Statistics I or 225:120 Probability and Statistics are appropriate).

To acquire an understanding of how mathematics is used in other areas, it is recommended that the student take a set of courses, involving mathematics in a significant way, outside the Division of Mathematical Sciences. Students who plan to do graduate work in applied mathematics should take 222:115 Introduction to Analysis I.

Mathematics Education

Mathematics education majors must take 222:25-26 Calculus I & II, 222:37 Introduction to Linear Algebra, 222:50 Elements of Group Theory, 222:58 Fundamental Properties of Spaces and Functions, and 222:670 Foundations of Geometry. The student may substitute for any of these courses a 100-level course in the student's area of interest. The student must take 222:66 before taking 75:197, a course required for teaching certification in mathematics (see the College of Education for section on catalog for certification requirements).

A program in mathematics education might include any of the 100-level courses, and should include at least one in statistics. 222:104 Foundations of Set Theory, 224:104 Foundations of Logic, 224:110-111 Elementary Topology I and II, 224:115-116 Introduction to Analysis I and II, 224:120-121 Abstract Algebra I & II, 225:120 Probability and Statistics, 225:150 Methods of Statistical Inference, and/or 225:144 Introduction to Mathematical Statistics I. Students in mathematics education also must have proficiency in one computer programming language.

Pure Mathematics


Probability and Statistics


Students should also select one or two courses in computer science from 222:7 Introduction to Computing with PASCAL, 222:17 Programming with PASCAL, 222:17 Computer Organization and Assembly Language Programming; and one or two courses in mathematical analysis from 222:55 Fundamental Properties of Spaces and Functions, 222:106 Analytic for Applications, and 222:110 Introduction to Analysis I. Significant work in one of the biological, social, physical, or engineering sciences is also highly recommended.

Further courses in probability and statistics may be selected from courses in the departments of Statistics numbered 100 and above, excluding 225:123.


Digital Systems Simulation,
Applied Mathematical Sciences Option

This option is designed to reflect the increasing diversification of applications of mathematics and statistics to the social, biological, and physical sciences, and to management, business, ecology, linguistics, and engineering. The student electing this option must include the following among the seven courses he or she takes beyond the first year of calculus:

Either 22M:27 Introduction to Linear Algebra or 22M:38 Differential Equations and Linear Algebra;
At least three of the following courses numbered 22M:50 or above (excluding 22M:50-81 and including at least one course numbered 100 or above) or 225:103 or above; and
At least three additional quantitative courses from one or more departments outside the division, or, at the advisor's discretion, from two closely related departments.

In addition to the above, the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least 2 semester hours of credit.

A student taking this option must include an area of concentration in his or her program, and must acquire some experience in the use of the computer. Students electing this option are assigned specialty-designated program advisors.

Transfer Students

Undergraduate transfer students in mathematics may take at least 3 semester hours of credit in Division of Mathematical Sciences courses beyond the first year of calculus in 22C:16 Introduction to Programming with PASCAL.

Minor

Courses designated as upper-level for the purpose of satisfying minor field requirements in mathematical sciences are 22C:21-25 Data Structures and above (excluding courses not open to computer science majors for degree credit); 22M:28, 22M:30 Elements of Group Theory and above (excluding 22M:60 Theory of Arithmetic and 22M:61 Geometry for Elementary Teachers); and 225:103 Introduction to the Design of Business Surveys and above.

M.B.A. Preparation

An undergraduate student majoring in mathematics and wishing to earn a Master of Business Administration degree in one year of graduate study should consult with his or her advisor and with the associate dean of the College of Business Administration prior to the senior year concerning business courses which should be included in the undergraduate program.

Applied Mathematical Science

Program chair: Kendall B. Atkinson Faculty: Kendall Atkinson (Mathematics), Dennis Becker (System Engineering), David Fenlon (Physics), Wesley Feller (Engineering), David A. Cuesta (Mathematics), Ed Maskin (Economics), Martin Weitzman (Mathematics), Imre Leader (Economics), William Givens (Physics), George Kao (Physics), Karl Luecke (Optimization Engineering), Vladimir Osher (Mathematics)
Degree offered: Ph.D.

Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resultant mathematical problems; discuss, interpret, and evaluate the solutions; explore new ideas for and areas of mathematical application; and develop mathematical theories in areas which have not hitherto been subjected to systematic mathematical treatment. Career opportunities include faculty positions in colleges and universities, research positions in industry and governmental laboratories, professional consulting positions, and software computer consulting.

The program in applied mathematical science at The University of Iowa is an autonomous, broadly-based interdisciplinary program leading to the Doctor of Philosophy degree. The program seeks to help the student achieve a basic command of advanced mathematics, at least one science (behavioral, biological, engineering, physical, or medical), and the methods of applied mathematics. For his or her thesis research, the student is expected to identify a significant problem within his or her science, develop an appropriate mathematical model for that problem, test the model, and develop improvements if necessary. Students may enter the program with either a bachelor's or a master's degree. Applicants are expected to have an excellent background in science and mathematics, together with a desire to apply mathematics to the solution of relevant scientific questions. When a student enters the program, he or she and the program faculty plan a course of study to give the student a basic core of knowledge for work in applied mathematics, together with a necessary background knowledge in the area of science in which the student will write his or her thesis research. A comprehensive examination over this course work will be given after approximately two to three years in the program. Following that, the student will complete a research thesis on a mathematical topic from his or her area of scientific interest.

Fellowships, graduate tuition scholarships, and some research and teaching assistantships are available to qualified applicants. Applications for these appointments should be received before March 1 for the fall semester. For application forms and further information about the academic year, write to the Chairman, Program in Applied Mathematical Sciences, Graduate College, The University of Iowa, Iowa City, Iowa 52242.

Courses

22C:21-25 Data Structures and Programming with PASCAL.
22C:30 Reading and Research.

Preparatory courses: computer science.

Computer Science

Department chair: Theodore J. Vose.

Degree offered: B.A., B.S., M.S., Ph.D.

Pre-Computer Science

Entering students who desire to become computer science majors are given the designation of pre-computer science major until they have met the requirements of entry into the computer science major. These requirements are:

An overall grade-point average of 2.25 or better.
Completion of the four courses listed below (or their equivalents by transfer) with a grade-point average of 2.00 or better and a minimum of grade of C in each:
22C:16 Introduction to Programming with PASCAL.
22C:17 Programming with Pascal.
22C:18 Computer Organization and Assembly Language Programming.
22X:25 Calculus I.

Bachelor of Arts

Undergraduate students majoring in computer science need a strong background in mathematics and in programming languages and computer systems. For the B.A. degree, these computer science core courses are required:
22M:25 Calculus I.
22M:26 Calculus II.
Bachelor of Science

For the B.S. degree, the student must take two additional courses (each having at least 3 semester hours' credit) in the Division of Mathematical Sciences. The undergraduate handbook, available at the Division of Mathematical Sciences office, includes triggered elective programs, information concerning credit by examination for the computer science core requirements, and other information.

Minor

For a minor in computer science, a student must complete 18 semester hours in computer science courses, including 12 semester hours taken from among:

22C:9 Programming with COBOL
22C:17 Programming with Pascal
Any higher-numbered course except those numbered 22C:100 to 22C:114.

Master of Science

A candidate for the M.S. degree in computer science must have completed the following:

22C:116 Operating Systems and Concurrent Programming 3 s.h.
22C:122 Advanced Computer Organization and Architecture 3 s.h.
22C:123 Programming Language Foundations 3 s.h.
22C:135 Introduction to Computation Theory 3 s.h.
A 200-level 22C course 3 s.h.
Three additional graduate level 22C courses 9 s.h.
Approved courses outside of computer science 6 s.h.

Total 30 s.h.

Course requirements for the doctorate include:

22C:116 Operating Systems and Concurrent Programming 3 s.h.
22C:122 Advanced Computer Organization and Architecture 3 s.h.
22C:123 Programming Language Foundations 3 s.h.
22C:135 Introduction to Computation Theory 3 s.h.
22C:144 Design of Information Systems 3 s.h.
22C:145 Artificial Intelligence I 3 s.h.
22C:183 Design and Analysis of Algorithms I 3 s.h.

The student must also complete the courses in one of the following areas:

Course requirements for the doctoral candidate include:

22C:116 Operating Systems and Concurrent Programming 3 s.h.
22C:122 Advanced Computer Organization and Architecture 3 s.h.
22C:123 Programming Language Foundations 3 s.h.
22C:135 Introduction to Computation Theory 3 s.h.
22C:144 Design of Information Systems 3 s.h.
23M:102 Intermediate Differential Equations
23M:103 Continuous Mathematical Models
23M:136 Optimization Techniques
23M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
23M:171 Numerical Analysis: Differential Equations and Linear Algebra

Students are required to take two comprehensive examinations: one covering the content of 23M:170, 23M:171, and 23M:135; the other covering 23M:101, 23M:102, and 23M:109.

Two from the following:
23M:116 Complex Variables
23M:150 Matrix Theory
23M:151 Discrete Mathematical Models
23M:152 Theory of Groups
23M:156 Operating System Principles and Concurrent Programming
23M:157 Design and Analysis of Algorithms

25S:154 Introduction to Mathematical Statistics
25S:155 Introduction to Mathematical Statistics II
25S:167 Introduction to Stochastic Processes

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the Division of Mathematical Sciences. Students who have courses or experience equivalent to the required courses may substitute electives.

Program IV
This program is designed for non-Hofstra students who are working toward a Ph.D. in another area requiring mathematical sophistication. The program has no required courses. Course requirements are the same as for program I.

The student in program IV is considered to have completed the comprehensive examination for the master's degree in mathematics if he or she has maintained a minimum grade-point average of 3.0 in all mathematics courses taken for the master's degree in mathematics and successfully completed the comprehensive Ph.D. examination in the chosen area.

A student in program IV is assigned a mathematician adviser who will work with the student and the student's major adviser to plan an appropriate curriculum for the master's degree in mathematics.

Admission
To be admitted to an M.S. degree program in mathematics, a student must have completed work in an undergraduate program equivalent to the one offered by the Division of Mathematical Sciences. A student whose preparation does not meet this requirement may be required to take certain additional courses to cover the deficiency.

Doctor of Philosophy
Most of the recent graduates of the Math. Program have found positions in teaching at universities or colleges. There is ample opportunity for Ph.D. candidates to take courses in applicable mathematics, both in the mathematics department and in other departments on campus. There is no formal departmental policy distinguishing between pure and applied mathematics.

The requirements for the Ph.D. in mathematics include 72 hours of graduate credit, at least three years of graduate residence, including at least one year at The University of Iowa. Each graduate student in mathematics is expected to gain experience, while at the University, in the oral communication of mathematics; this requirement is usually fulfilled by classroom teaching or seminar lecturing.

The comprehensive qualifying examination for the Ph.D. in mathematics covers three of these areas: algebra, analysis, logic and foundations, and/or topology. The student selects the three areas on which he or she wishes to be examined.

The candidate must also pass a comprehensive examination on his or her field of research: write a thesis; and pass a final examination.

The candidate will be required to demonstrate reading proficiency in French, German, or Russian by either passing a language test administered by the appropriate foreign language department or earning a grade of B or better in the second semester of an appropriate foreign language course taken at Hofstra University.

The dissertation must take place after the student has enrolled in graduate school. For information about the Ph.D. program in mathematics education, consult the bulletin, Advanced Studies in Education, available from the College of Education.

The Department of Mathematics also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences.

Courses
Undergraduate: Lower Division
These courses are open to graduate students except by special arrangement with the chair of the department.

23M:181 Basic Mathematical Techniques
15 S. Analytic geometry, trigonometry, exponents and logarithms, algebraic expressions and equations, graphing, linear and quadratic equations, simultaneous equations, rational expressions and radical equations or verbal problems. Prerequisite: one year of high school algebra and one year of high school geometry.

23M:201 Mathematical Techniques
3 S. Algebraic techniques, equations and inequalities, functions and their graphs, systems of equations and inequalities. Prerequisite: 23M:101 or equivalent.

23M:202 Mathematical Techniques
3 S. Trigonometric functions, solutions of right and oblique triangles, rectangular coordinate system, general equations, sequences, permutations and combinations. Prerequisite: 23M:201 or two years of high school algebra and one year high school geometry.

23M:242 Qualitative Methods
4 S. Quantitative methods for helping problems arising in management and economics sciences and related social sciences: introduction to differential and integral calculus with emphasis on economic applications. Prerequisite: 23M:241 or satisfactory score on the basic math proficiency exam - see Advising Office. (Typically 2 1/2 years of high school math is adequate preparation for the exam.)

23M:303 Foundations of College Mathematics
4 S. Introduction to logic, set theory, linear equations and inequalities, linear programming, matrix algebra, combinatorial probability. Prerequisite: two and one-half years of high school mathematics or 23M:11.

23M:305 Foundations of College Mathematics II
4 S. A short course in calculus, introduction to derivatives and integrals with applications to problems in science and economic sciences. Prerequisite: 23M:303 or equivalent.

23M:315 Mathematics for the Biological Sciences
4 S. Review of exponential and logarithmic functions, probability, trigonometric functions, exponential functions, numerical techniques, properties of cells, basic genetics. Not Creditable toward a degree in the biological sciences. Prerequisite: three years of high school mathematics or 23M:2.

23M:316 Calculus for the Biological Sciences
4 S. Differential and integral calculus: topics in differential equations and applications of the integrated calculus. Prerequisite: Three years advanced high school mathematics.

23M:318 Elementary Functions
4 S. Review of exponential and logarithmic functions, graphing and graphs of polynomials, trigonometric, hyperbolic functions and their inverses, properties of these functions, basic calculus. Not Creditable toward a degree in the biological sciences. Prerequisite: two years of high school mathematics or one year of high school geometry.

23M:405 Calculus I

23M:406 Calculus II
4 S. Together 23M:405 and 23M:407 cover the topics covered in courses: methods of integration, improper integrals, applications of integration, sequences and series, Taylor's and Fourier's series. Prerequisite: Three years advanced high school mathematics.

23M:407 Calculus III
4 S. Together 23M:405 and 23M:406 cover the topics covered in courses: methods of integration, improper integrals, applications of integration, sequences and series, Taylor's and Fourier's series. Prerequisite: Three years advanced high school mathematics.


23M:409 Introduction to Linear Algebra
4 S. The theorems and applications of linear algebra with emphasis on matrices, determinants, vector spaces and linear mappings, vector spaces over the real number system, matrices, linear transformations, matrices of linear transformations, reduction toREF. tables before, dimension, null space, spaces, hyperplanes, eigenvectors and eigenvalues, characteristic and minimal polynomials, orthogonality and projections in vector spaces. Prerequisite: 23M:405 or equivalent.

23M:410 Linear Algebra
Elementary Topics of General Interest

These courses are not open to graduate students except by special arrangement with the instructor.

2310-50 Elementary Concepts of Probability and Statistics
Aims to present the basic concepts of probability and statistics through the analysis of data. Emphasis will be placed on data presentation, descriptive statistics, and elementary probability concepts. Preparatory: MATH 102 or MATH 102A.

2320-50 Mathematics of Finance
About interest and annuities, present and future value of a sum, annuities, series, and life insurance, together with a discussion of the mathematics of business, insurance, and banking. Preparatory: MATH 102 or MATH 102A.

2360-50 Economic Mathematics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2370-50 Introduction to Contemporary Mathematics" Aims to present the concepts of contemporary mathematics through the analysis of data. Emphasis will be placed on data presentation, descriptive statistics, and elementary probability concepts. Preparatory: MATH 102 or MATH 102A.

2380-50 Mathematical Concepts and Structures
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2390-50 Mathematics for the Social Sciences
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2410-50 Elementary Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2420-50 Introduction to Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2430-50 Applied Mathematics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2440-50 Elementary Probability and Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2450-50 Topics in Advanced Mathematics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2460-50 Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2470-50 Elementary Probability and Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2480-50 Topics in Advanced Mathematics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2490-50 Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2500-50 Topics in Advanced Mathematics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2510-50 Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2520-50 Topics in Advanced Mathematics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2530-50 Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2540-50 Topics in Advanced Mathematics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.

2550-50 Statistics
A study of the mathematical techniques of economics. Preparatory: MATH 102 or MATH 102A.
22C/3: Introduction to Programming with
PASCAL
22M:25-26 Calculus I-II
22M:27 Introduction to Linear Algebra
22M:28 Calculus III
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical
Statistics I
22S:135 Actuarial Principles of Life
Insurance
22S:177 Numerical Analysis for
Actuaries
22B:180-182 Actuarial Theory III
5E:1-4 Principles of Econometrics
An approved course in operations
research
At least 3 from the following:
5A:1 Introduction to Financial Accounting
5F:102 General Insurance
5M:102 Introduction to Marketing
6L:47 Introduction to Law
6L:100 Administrative Management
Suggested additional courses:
22S:183 Demography and Life Table
Construction
22S:184 Risk Theory
22S:185 Theory of Pension Funding
6F:121 Property and Liability Insurance
6F:122 Life and Health Insurance

Applied Statistics
This program is designed to prepare the
student for a career in applied statistics or for graduate study in applied
statistics or another discipline that incorporates statistical tools. The
required courses in the program are:
22C:7 Introduction to Computing with
Pascal
22M:35-36 Calculus I-II
22M:37 Introduction to Linear Algebra
22M:38 Calculus III
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical
Statistics I
22S:186 Nonparametric Statistical
Methods
22S:188 Analysis and Design of
Experiments I
22S:177 Biostatistical Computation and
Consulting
and at least two of the following:
22S:103 Introduction to the Design of
Sample Surveys
22S:169 Applied Time Series Analysis
22S:181 Application of Multivariate
Statistical Techniques
22S:183 Nonparametric Statistical
Methods
22S:187 Introduction to Biostatistical
Procedures
22S:188 Analysis and Design of
Experiments II
Students in this program are expected to
take at least two non-introductory courses in an area in which statistics
is applied, for example geography, business, or science.

Mathematical Statistics
This program is designed to prepare
students for graduate study in statistics. The required courses in the
program are:
22M:25-26 Calculus I-II
22M:27 Introduction to Linear Algebra
22M:28 Calculus III
22M:30 Fundamental Properties of
Spaces and Functions
22M:115 Introduction to Analysis I
22S:182 Introduction to Probability
22S:184-185 Introduction to
Mathematical Statistics I
and at least two from the following:
22S:156 Applied Time Series Analysis
22S:158 Analysis and Design of
Experiments I
22S:182 Regression Analysis
22S:187 Introduction to Biostatistical
Procedures
Students are encouraged to learn a
programming language and to take at
least four courses in some area where
Statistics is an important tool
(Econometrics, Psychology, ...).

Master of Science
Each M.S. candidate will have a
committee of three members, which will
have the responsibility of recommending
action on the candidate’s degree. For
nonthesis programs, the committee’s
derecommendation is usually based on two
two-hour written examinations on topics
covered in the required courses. For
thesis programs, the committee’s final
recommendation is usually based upon an
oral defense of the thesis, although it may
be based upon a two-hour written
evaluation of the thesis in the candidate’s
program of study.
A student who chooses to earn the M.S.
degree with thesis may earn up to six
semester hours of credit for thesis
preparation. Specific course
requirements for M.S. programs are
given below. The minimum grade-point
average required for each of these
programs is 2.75.

Actuarial Science
(with or without thesis)
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical
Statistics I
22S:182-183 Actuarial Theory I-II
22S:177 Numerical Analysis for
Actuaries
22S:297 Seminar: Actuarial Theory
At least three courses from:
22S:183 Demography and Life Table
Construction
22S:184 Risk Theory
22S:186 Theory of Pension Funding
An approved course in operations
research
The 22S:153-154 requirement will be
waived only if the student has passed
Part Two of the Examinations of the
Society of Actuaries.

Theoretical Statistics
(with or without thesis)
22M:116 Introduction to Analysis I
22S:153 Introduction to Probability
22S:154 Introduction to
Mathematical Statistics I
22S:187 Introduction to Biostatistical
Procedures
At least two of these:
22S:172 Topics in Statistics
22S:230 Introduction to the Theory of
Nonparametric Statistics
22S:234 Theory of Statistics I
22S:235 Linear Models
22S:258 Multivariate Analysis

Applied Statistics
(without thesis)
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical
Statistics I
22S:156 Analysis and Design of
Experiments I
22S:182 Regression Analysis
22S:186-187 Statistical Computation and
Consulting
At least two of these:
22S:133 Quality Control, Reliability, and
Engineering Statistics
22S:186 Bayesian Statistics I
22S:187 Introduction to Mathematical
Statistics II
22S:225 Applied Time Series Analysis
22S:226 Applied Statistical Decision
Theory
22S:181 Application of Multivariate
Statistical Techniques
22S:230 Analysis of Categorical Data
22S:234 Introduction to the Theory of
Nonparametric Statistics
22S:235 Bayesian Statistics II
22S:235 Linear Models
22S:290 Multivariate Analysis
22S:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
The remainder of the program will
consist of selections from the above
lists or other courses approved by the
adviser.
Experience in a computer language (PL/I
or FORTRAN) is required, if the
student satisfies the requirement by
taking a course, that course may not be
counted toward the M.S. semester-hour
requirement.
The applied statistics program is designed to be flexible, so that a student may concentrate on an area of application in addition to the required statistical core.

A program oriented towards biostatistics, for example, could include:

225:181 Application of Multivariate Statistical Techniques
225:158 Regression Analysis and electives chosen from among:
65:158 Principles of Epidemiology
65:178 Biostatistical Methods
50:101 Dynamics of Health
50:102 Men and the Environment
63:269 Chronic Disease Epidemiology

Students interested in operations research, for example, could choose electives from among:
225:156 Introduction to Mathematical Statistics II
225:193 Applied Statistical Decision Theory
225:167 Introduction to Stochastic Processes
556:141 Operations Research II
556:142 Production—Inventory Models
556:143 Quantitative Investment Analysis
556:149 Digital Systems System I
556:249 Digital Systems System II
556:242-243 Mathematical Programming I
556:245 Stochastic Service Systems
556:249 Integer Programming and Network Flows

Programs oriented towards other applied areas are also possible.

For a general program in applied statistics (without area of application), most students would take courses in the Department of Statistics. The student should consult closely with his or her adviser in designing a program of study tailored to the student's specific interests. If the student's interest in a particular statistical area is strong, a program in another department may be more appropriate; for example, educational measurement and statistics (education), operations research (industrial and management engineering), and biostatistics (preventive medicine and environmental health).

Applied Statistics (with the thesis)
225:152 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
At least two of these:
225:158 Analysis and Design of Experiments I
225:181 Application of Multivariate Statistical Techniques
225:156 Analysis and Design of Experiments II
At least two of these:
225:133 Quality Control, Reliability, and Engineering Statistics
225:138 Bayesian Statistics I
225:155 Introduction to Mathematical Statistics II
225:159 Applied Time Series Analysis
225:158 Analysis and Design of Experiments I
225:160 Applied Statistical Decision Theory
225:161 Application of Multivariate Statistical Techniques
225:162 Regression Analysis
225:173 Statistical Computation and Consulting
225:180 Analysis of Categorical Data
225:230 Introduction to the Theory of Nonparametric Statistics
225:238 Bayesian Statistics II
225:245 Linear Models
225:255 Multivariate Analysis
225:170 Numerical Analysis: Nonlinear Equations and Approximation Theory

The remainder of the program will consist of selections from the above courses or, with the adviser's approval, courses in other fields related to the thesis.

Experience in a computer language (PL/I or FORTRAN) is required, if the student satisfies the requirement by taking a course, that course may not be counted toward the M.S. semester hour requirement.

The typical thesis would be a statistical presentation of the results of a meaningful research project in another field, or a study of the characteristics of a statistical method. It generally requires 3 semester hours of 225:191 Individual Study for two semesters.

Doctor of Philosophy (Ph.D.)
To satisfy the course requirements for a Ph.D. in statistics, a student must successfully complete:
225:163 Introduction to Probability
225:154-156 Introduction to Mathematical Statistics I-II
225:162 Regression Analysis
225:167 Introduction to Stochastic Processes
225:173 Statistical Computation and Consulting
225:170 Numerical Analysis: Nonlinear Equations and Approximation Theory

At least 2 semester hours of any combination of the following courses:
225:291 Seminar: Mathematical Statistics
225:293 Seminar: Probability
At least two of the following:
225:159 Applied Time Series Analysis
225:161 Application of Multivariate Statistical Techniques
225:168 Analysis and Design of Experiments I
225:168 Analysis and Design of Experiments II
At least five of the following:
225:220 Analysis of Categorical Data
225:220 Introduction to the Theory of Nonparametric Statistics
225:255 Linear Models
225:264-265 Theory of Probability I-II

"It is recommended that students take 225:173, for at least two hours' credit, in two different semesters."

In addition, each semester a graduate student is registered for six or more credit hours, the student's registration must include at least one course of at least two hours' credit offered by the Department of Statistics, other than 225:191 Individual Study, 225:197 Research in Statistics, or 225:269 Reading Research.

During the graduate program, students may wish to take course work or seminars in other departments for the achievement of certain auxiliary goals of the doctoral degree in statistics—to relate his or her area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with foreign statisticians.

Each student is required to include in his or her program a component which involves experience in either teaching or statistical consulting.

Students are expected to request financial assistance for the third year must have taken the qualifying examination no later than the spring semester of the second year.

The qualifying examination covers topics such as those studied in 225:153 Introduction to Probability, 225:154-156 Introduction to Mathematical Statistics I-II, and 225:162 Regression Analysis. Students planning their qualifying examination for the first time may attempt to repeat the qualifying examination one time.

The student requests a comprehensive examination in all areas of the course work in his or her approved plan of study, typically near the end of the third year. The student must achieve at least a 3.25 grade-point average on completed courses in the plan of study.

A program which does not conform to the above guidelines, but which is of high excellence, may be approved by the department chair.

Special Features
Because statisticians are often teamed with other scientists in research projects, it is important that students gain research and communication skills. In several courses, the department tries to provide such experience. In addition, the department houses the Statistical Consulting Center, which offers
The ROTC Basic Course for freshmen and sophomores provides academic instruction in the fundamentals of leadership and management plus an introduction to the military and the American society and current military organization and capabilities. Military history is highlighted in tracing the development of military principles and doctrine utilized in modern military operations and organizations.

The ROTC Advanced Course for junior and senior students addresses the dynamics of organizational leadership from the small group level to large and diversified organizations. Practical instruction in developing individual leadership skills is emphasized.

Between the junior and senior years, students attend a six-week, paid, advanced training camp at Fort Lewis, Washington. Selected students may also participate in active army training programs such as Ranger School, Air Assault School, Northern Warfare School, and Airborne Training.

Students who successfully complete the Advanced Course receive a commission as a second lieutenant in the U.S. Army and serve either on active duty or with the National Guard or U.S. Army Reserve near their home. Those choosing active duty serve a minimum of three years.

Students who have not taken the basic course may qualify for the advanced course by attending a basic camp during summer, all expenses paid, or by participating in an on-campus summer leadership course. These students may qualify for the advanced course by taking the ROTC Advanced Course.

Credit For Prior Training

Students with prior military training or experience may qualify for Basic Course credit by allowing entrance into the Advanced Course. Prior service personnel are considered for a commission placement within the ROTC program and are eligible for a commission within two years.

Although the full Army ROTC program normally requires four years, it can be completed in two, three, or more academic years, with department approval.

Graduate School

Students commissioned as lieutenants upon graduation from The University of Iowa may qualify for a delayed entrance on active duty to attend graduate school. No academic year is required on active duty for such delays. Up to three years of medical, dental, and law schools are normally granted.

Special Programs

The Black Barons is a traditional organization, engaging in intercollegiate military skills competition. The department also sponsors a small-bore rifle team that is part in national competition. Cadets compete for individual skill and national titles for leadership, academic achievement, athleticism, and military proficiency. The department sponsors military-oriented parades and social activities.

Special Facilities

The department uses several areas near Iowa City for practical field and military skills instruction. It uses a variety of military equipment, such as helicopters and FM radios, in practical leadership assignments and in support of Field Training Experiences.

Credit: This credit includes the Cadet Leadership Reaction Course, orienteering courses, and rappelling facilities.

Financial Aid

Reserve Officers Training Corps scholarships, books, laboratory fees, and a $100-per-month, tax-free subsistence allowance are available to high school seniors and students enrolled in military science courses. Three-, two-, and one-year scholarships are also available.

Scholarships are the primary service obligation of four years.

All cadets in the advanced course receive a $100-per-month, tax-free subsistence allowance. Cadets attending summer camps are paid while there and receive travel allowances. Students are supplied with books for University classes taught by military faculty and uniforms for training exercises. Veterans continue to draw both the ROTC allowances until any GI Bill benefits to which they are entitled. Non-authorizing advanced course students may also participate in the Stennis Leadership Program (SLP) with the U.S. Navy Reserve or National Guard. SLP cadets earn approximately $2,600 per year and serve as officer trainees in guard and reserve units in the local area while attending the University.

Defense, current doctrine strategy, and an introduction to leadership and management modules to be developed further in other courses.

2201 Foundations of Military Government

A seminar approach to military government with emphasis on the U.S. Army, military law, and other institutions of the military government. The college faculty, in cooperation with the U.S. Army, is responsible for the selection of the instructors. Required for all military science majors.

2300 Military Leadership and Tactics

A survey of American military history and interwar strategy with emphasis on the role and impact of technology on the conduct of military operations. Required for all military science majors.

2504 Test Battery

An introduction to small and tactical military leadership responsibilities, with emphasis on individual and small-unit tactics. Required for all military science majors.

2606 Fundamentals of Military Organization and Operations

A seminar course covering the fundamental elements of doctrine, organizational, and operations.

1306 Basic Unit Leadership

An introduction to organizational leadership with an emphasis on planning, organizing, and preparing for unit training. Required for all military science majors.

1310 Military Leadership and the Warfighter

An examination of the warfighter's role in modern armed forces. Required for all military science majors.

2217 Principles of Military Operations

An introduction to military planning and preparation of operations concepts with an emphasis on real-world scenario development.

2218 Law and Government

Enlisted in management and leadership of military organizations, including instruction in military law and government. Required for all military science majors.

2318 Administration Management

An introduction to military management and leadership instruction related to the module leadership and management. Required for all military science majors.

2401 Advanced Training

An introduction to the role of the military in American society and an emphasis on American government, development, and organization. Required for all military science majors.

2514 Introduction to the Military

An introduction to the military in American society and an emphasis on American government, development, and organization. Required for all military science majors.

2519 Introduction to the Military

An introduction to the military in American society and an emphasis on American government, development, and organization. Required for all military science majors.

2606 Fundamentals of Military Organization and Operations

A seminar course covering the fundamental elements of doctrine, organizational, and operations.

2617 Principles of Military Operations

An introduction to military planning and preparation of operations concepts with an emphasis on real-world scenario development.

2618 Law and Government

Enlisted in management and leadership of military organizations, including instruction in military law and government. Required for all military science majors.

2618 Administration Management

An introduction to military management and leadership instruction related to the module leadership and management. Required for all military science majors.

2619 Advanced Training

An introduction to the role of the military in American society and an emphasis on American government, development, and organization. Required for all military science majors.

Museum Training


The department offers courses which provide a fundamental background in the historical foundations of science museums, with special theory and design, preparation techniques, and general museum operational procedures. Courses have been offered continuously since 1910, the museum instructional program at The University of Iowa is the oldest of more than 75 university- and college-based curricula in the United States. The museum field is expanding, and the museum instructional program occupies positions as directors, curators, and exhibit educators in
museum throughout the United States and Canada.

A major in one of the natural science disciplines (biology, geology, or botany), anthropology, or general science is recommended for students preparing for museum careers. Courses are offered during the annual eight-week summer session as well as during the regular academic year. These elective college courses count as credit toward the B.A. or B.S. degree.

For graduate work, museum courses may be credited as a formal minor concentration on a master's degree in anthropology or science education, or a Ph.D. degree in science education. Inquiries regarding program details should be directed to the appropriate minor department.

Courses

All registration by consent of instructor.

2410 Museum Techniques 10 s.h.

Cultivation of students exhibiting unflagging interest in museum-specific research and preparation. Course content varies from year to year. Students are free to drop at any time.

2415 Museum Interpretation 10 s.h.

Cultural history of the department, students preparing for museum careers, and museum staff are expected to take this course as part of their training. Students are free to drop at any time.

2503 Museum Assembly Work 10 s.h.

Techniques and procedures of preparing for assembly work. Students are expected to take this course as part of their training. Students are free to drop at any time.

2610 Museum Assembly Work 10 s.h.

Students are expected to take this course as part of their training. Students are free to drop at any time.

A minor in a fine arts

Community of International, the University of Iowa School of Music has long been recognized as one of the excellent university-based schools of music in the United States.

The school's on-campus enrollment of 800 students in music is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student's development.

The faculty consists of highly trained artist-teachers in areas of specialization. Faculty assemblies in residence include the String Quartet, Woodwind Quintet, Voice Quartet, Percussion Ensemble, Local Qtets, and the Baroque Players. Swim classes with faculty members are offered in all band and orchestra instruments, voice, piano, and organ.

At the undergraduate level, the school's curriculum offers all quality students an opportunity for the serious study of music toward either professional or avocational goals. The graduate curriculum is designed primarily as preparation for teaching in secondary school, colleges, and universities, and for careers in performance. The school is a charter member of the National Association of Schools of Music.

Undergraduate Program

The school offers the Bachelor of Arts and the Bachelor of Music. Curricula are the same for both, except that candidates for the B.M. degree may, and candidates for the B.A. cannot, count more than 50 semester hours of course work in music toward the 124 semester hours required for graduation.

The foreign language requirement for the B.M. is one year of college-level study, while the requirement for the B.A. is two years. Areas of concentration offered in both programs are performance, music education, music therapy, composition, theory, and music history.

General Requirements

All undergraduate enrollments require School of Music approval. Entering undergraduate students planning to major in music are expected to audition either in person or by tape recording for advance registration. All transfer students must also take the required examination in music theory (see "Graduate Program" below). Students with deficiencies in theory must register for 2511 Review Theory.

An unsuccessful candidate in music must satisfy all College of Liberal Arts general requirements except the historical perspective requirement (see the "Catalog of Liberal Arts" section of the Catalog for these requirements), and the following course requirements of the School of Music:

251-1 Literature and Theory I 3 s.h.
251-2 Aural Skills I 3 s.h.
251-3 Literature and Theory III 3 s.h.
251-8 Aural Skills II-V 3 s.h.
251-92 History of Music II 3 s.h.
251-72 Group Instruction in Piano 3 s.h.

The successful completion of proficiency exams and I

Percussion (251-15 Undergraduate)

251-17 Arranging for Band or Orchestra 2 s.h.
251-2 Jazz Improvisation I or 3 s.h.
251-2 Jazz Improvisation II or 3 s.h.
251-2 Jazz Improvisation III or 3 s.h.
251-25 Orchestration 2 s.h.
251-45 Composition I 3 s.h.
251-47 Total Forms 3 s.h.
251-48 Analysis of Music Literature 1 s.h.
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25:149 Analysis of Music Literature, 1750-1825 3 s.h.
25:155 Analysis of Music Literature, 1825-1900 3 s.h.
26:151 Analysis of Music Literature, 1900-present 3 s.h.
26:152 Analysis of Music Literature, Special Topics 3 s.h.
26:153 Keyboard Harmony 2 s.h.
26:312 Gregorian Chant 3 s.h.
26:216 Folk Music 3 s.h.
Four years of applied music

Participation in a major ensemble each semester of residence. During the summer term, students shall be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String majors shall participate in University Orchestras and/or in Sinfonietta or Chamber Orchestra. Keyboard majors may substitute accompanying in place of major ensemble participation for two semesters during their junior or senior years, with the consent of their advisers. Any request for adjustment of this requirement shall be submitted in writing to a reviewing committee consisting of the ensemble directors involved, the advisor, the major teacher, and a representative from the Director's Office. This committee will meet regularly at its and at each early registration period.

Major Ensembles
25:181 University Symphony - Concert Band - University Band
25:181 University Chorale - University Singers
26:181 Symphony Choir - Kantorei
26:192 Orchestra
26:182 Chamber Orchestra - Sinfonietta
The student may take advanced electives in performance (including chamber music and piano accompanying), theory, composition, music education, music history, and literature, orchestration, and conducting.

Music History Major
In addition to the general requirements for the degree, the Music History major requires 18 s.h. of music history courses.
A senior thesis replaces the recital required of applied music majors and consists of a paper that demonstrates the student's ability to conduct research.

Music Education
Areas of concentration in music education are instrumental music, vocal music, and music therapy. In addition to the B.A. or B.M. requirements in music and education, the candidate to teach music in Iowa schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the

Instrumental and vocal areas are listed below.

String Majors
Exclusion in performance 2 s.h.
(Violin and viola majors take one year of 25:53 Cello; cello and bass majors take one year of 25:21 Violin)
25:100 Class Strings
(Violinists take violin and bass; violists take violin and bass; cellists take violin and cello.)
75:143 Instrumental Techniques 2 s.h.
(normally cannot omit cello)
25:107 Instrumental Conducting I 2 s.h.
25:108 Instrumental Conducting II 1 s.h.
26:150 String Methods and Materials 2 s.h.
76:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
76:191 Observation and Laboratory Practice in the Elementary School 6 s.h.
76:192 Laboratory Practice in the Elementary School 6 s.h.
76:187 Seminar: Curriculum and Student Teaching 1 s.h.

Brass, Woodwind, or Percussion Majors
Brass, woodwind, and percussion majors in music education shall participate in a concert band each semester, and in marching band for two fall semesters during the first two years in residence at the University. Students may substitute marching band program techniques for marching band, with permission of their major advisor and the Director of Bands.

Courses required:
75:143 Instrumental Technique 6 s.h.
75:147-108 Instructional Conducting I-II 4 s.h.
76:144 Methods and Materials: Elementary School Instrumental Music 6 s.h.
76:136 Aeolian Band Instrument Care and Repair 1 s.h.
76:140 Band Methods and Materials 3 s.h.
76:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
76:192 Laboratory Practice in the Secondary School 6 s.h.
76:187 Seminar: Curriculum and Student Teaching 1 s.h.

Vocal and Keyboard Majors
76:147 Choral Methods and Conducting 3 s.h.
76:148 Choral Literature and Conducting 3 s.h.
26:115-116 Choral Literature 4 s.h.
76:145 Methods and Materials: Elementary School General Music 3 s.h.
76:142 Methods and Materials: Secondary School General Music 3 s.h.
76:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
76:187 Seminar: Curriculum and Student Teaching 1 s.h.

Keyboard majors preparing for music teacher certification must pass the proficiency examination of 25:71-72 Group Instruction in Piano I-I. Keyboard majors lacking satisfactory competence in voice must register for 25:17 Piano for two semesters.

Keyboard Majors (Nonvocal)
Keyboard majors who elect to teach in the nonvocal area must complete the requirements in either the brass-woodwind-percussion or string area, and pass the proficiency examination of 25:71-72 Group Instruction in Piano II.

Teaching Minor
A student qualifies for certification as an elementary school general music teacher by completing the approved certification program for elementary teachers and 22-23 semester hours as follows:
76:119 Beginning Guitar 3 s.h.
76:145 Methods and Materials: Elementary School General Music 3 s.h.
76:192 Laboratory Practice in the Elementary School 2-3 s.h.
76:187 Seminar: Curriculum and Student Teaching 2 s.h.
76:140 Band Methods and Materials: Elementary School General Music 3 s.h.
76:136 Aeolian Band Instrument Care and Repair 1 s.h.
76:140 Band Methods and Materials 3 s.h.
76:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
76:192 Laboratory Practice in the Secondary School 6 s.h.
76:187 Seminar: Curriculum and Student Teaching 1 s.h.

Music Therapy
Admission to the program in music therapy is based on demonstrated minimum keyboard skills and successful completion of 25:114 Orientation to Music Therapy. The number of students admitted to the program is limited by the types and amounts of clinical experience available on campus. In addition to the specific courses in music therapy listed below, specific courses are required in biology, sociology, abnormal psychology, and social psychology.
A six-month internship in an approved off-campus clinical setting is required before the candidate of the degree and certification as a registered music therapist (RMTh). For more job opportunities, students also are strongly encouraged to complete the music therapist certification requirements.
Complete information on the program is

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available in the music education office. Course requirements for the major in music therapy are:

25:94 Music Therapy Practicum 1-3 s.h.
25:104 Recreational Music Technique 2 s.h.
25:114 Orientation to Music Therapy 2 s.h.
75:104 Psychopharmacology of Music 2 s.h.
75:149 Behavioral Research in Music 3 s.h.
25:136 Music Therapy Techniques: Adult I 3 s.h.
25:140 Internship in Music Therapy 2 s.h.

Composition/Theory Major

Students are not admitted to this program earlier than the end of the sophomore year. Application for admission to the program, the candidate will be assigned a faculty advisor, in consultation with whom a course of study leading to the degree will be determined. Admission is based on achievement in composition and/or theory.

Keyboard proficiency and recital attendance requirements are those of the B.M. degree; course requirements are those of the B.M. degree plus an additional eight semester hours of theory courses.

The thesis replaces the senior recital required of all other music majors, and consists of one or more original compositions, approved by the Composition/Theory faculty and performed on regularly scheduled School of Music recitals, and/or a faculty-approved scholarly paper dealing with theoretical issues.

Until admitted to the Composition/Theory Program, the candidate must take private lessons on voice or her major instrument or voice. Following admission, the student undertakes applied music study as recommended by the advisor.

Ensemble participation is required of the B.M. candidate.

Honors

A student with junior or senior standing may undertake honors work in music with the approval of the director of the College of L-Club Arts honors program, and provided a School of Music faculty member sponsors the student in honors status and the student has maintained a minimum grade-point average of 3.0 on all previous work undertaken at the University.

A student maintaining the minimum 3.0 average grade-point average for graduation "with honors" by completing satisfactorily from 8 to 16 semester hours in 25:97 Honors in Music. Types of honors projects for which credit is given in

25:97 are honors performances, solo and/or ensemble; honors compositions, orchestrations, arrangements; and honors recital, research papers, editorials, translations, etc.

A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses or required for graduation, such as 25:144 Senior Recital.

Honors student in music are encouraged to take graduate-level music courses. Advanced course work in music history, music theory, and languages is particularly recommended. An honors committee of at least three members is appointed by the honors sponsor to evaluate the student's work.

Financial Aid

A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.

Graduate Programs

The entering graduate student must take the School of Music advisory examination in music theory (harmony, ear training, forms, and counterpoint), and history and literature, before his or her first registration. The advisory examination is given each session or the two days (excluding Sunday) before registration. A leaflet describing the general content of the examination may be obtained from the director's office, School of Music. (For general graduate admission, degree, and examination requirements, see the "Graduate College" section of the Catalog).

Theory Minor

Candidates for graduate degrees in music who elect a minor in music theory or composition by completing the following courses:

25:145 Composition I 3 s.h.
25:147 Total Piano (unless excused by advisory exam) 5 s.h.
25:234 Observation and Practice Teaching in Theory 1-2 s.h.
25:236 Methods and Techniques of Teaching Basic Theory 3 s.h.
plus two courses from the following:
25:148 Analysis of Music Lit 1600-1750
25:149 Analysis of Music Lit 1750-1850
25:150 Analysis of Music Lit 1850-1900
25:151 Analysis of Music Lit 1900-1950
25:152 Analysis of Music Lit Special Topics

Master of Arts

The Master of Arts with thesis is offered in the areas of performance (including conducting), composition, music theory, and musicology. The Master of Arts without thesis is offered in the areas of music education and instrumental or vocal pedagogy (including conducting). Both require a minimum of 30 post-baccalaureate semester hours. Information about specific admission and curricular requirements for each degree is available from the School of Music. All curricula must include the requirements listed below.

General

25:231 Introduction to Graduate Study in Music

Music Theory

25:145 Correspondent Forms or 25:147 Total Forms

One elective in analysis of music literature (25:148-163) or equivalent.

If excused from either 25:145 or 25:147 as a result of the advisory examination, the student must take the other course and the analysis of music literature elective. If excused from both 25:145 and 25:147, the student need take only the analysis of music literature elective. Any serious music theory and ear training deficiencies revealed in the advisory examination are to be removed through 25:11 Review Theory.

Music History

25:301-302 Advanced History and Literature of Music I & II or equivalent, or satisfactory advisory examination.

If so excused from 25:301 and/or 25:302 as a result of the advisory examination, the student must elect another course from the music history sequence 25:303-314, 25:316-317, 25:323, 25:330-332, and may elect other musicology courses.

Ensemble Participation

Students shall participate in a major ensemble each semester of residence (see previous list of the major ensembles). During the summer term, students shall be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and the ensemble director. Keyboard majors may substitute accompaniment for participation in a major ensemble, at their advisor's discretion. Theory, composition, musicology, or music education majors may, with their advisor's permission, substitute other electives. Any requests for adjustment of this requirement must be submitted in writing to a reviewing committee consisting of the ensemble directors involved, the director, the major teacher, and a representative from the Director's Office. This committee will meet regularly at the end of each early registration period.
Admission
Before an applicant will be considered for admission, he or she must have submitted the required materials as noted below.

**Composition—representative musical scores:**

**Theory—analyzes or research papers:**

**Music education—no materials required:**

**Performance (including conducting)—audition:**

**Musicology—research papers, theses:**

**Pedagogy—contact School of Music Information about specific admission and curriculum requirements for each area is available from the director's office.

Master of Fine Arts

The M.F.A. is for students aspiring to a career in the areas of composition, instrumental or vocal performance, conducting, and opera theater directing. It requires a minimum of 48 post-baccalaureate semester hours.

In addition to the entrance and curricular requirements for the Master of Arts degree, the student must also present at least two full-length recitals or programs (25:401 M.F.A. Thesis), for which a maximum of eight semester hours of credit will be awarded. The student may earn a Master of Arts degree while working toward the Master of Fine Arts degree. All requirements for each degree must be met separately, including two full examinations, with a minimum combined total of 90 semester hours of graduate credit. (See the "Graduate College" section of the Catalog for further details.)

**Doctoral Degrees**

**General Requirements**

All doctoral study in music includes:

- Minimum course requirements listed under the M.A. degree.
- One or more additional electives from the analytical studies sequence 25:149-162 or equivalent.
- One or more additional courses in the history of music chosen from those listed in the master's degree requirements.
- 25:285 Physics of Sound and Music or equivalent.
- Reading proficiency in at least one foreign language (must be completed before comprehensive examination; music education students may substitute up to two courses in statistics for the requirement); and
- Dissertation

Doctoral students shall be available for participation in a major ensemble during each term of registration unless excused by their advisors (see previous list of major ensembles). During the summer term, students shall be available for ensemble participation as needed, keyboard major candidates must include accompaniment in plans of a major ensemble, at the discretion of their advisors.

**Doctor of Philosophy**

Areas of specialization for the Ph.D. include composition, musicology, music education, music theory, and music literature.

The music literature program is designed for students who have already achieved a professional level of musical performance. The student is required to audit in six or more major performance areas.

Information about specific admission and curriculum requirements for each area is available from the director's office.

**Doctor of Musical Arts**

Requirements for the D.M.A. degree in performance and pedagogy are the general doctoral requirements of the school, except that the D.M.A. dissertation consists of three full-length recitals or two recitals and a concerto performance with orchestra or other appropriate ensemble. Vocalists may substitute the prosecution of one or more major recitals in a large-scale work for one of the two recitals. Conductors will present two programs.

D.M.A. candidates must also give evidence of their ability to make a scholarly investigation of limited scope by means of a written essay.

**Admission**

Before an applicant will be considered for admission to a doctoral program, he or she must have submitted supporting materials in his or her indicated area of concentration, as follows:

- Composition—representative musical scores
- Theory—analyzes or research papers
- Music education—research papers
- Music literature—research papers and audit
- Performance (including conducting)—audition
- Music history and musicology—research papers, theses

**Graduate Awards**

Graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the School of Music.

**Music for Nonmajors**

Courses particularly recommended for students who are not majoring in music but who have an appreciation of it include:

- 11:39-40 Masterpieces of Music
- 25:158 Late Eighteenth- and Nineteenth-Century Composers
- 25:160 Early Eighteenth- and Twentieth-Century Composers; the sequence 25:103-104 World Music I-II for students interested in non-Western music; and 25-5 fundamentals of music. 25:154 Beginning Guitar is available for nonmajors who wish to develop elementary performance skills for personal musical enjoyment and growth.

Participation in School of Music ensembles is open to all university students with the ensemble director's approval (see overview list of major ensembles).

Nonmajors interested in performance should consult music advisors regarding appropriate courses in applied music.

**Special Programs**

The Center for New Music provides an environment for innovative composition and a vehicle for the performance of new works. Its repertoire includes the works of little-known young composers and works using electronic-produced sounds, as well as compositions by recognized modern composers. The Center for the New Performing Arts is an interdisciplinary unit linking the University's schools of music and arts and the films, dance, theater, and creative writing areas. The center also produces a periodical and media class, projects, and performances.

**Facilities**

The University of Iowa Center for the Arts has one of the nation's finest teaching and practice facilities in music. In addition to classes and seminars, the music building includes 55 teaching studios, 73 practice rooms, a large library, two electronic music laboratories, five recording and listening facilities with 50 teaching posts, four large universial halls, a small solo and ensemble practice facilities, professional recording facilities, a fine arts computer studio with six terminals, eight practice and recital rooms, and the 750-seat Capp Rudolph Hall. The Center also sponsors frequent excursions, library tours, and visits to the official research labs of major schools and universities. The music library contains more than 600,000 volumes of music books, more than 2,100 records of microfilm, a microfilm file in approximately 300 titles, and 6,000 LP records. The library's periodical collection is also an important source of reference materials for music research and performance. The library's computer in the Music Building provides 24 study carrels, a microreader room, an electronic reading room, a large reading area, and a separate area for the Golden Bell Fund/Paul Wagman Fund for Music Research.

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## Courses for Undergraduates and Graduates

### Courses for Undergraduates and Graduates

#### Music Education

Other music education courses are offered by the divisions of Elementary Education and Secondary Education in the College of Education. See those sections of the Catalog for listings and descriptions. Where dual numbers are indicated, students preparing for music teacher certification should register under the education number.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MUS 101</td>
<td>Music Education</td>
<td>3.0</td>
</tr>
<tr>
<td>MUS 201</td>
<td>Music Education</td>
<td>3.0</td>
</tr>
<tr>
<td>MUS 301</td>
<td>Music Education</td>
<td>3.0</td>
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</table>

#### Other Music Education Courses

- MUS 210: Introduction to Music Education (1.0)
- MUS 310: Advanced Music Education (3.0)
- MUS 410: Special Topics in Music Education (1.0)
- MUS 510: Research in Music Education (3.0)

#### Examination

- MUS 101: Introduction to Music Education (1.0)
- MUS 201: Music Education (3.0)
- MUS 301: Music Education (3.0)
- MUS 401: Advanced Music Education (3.0)
- MUS 501: Research in Music Education (3.0)
**Nuclear Medicine Technology**

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

**Philosophy**

- **Department Chair:** Luis-Aleks
- **Family:** professors Libby Holcomb, Mary Ratliff, Patrice Benavides, Phillip Casper, Melissa Davis, professors emeritus Barry Beggs, associate professors James Clark, Everette Fales, Howard Little, assistant professors Christopher Lathe, Phyllis Money
- **Degrees offered:** B.A., M.A., Ph.D.

**Undergraduate Program**

The undergraduate program in philosophy is designed to impart knowledge of the fundamental issues and the main developments in Western philosophy while strengthening the logical and analytical skills of the student. In addition, philosophy is valuable preparation for graduate or professional study in many fields (religion and law, for example) and for any position in government, education, or business that requires a general education and a capacity for clear and systematic thinking. Advanced degree work is necessary for a collegiate teaching position in philosophy.

**Bachelor of Arts**

The Bachelor of Arts degree requires a minimum of 27 semester hours of credit in courses numbered from 28:102 to 28:190, and must include:
- 28:103 Introduction to Symbolic Logic
- 28:117 Ancient Philosophy
- Either
  - 28:115 Seventeenth-Century Philosophy
  - 28:116 Eighteenth-Century Philosophy

At least the first 12 semester hours of philosophy coursework that are used to complete these requirements must be taken at The University of Iowa. An undergraduate major in philosophy is encouraged for a semester hours of the Liberal Arts general education requirement in historical perspectives.

**Honors**

The department administers an honors program for undergraduate students of superior ability. A grade-point average of at least 3.0 is required for admission to the program, a student who is interested in the program should consult the advisor for undergraduate majors in philosophy.

**Graduate Program**

The graduate program in philosophy is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics, epistemology, history of philosophy, ethics, logic, and philosophy of science.

**Master of Arts**

The Master of Arts degree requires a minimum of 32 semester hours of graduate credit and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science and, ethics. The student must pass an oral final examination. There is no foreign language requirement.

**Doctor of Philosophy**

The Doctor of Philosophy degree requires a minimum of 72 semester hours of graduate credit by the time the dissertation is finished. Candidacy for the doctoral program is determined by a formal vote of the entire faculty of the Department, after the student has completed 26-28 semester hours of graduate study in residence. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science and, ethics. The student must also pass a written comprehensive examination consisting of a dissertation area examination, a special area examination, and a prospectus of the dissertation. The comprehensive examination may be taken only after the student has shown competency in French, German, Greek, or Latin.

**Courses**

- 28:103 Introduction to Symbolic Logic
- 28:117 Ancient Philosophy
- Either
  - 28:115 Seventeenth-Century Philosophy
  - 28:116 Eighteenth-Century Philosophy

At least the first 12 semester hours of philosophy coursework that are used to complete these requirements must be taken at The University of Iowa. An undergraduate major in philosophy is encouraged for 28:103 Introduction to Symbolic Logic.
Physical Education—Field House

Department chair: Dan H. Keyser

Faculty: professors Louis E. Alfred, Dana M. Apprey, David R. Casey, Carl V. Guttif, James C. Her, Jerry A. Meyers, Charles W. Tipton

Assistant professor: David F. Hansen, Richard H. Hetzel, David K. Leslie

Associate professors emeriti: Albert R. Alston, Charles M. Tipton

Assistant professors: Diane C. Baskin, Dennis T. Baskin, Germaine M. Batterham, James M. Reardon, Warren D. Sitton, Theodore B. Winona, Charles H. Young

Adjunct professors Robert L. Logan, Robert K. Martin, Diana R. Rogers

Degrees offered: B.S., B.B., M.A., Ph.D.

Undergraduate Programs

Bachelor of Science in Teaching and Coaching

The Bachelor of Science degree program in teaching and coaching prepares students for teaching physical education and related subjects in elementary and secondary schools, and for coaching athletic teams. Through the recent job shortage in teaching and coaching, the degree has led to a high level of competition among applicants for teaching positions. Graduates in physical education from this department have had a high percentage of placement.

Program requirements include:

- 20:21-22 Physical Education
- 27:11 Introduction to Physical Education
- 27:31 Teaching of Gymnastics 4
- 27:25-26 Teaching of Swimming
- 27:20 Human Anatomy
- 27:56 First Aid
- 27:57 Introduction to Athletic Training 2

Physical Education—Field House

The program also requires one of these seven coaching courses:

- 27:32 Coaching of Gymnastics
- 27:33 Coaching of Football
- 27:34 Coaching of Baseball
- 27:35 Coaching of Track and Field
- 27:36 Coaching of Basketball
- 27:37 Coaching of Competitive Swimming
- 27:39 Coaching of Wrestling

These courses are required for teaching certification in physical education:

- 75:71 Growth and Motor Development
- 75:73 Methods and Materials in Elementary School Physical Education
- 27:27 Teaching of Dance
- 75:75 Educational Psychology and Development 3
- 75:91 Pre-Physical Education Practicum 1-2
- 75:125 Methods in Secondary Physical Education 3
- 75:127 Methods in Secondary Physical Education 3
- 75:170 Human Relations for the Classroom Teacher 3
- 75:177 Curriculum and Student Teaching 3
- 75:191 Observation and Laboratory Practice in the Secondary School 2
- 75:192 Laboratory Practice in Elementary School 2

Bachelor of Science in Physical Education (Alternative Careers)

The Bachelor of Science degree in physical education includes courses in business to prepare students for responsibilities in sales, marketing, health, fitness and recreation, and in industries in which physical fitness of employees is an important asset. Students are also prepared for private enterprise, such as the operation of a sporting goods store.

Program requirements include:

- 10:21-22 Physical Education Skills 8

Courses in activities that have
The department also recommends that the student earn certification as an entry-level coach in the American College of Sports Medicine.

**Bachelor of Arts**

The predoctoral Bachelor of Arts program is open only to freshmen with superior academic records. The program is designed to prepare students for graduate work in physical education with emphasis on exercise physiology, adapted physical education, anatomy, biochemistry, or evaluation and administration.

The curriculum consists of a core of courses in physical education, and selected courses in mathematics, the biological sciences, and the physical sciences, which are basic to advanced study in the area in which the student is interested.

Because the student need not meet certification requirements for teaching in the public schools, the curriculum offers considerable latitude in the choice of electives to fit individual interests and needs.

Required education courses:

- 411-14 Principles of Chemistry 0.5 a.h.
- 411-1 Principles of Chemistry Laboratory I 2 a.h.
- 411-1 Organic Chemistry I 3 a.h.
- Mathematics through Calculus 3-6 a.h.
- 291-1-2 College Algebra/Trigonometry 5 a.h.

Required professional courses in physical education and related areas:

- 27:11 Introduction to Physical Education 0 a.h.
- 27:53 Human Anatomy - 2-4 a.h.
- 27:97 Leadership Training I 1 a.h.
- 27:106 Adapted Physical Education 2 a.h.
- 27:107 Biomechanics of Physical Education 3 a.h.
- 72:100 Human Physiology 2 a.h.
- 17:352 Physiology of Exercise Laboratory 2 a.h.
- 92:602 The Chemistry of Biological Materials 3 a.h.
- 99:101 Metabolism 3 a.h.

**Minor in Physical Education**

The minor requires completion of 18 semester hours from the following courses:

- 27:66 Special Projects
- 27:102 Issues and Trends in Physical Education and Athletics
- 27:103 Administration of Physical Education and Athletics
- 27:107 Biomechanics of Physical Education
- 27:108 Teaching Motor Skills

**Endorsement for Coaching**

The Iowa Department of Public Instruction has provided for the endorsement of certified teachers for the coaching of athletic teams in schools. This endorsement is intended for teachers who have majors in subjects other than physical education but who wish to coach interscholastic athletic teams. The endorsement does not permit the teacher to teach physical education classes in public schools.

Certification for coaching athletic teams at the junior high and secondary school levels requires satisfactory completion of the following courses:

- 27:53 Human Anatomy 3-3 a.h.
- 27:36 Field Aid 0 a.h.
- 27:37 Introduction to Athletic Training 3 a.h.
- 27:118 Introduction to Athletic Training 3 a.h.
- 27:120 Observation and Laboratory Practice in the Secondary School 3 a.h.

*May be waived on the basis of appropriate coaching experience.*

**Endorsement for Athletic Trainers**

The endorsement is provided for students who wish to be certified as athletic trainers at the postsecondary level; the secondary school level is a part of their regular teaching certificate in the college and university level. The requirements designed to meet the athletic trainer certification set by the National Athletic Trainers Association include:

- 7:41 Food, Nutrition, and You 3 a.h.
- 31:1 Elementary Psychology 4 a.h.
- 27:53 Human Anatomy 2-3 a.h.
- 27:105 Adapted Physical Education (or equivalent) 3 a.h.
- 27:141 Exercise Science 2 a.h.
- 25:142 Contemporary Issues in Health Education 3 a.h.
- 27:59 Human Anatomy 2-3 a.h.
- 31:1 Elementary Psychology 4 a.h.
- 27:53 Human Anatomy 2-3 a.h.

*Cardiovascular Resuscitation Certification

- 27:35 Introduction to Athletic Training 3 a.h.
- 27:105 Adapted Physical Education 2 a.h.
- 27:105 Adapted Physical Education 2 a.h.
- 27:105 Adapted Physical Education 2 a.h.
- 27:105 Administration of Physical Education 3 a.h.
- 27:105 Administration of Physical Education 3 a.h.
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- 27:105 Administration of Physical Education 3 a.h.
## Graduate Programs

### Master of Arts without Thesis

The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for teachers of basic physical education and for athletes coaches. Emphasis is placed on the application of research findings to the organization, teaching, and evaluation of basic physical education programs for all students in schools and colleges, and to the coaching of interscholastic and intercollegiate athletic teams. The program focuses on principles associated with teaching and coaching in public schools and community colleges in Iowa. The following undergraduate course work is required background for the nonthesis M.A. program in physical education:

- **Human anatomy**: 2 s.h.
- **Human physiology**: 3 s.h.
- **Physical education**: 3 s.h.
- **Method of physical education**: 3 s.h.
- **Practice teaching (or equivalent)**: 3 s.h.
- **Teaching swimming**: 1 s.h.
- **Coaching (one sport)**: 1 s.h.
- **Electives in physical education and related areas**: 13 s.h.

**Total**: 30 s.h.

Credit may be given for experience and for competence in techniques when such competence is demonstrated by examination.

For the M.A. degree without thesis, the student must complete a minimum of 30 semester hours, at least 24 of which must be in physical education, including 27:301 Nonthesis Seminar and at least one course from each of these three groups:

**Group I**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>27:105</td>
<td>Adapted Physical Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>27:187</td>
<td>Measurement and Evaluation in Physical Education</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Group II**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>27:245</td>
<td>Supervision of Physical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>27:287</td>
<td>Physical Education</td>
<td></td>
</tr>
<tr>
<td>27:300</td>
<td>Human Perceptual-Motor Performance</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>27:458</td>
<td>Psychology of Sport</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Group III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27:157</td>
<td>Biomechanics of Athletics</td>
<td></td>
</tr>
<tr>
<td>27:241</td>
<td>Scientific Principles of Conditioning</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Master of Arts with Thesis**

The thesis program leading to the M.A. degree in physical education is designed primarily as a first step in graduate study leading to the doctorate. Its secondary purpose is to provide advanced preparation for people who are teaching or intend to teach in undergraduate physical education programs at four-year colleges, but who do not plan to earn doctorates.

The thesis program for the M.A. degree in physical education puts particular emphasis on techniques of research and on problems relating to physical education and athletics. Students receive an introduction to the nature and extent of research in all areas of physical education, and have an opportunity for some specialization in an area of particular interest to them.

Because the M.A. degree with thesis is modeled as the first step toward the Ph.D., it is one of the areas of specialization, the undergraduate course work required for a particular candidate depends in large measure on the area in which the candidate intends to specialize for the Ph.D. Specific courses in mathematics, chemistry, physics, ecology, psychology, or sociology are required for certain areas of specialization. The selection of such courses must be approved by the professor in charge of the area of specialization for the candidate, and by the M.A. advisor.

Candidates who have to terminate their graduate study with the M.A. degree with thesis should have an undergraduate major in physical education.

These courses are required for the M.A. degree with thesis:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>27:240</td>
<td>Professional Preparation in Physical Education</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**Group III**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>27:153</td>
<td>Advanced Anatomy and Kinesiology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>72:200</td>
<td>Exercise Physiology 1</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>27:302</td>
<td>Physiology of Exercise Laboratory</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**27:205 Adapted Physical Education:**

- **Special Topics and Research**: 3-4 s.h.

- **27:242 Supervision of Physical Education**: 3 s.h.

- **27:257 Biomechanics of Human Motion**: 3 s.h.

- **27:267 Advanced Measurement and Evaluation in Physical Education**: 3 s.h.

- **27:308 Human Perceptual-Motor Performance**: 3 s.h.

- **27:337 Seminar: Research in Physical Education**: 3 s.h.

**Total**: 30 s.h.

### Doctor of Philosophy

A Ph.D. candidate in physical education shall have a general knowledge of all areas of physical education, a working knowledge of the research techniques applicable to problems in physical education and athletics, and knowledge in depth in at least one area of specialization in physical education.

The areas of specialization offered in physical education are adapted physical education, administration and supervision in physical education, educational administration, curriculum in physical education, exercise physiology, measurement and evaluation in physical education, motor behavior, and therapeutics.

The thesis program for the M.A. degree in physical education, together with the Ph.D. core courses, provide the required background for the Ph.D. candidate's specialization. The candidate must complete at least 30 semester hours of graduate study in the specialization of his or her choice, must write a thesis on a problem in that area, and must submit the thesis to an approved professional journal for publication.

Most of the courses in the areas of specialization are offered by departments other than the Department of Physical Education—Field House. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on thesis committees for the individual presentation of the proposed problem, and participate in the final examination
in which the candidate defends his or her thesis.

In addition to writing a comprehensive examination in physical education, the candidate specializing in exercise physiology writes a comprehensive examination prepared and evaluated by faculty members of the Department of Physiological and Biophysics in the College of Medicine. Such candidates will graduate with a degree in physiology.

The Ph.D. core requirements include:

**31:405 Thesis, Ph.D.** 12 s.h.

**7P:242 Selected Applications of Statistical Techniques** 3 s.h.

**or**

**7P:245 Intermediate Statistical Methods** 3 s.h.

**or**

**60:183 Design and Analysis of Experiments in Biomedical Sciences** 3 s.h.

**7T:202 Practicum in College Teaching** arr.

The foreign language requirement differs for each area of specialization. All candidates must demonstrate proficiency in a foreign language that satisfactorily complete **7P:348 Data Processing** or **22C:10 Introduction to Computing** with FORTRAN.

The candidate must complete a minimum of 20 semester hours of required and elective courses in his or her area of specialization. The courses required by area of specialization are:

- **Adapted Physical Education**
  - 7U:201 Additional Persons 3 s.h.
  - 27:201 Research 3-6 s.h.
  - 27:205 Adapted Physical Education: Special Topics and Research 3-4 s.h.
  - 60:188 Human Anatomy 4 s.h.
  - 60:106 Human Anatomy and Neurology 4 s.h.

- **Administration and Supervision in Physical Education**
  - 27:242 Supervision of Physical Education 3 s.h.
  - 7U:201 Foundational of School Administration 3 s.h.
  - 27:201 Research 3-4 s.h.
  - 27:207 Advanced Administration of Physical Education 3 s.h.
  - 27:237 Advanced Administration of Athletics 3 s.h.

- **Anatomy**
  - 60:203 Gross Human Anatomy for Graduate Students 8 s.h.
  - 60:108 Human Anatomy 4 s.h.

- **Anatomy and Neuroanatomy**
  - 60:109 Human Anatomy and Neuroanatomy 4 s.h.

- **37:112 Cell, Tissue, and Organ Biology** 5 s.h.

- **27:153 Advanced Anatomy and Kinesiology** 5 s.h.

- **27:295 Electromyography in Kinesiology and Biomechanics** 3 s.h.

- **Biomechanics**
  - 57:210 Concepts in Energy Engineering 6 s.h.
  - 57:210 Concepts in Fluids Transfer Processes and Deformable Bodies 6 s.h.
  - 58:144 Intermediate Dynamics 3 s.h.
  - 66:154 Biomechanics 3 s.h.
  - 60:106 Human Anatomy 4 s.h.

- **47:202 Practicum in College Teaching** 24 s.h.

- **27:255 Electromyography in Kinesiology and Biomechanics** 3 s.h.

- **27:327 Research Techniques in Biomechanics** 4 s.h.

- **Curriculum in Physical Education**
  - 7E:350 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
  - 7E:291 Secondary School Curriculum 3 s.h.
  - 7T:161 Introduction to Theories of Learning 3 s.h.

- **27:320 Exercise Physiology**
  - 7T:338 Seminar: Models and Theory in Exercise Physiology 2 s.h.

- **27:251 Physiological Basis of Curriculum Construction** 3 s.h.

- **Exercise Physiology**
  - 7T:112 Cell, Tissue, and Organ Biology 5 s.h.

- **60:205 General History for Graduate Students 5 s.h.

- **37:122 Endocrinology and Laboratory** 2 s.h.

- **7T:305 Exercise Physiology** 3 s.h.

- **7T:202 Physiology of Exercise Laboratory** 2 s.h.

- **7T:211 Medical Physiology** 3 s.h.

- **7T:274 Advanced Exercise Physiology Laboratory** 3 s.h.

- **27:320 Advanced Exercise Physiology Laboratory** 2 s.h.

- **90:130 Metabolism 3 s.h.

- **Measurement and Evaluation**
  - 27:134 Intermediate Statistical Methods 3 s.h.
  - 7P:244 Correlation and Regression 3 s.h.

- **232:153 Introduction to Probability** 3 s.h.

- **235:154 Introduction to Mathematical Statistics I** 3 s.h.

- **7P:248 Design of Experiments** 4 s.h.

- **7P:249 Construction and Use of Experimental Instruments** 3 s.h.

- **27:167 Seminar: Research in Measurement and Evaluation in Physical Education** 3 s.h.

- **Motor Behavior and Learning**
  - 27:201 Research 6 s.h.

- **27:212 Selected Topics: Information Processing and Motor Control 3 s.h.

- **27:314 Seminar in Motor Behavior Research 2 s.h.

- **7T:254 Design of Experiments 4 s.h.

- **62:110 Medical Neuroanatomy 3 s.h.

- **7T:274 Advanced Central Nervous System Physiology 2 s.h.

- **101:175 Evaluation of Selected Neurological Disorders 3 s.h.

- **101:212 Medical Instrumentation 3 s.h.

- Three courses, one a graduate-level Prerequisite, must be selected from the Department of Psychology in any combination of the following areas: memory, information processing, perception, neuropsychology, mathematical psychology, and child development.

The following are the requirements for each area of specialization:

- **Adapted Physical Education**

- **Administration and Supervision in Physical Education**

- **Anatomy**

- **Measurement and Evaluation**

- **Motor Behavior and Learning**

- **Psychology**
Primarily for Graduates

Primary Education—Dance—Halsey Gym

Chair: N. Peggy Banks

Faculty: professors and supervisors Margaret G. Foy, M. Obie Scott

associate professors Judith N. Allen, Alisa A. Brown, N. Peggy Banks, Diane A. Gill, Christine H.B. Stein, Jeannette L. Mallon, Yvonne L. Stoltz

assistant professor Susan Riedl, Ruth A. Lee, Sandy Lemere, Jennifer K. Miller, Francesca Martin

Judith Savoy

assistants in instruction Catherine Bell, Katherine M. Carlson, Diane L. Chappell, Linda S. Drier, Judith A. Davidson, Joelle King, Jennifer H. Hargraves, Peter Kennedy, Jody A. Vickers, Virginia Farnham, Sonora D. D'Ambrone, Carol A. Elson, Diane M. Tomer

Degrees offered: B.A., B.S., M.A., M.F.A.

The Department of Physical Education and Dance offers bachelor's degree programs with emphasis in physical education (teaching and coaching majors); the coaching of sports, the teaching of dance, dance performance, and sports communications.

It offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees in physical education.

Physical Education

Undergraduate Programs

Each undergraduate student in physical education elects a wide variety of courses and activities in preparation for careers in business and industry, sports journalism and broadcasting, fitness and health clubs, sport specialist and sports writing, professional dance and theater, and public school teaching and coaching.

The student acquires theoretical background through anatomy, kinesiology, physiology, and health courses, with implications for the performance and teaching of movement skills.

The undergraduate programs are also designed to prepare the student for graduate work in physical education. (See "Graduate Programs" for areas of specialization.)

21338 Seminar in Sports and Exercise Psychology

Offered fall semesters.

21339 Seminar in Sports and Exercise Psychology

Offered spring semesters.

21341 Seminar in Physical Education

Offered fall semesters.

21343 Seminar in Physical Education

Offered spring semesters.

21345 Seminar in Physical Education

Offered fall semesters.

21347 Seminar in Physical Education

Offered spring semesters.

21349 Seminar in Physical Education

Offered fall semesters.

21351 Seminar in Physical Education

Offered spring semesters.

21353 Seminar in Physical Education

Offered fall semesters.

21355 Seminar in Physical Education

Offered spring semesters.

21357 Seminar in Physical Education

Offered fall semesters.

21359 Seminar in Physical Education

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21361 Seminar in Physical Education

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21363 Seminar in Physical Education

Offered spring semesters.

21365 Seminar in Physical Education

Offered fall semesters.

21367 Seminar in Physical Education

Offered spring semesters.

21369 Seminar in Physical Education

Offered fall semesters.

21371 Seminar in Physical Education

Offered spring semesters.

21373 Seminar in Physical Education

Offered fall semesters.

21375 Seminar in Physical Education

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21377 Seminar in Physical Education

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21379 Seminar in Physical Education

Offered spring semesters.

21381 Seminar in Physical Education

Offered fall semesters.

21383 Seminar in Physical Education

Offered spring semesters.

21385 Seminar in Physical Education

Offered fall semesters.

21387 Seminar in Physical Education

Offered spring semesters.

21389 Seminar in Physical Education

Offered fall semesters.

21391 Seminar in Physical Education

Offered spring semesters.

21393 Seminar in Physical Education

Offered fall semesters.

21395 Seminar in Physical Education

Offered spring semesters.

21397 Seminar in Physical Education

Offered fall semesters.

21399 Seminar in Physical Education

Offered spring semesters.

21401 Seminar in Physical Education

Offered fall semesters.

21403 Seminar in Physical Education

Offered spring semesters.

21405 Seminar in Physical Education

Offered fall semesters.

21407 Seminar in Physical Education

Offered spring semesters.

21409 Seminar in Physical Education

Offered fall semesters.

21411 Seminar in Physical Education

Offered spring semesters.

21413 Seminar in Physical Education

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21415 Seminar in Physical Education

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21497 Seminar in Physical Education

Offered fall semesters.

21499 Seminar in Physical Education

Offered spring semesters.

21501 Seminar in Physical Education

Offered fall semesters.

21503 Seminar in Physical Education

Offered spring semesters.

21505 Seminar in Physical Education

Offered fall semesters.

21507 Seminar in Physical Education

Offered spring semesters.
basketball, volleyball, field hockey, field sports, softball; students must demonstrate beginning level competency in basketball, softball, and volleyball.)

Individual or dual sports 4 s.h.

(1 semester hour can be a racquet sport, 1 semester hour in an intermediate-level course; elect from gymnastics, swimming, track and field, tennis, golf, badminton, dance, bowling, archery; students must demonstrate beginning level competency in swimming, track and field, and tumbling and apparatus.)

Rhythms 2 s.h.

(1 semester hour of ballroom dance, 1 semester hour of modern dance or jazz)

Dance Education Area

2EBD.29 Rhythmic Analysis of Dance 2 s.h.

2EBD.73 Composition I 2 s.h.

2EBD.74 Composition II 2 s.h.

7E:139 Methods and Materials of Teaching Children's Dance 3 s.h.

One of the following:

2EBD.28 Dance Production 3 s.h.

2EBD.115 Twentieth-Century Dance 3 s.h.

2EBD.120 Dance in Education 2 s.h.

2EBD.128 Teaching of Modern Dance 2 s.h.

At least 7 semester hours of the following:

2EBD.8 Modern Dance I 1-2 s.h.

2EBD.9 Modern Dance II 1-2 s.h.

2EBD.10 Jazz 1-2 s.h.

2EBD:11 Major Ballet I 1-2 s.h.

2EBD:10 Major Ballet II 1-2 s.h.

2EBD:12 Major Ballet III 1-3 s.h.

2EBD:17 Modern Dance II 1-3 s.h.

2EBD:18 Modern Dance III 1-3 s.h.

Team sports 1 s.h.

Individual or dual sports 5 s.h.

Rhythms 2 s.h.

(1 semester hour of ballroom dance, 1 semester hour of folk and square dancing)

Gymnastics 1 s.h.

Physical Education and Sport (non-teaching)

Physical Education and Dance Core Requirements

2EB:19 Introduction to Physical Education 1 s.h.

2EB:80 Anatomy 3 s.h.

2EB:81 Kinesiology 3 s.h.

2EB:108 Physiological Implications for Teaching Physical Education 3 s.h.

2EB:82 Measurement 2 s.h.

2EB:118 Methods and Administration of Physical Education 3 s.h.

2EB:121 History and Philosophy of Physical Education 3 s.h.

2EB:83 Psycho-Social Dimensions of Sport 3 s.h.

Physical Education Core Requirements

2EB:20 Human Anatomy 2 s.h.

2EB:80 Anatomy 3 s.h.

4EB:56 Non-Prescription Drugs 2 s.h.

2EB:56 First Aid 0 s.h.

2EB:57 Advanced First Aid 3 s.h.

Red Cross certification

2EB:106 Physiological Implications for Teaching/Physical Education 3 s.h.

7C:12 Human Sexuality 3 s.h.

2EB:142 Contemporary Issues of Health Education 3 s.h.

2EB:144 Administration of School Physical Education 3 s.h.

2EB:146 Methods: Health instruction for Secondary Grades 3 s.h.

Approval to Teach in Health in Grades K-9

To qualify for approval to teach health in grades K-9 within the elementary education program (information endorsement 103), the student must earn at least 26 semester hours in that area of specialization, including these required courses:

2EB:41 Food, Nutrition, and You 3 s.h.

2EB:60 Human Anatomy 3 s.h.

2EB:56 First Aid 0 s.h.

2EB:57 Advanced First Aid 3 s.h.

Red Cross certification

4EB:56 Non-Prescription Drugs 2 s.h.

2EB:106 Physiological Implications for Teaching Physical Education 3 s.h.

7P:106 Child Development 3 s.h.

7C:112 Human Sexuality 3 s.h.

2EB:142 Contemporary Issues of Health Education 3 s.h.

Health Education Secondary Approval

This secondary approval area (minimum standards, not a major) for low Environmental 30 teacher certification requires a minimum of 28 semester hours of credit, including these required courses:

17:10 Growth and Development of the Young Child 3 s.h.

17:41 Food, Nutrition, and You 3 s.h.

Graduate Programs

This department was one of the pioneers in providing graduate physical education programs for women.
especially at the doctoral level. It has awarded over 400 master’s degrees and over 150 doctoral degrees during the past half century. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. This department’s proud heritage of producing leaders has been maintained by recent graduates, and we continue to encourage high aspirations of both the young women and men we currently serve.

The curricula assume previous education in the respective fields. A program is planned with the individual with consideration given to his or her previous education and anticipated future career. Completion of the graduate degree usually leads to teaching, research, coaching, administration, or supervision in the schools or in a university.

The outstanding characteristics of the graduate programs are the flexibility of program planning for the individual student and the diversity of areas of research available to the student. Attendance at summer sessions is helpful in obtaining full opportunities for diversity of instruction.

The graduate student works primarily in the Department of Physical Education and Dance, but the resources of the entire University are available, as needed. Work outside the department provides a broader perspective on the selected specialization of the master’s and doctoral candidates.

The most common areas of specialization have been adaptive physical education, special education of athletes and physical education, methods and supervision, coaching, measurement and evaluation, sociology of sport, psychology of sport, and sports communications.

Internships are available in many areas, and are strongly encouraged for specialization in administration, supervision, coaching, and communications.

The graduate student group is cosmopolitan and international in makeup.

A research laboratory is available in Haley Gymnasium. It is equipped primarily for psychosocial, measurement, and motor-learning research. Other equipment needs may be met on an interdepartmental interchange basis.

Computer terminals are available at Haley Gymnasium, and complete University computer service is available as needed for research.

Master's Degree

The Master of Arts degree is awarded on completion of at least 30 semester hours of graduate work including thesis, or 35 hours of course work without thesis. The curriculum may lead to specialization in the schools, coaching certification, or preparation for advanced degree work in the chosen area of specialization.

Student must demonstrate competency in anatomy, kinesiology, physiology, physical education for the handicapped, measurement, history of physical education or sport, methods and administration of physical education or athletics, growth and motor development, and psychosocial dimensions of physical activity. Competency may be demonstrated by completion of a course or satisfactory performance on a written examination.

Required Courses

28:200 Techniques of Research 3-4 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.
28:401 Thesis 0 arr.

*(For student on thesis option)

Program Options

The M.A. student may elect either a general curriculum or a specialization in adaptive physical education, administration of athletics/physical education, coaching, dance, measurement and evaluation, methods and supervision, psychology of sport, sociology of sport, or sport communication. Students desiring other specializations are encouraged to submit a course of study to the graduate committee for consideration.

Students in both the general curriculum and in an area of specialization are required to complete a minimum of 72 semester hours of Graduate work, including general requirements for the master’s degree and credit for the dissertation.

Prerequisites

Competency in the areas noted under the M.A. program is also required for doctoral programs. Any deficiencies in these areas must be remedied at the earliest possible time.

Tools of Research

All doctoral students are required to take a statistics course at an appropriate level at The University of Iowa. As their second research tool, students may choose either a foreign language or computer science.

The language requirement may be satisfied by writing two semesters of a given language with a minimum grade of C, by writing a Graduate Record Examination test in a given language, or by passing a Ph.D. language examination.

The computer tool requirement option may be satisfied by taking three semester hours as approved by the departmental graduate committee.

Required Courses

28:200 Techniques of Research 3-4 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.

Specialization

The student must complete a specialization of 30 semester hours, including dissertation. A student must also take approximately 27 semester hours in one or more departments other than physical education. The following specialization areas have been approved: administration of physical education/athletics, measurement and evaluation, psychology of sport, and sociology of sport. Students desiring an area not listed should submit a plan for consideration.

Comprehensive Examination

The student writes an examination in the area of specialization, and may also be asked to do a part of the examination orally. The student and adviser set the date of the examination, and it is conducted according to the policies established by the departmental graduate committee. The program of study and dissertation topic must be filed and the tool requirements met prior to taking the specialization examination.

Dissertation

All doctoral students are required to complete a dissertation. A final two-hour examination is held with an appropriate committee.

Residency Requirement

Two semesters of at least 8 semester hours in residence are required.

Dance

Bachelor of Arts

Required

28:212 Dance Production 3 s.h.
28:229 Analytical Movement of Dance 2 s.h.
28:70 Composition I 2 s.h.
28:74 Composition II 3 s.h.
28:80 Anatomy 3 s.h.
28:91 Kinesiology 3 s.h.
28:114 History and Appreciation of Dance 3 s.h.
28:115 Twentieth-Century Dance 3 s.h.
28:173 Composition III 3 s.h.
28:213 Aesthetics 3 s.h.
28:177 Beginning Labanotation 3 s.h.
28:247 Opera/Dance Theatre Production 4 s.h.
Electives
Twelve semester hours from the following:

262:91 Independent Study 1-6 hrs.
262:111 Methods and Materials of Teaching Children's Dance 2-3 hrs. (same as 7E:120)
262:113 Ballet Technique 1-2 hrs.
262:117 Ballet Pedagogy 2 hrs.
262:120 Dance in Education 2 hrs. (same as 7E:120)
262:122 Workshop: Artist-in-Residence 1-4 hrs.
262:128 Dance Production Laboratory 1-2 hrs.
262:130 Improvisation 1-2 hrs.
262:138 Teaching of Modern Dance 2 hrs.
262:141 Introduction to Movement: Dynamics and Personality 3 hrs.
262:142 Introduction to Movement: Dynamics and Personality Growth 3 hrs.
262:170 Readings in Dance 3 hrs.
262:176 Dance Theory 3 hrs.
262:178 Criticism of Dance 3 hrs.
262:179 Intermediate Labanotation 3 hrs.
262:181 Dance Company Class 0-1 hrs.
262:191 Independent Choreography 1-4 hrs.

Technique Requirement
Dance majors must take a technique class each semester, with a maximum of 16 semester hours allowed toward a degree and including a minimum of 4 semester hours of ballet and 4 semester hours of modern dance from the following:

262:20 Tap 1-2 hrs.
262:28 Modern Dance 1-2 hrs.
262:29 Major Modern Dance I 1-2 hrs.
262:30 Modern Dance II 1-3 hrs.
262:108 Major Modern Dance III 1-3 hrs.
262:111 Major Ballet I 1-2 hrs.
262:115 Major Ballet II 1-2 hrs.
262:119 Major Ballet III 1-3 hrs.
262:15 Intensive Training for the Male Dancer 1-4 hrs.

Dance Education
See the B.S. in physical education (dance specialization) program.

Master of Arts (Dance Specialization)
This 18-credit degree in physical education (dance specialization) is awarded on completion of at least 30 semester hours of graduate work including thesis. The curriculum may lead to teaching of dance or to further work toward a dance career.

Prerequisites

Audition
262:75-14 Composition I-II 4 s.h.
262:82 History 3 s.h.
262:81 Etymology 3 s.h.
262:28 Rhythmic Analysis of Dance 2 s.h.
262:30 Dance Production 3 s.h.
262:14 History and Appreciation of Dance 3 s.h.

Required Courses

262:109 Major Ballet II 1-3 hrs.
262:110 Major Ballet III 1-3 hrs.
262:107 Major Modern Dance II 1-3 hrs.
262:108 Major Modern Dance III 1-3 hrs.
262:173 Composition II 2 s.h.
262:174 Composition IV 2 s.h.
262:177 Beginning Labanotation 3 hrs.
262:218 Physiological Functioning in Physical Education 3 hrs.
262:110 Twentieth-Century Dance 3 s.h.
262:175 Dance Theory 3 s.h.
262:176 Criticism of Dance 3 hrs.
262:304 Seminar: Dance 2 s.h.
262:302 Seminar: Perspectives in Human Movement 2 s.h.
262:401 Thesis 3-4 hrs.

Elective courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the adviser.

Faculty
The faculty represents diverse backgrounds and specializations. Abilities and interest are complimentary. Most faculty members hold advanced degrees. Several bring educational backgrounds from abroad. All are experienced teachers. Graduate faculty members are experienced in research and writing and are available for the guidance of graduate students in their areas of specialization. Many hold significant leadership positions and are frequently called upon for lectures, speeches, and research presentations.

Facilities

Gymnasiums, dance studios, special exercise rooms, and pools are used in the various programs in Halsey Gymnasium, North Hall, the Field House, the Recreation Building, and the recreational area at the Iowena Union. A field for outdoor sports is near Halsey Gymnasium. The proximity of the river makes canoeing instruction feasible on a regular class schedule. The orchery range is located along the river in a rustic setting; outdoor fields and a track are available between the Field House and the Recreation Building. The University golf course is used for some classes.

Courses

Physical Education

Internship for Undergraduates
262:10 Bachelor of Physical Education 1 s.h.

Physical education majors only. May be repeated.

262:28 Bachelor of Physical Education 1 s.h.

Elective, open to those who have completed requirements in physical education above. May be repeated.

262:10:1000 Women's Sports 3 s.h.

Introduction to the techniques and psychology of coaching.

262:10:1000 Women's Sports 3 s.h.

Study of the profession of physical education and related educational seminars with guest speakers; bat alternative experiences for majors.

262:10:1010 Women's Sports 3 s.h.

Methods of teaching team and individual sports.

262:10:1021 Women's Sports 3 s.h.

Methods course for the teaching of basketball, tennis, and square dancing; includes evaluation of classes in progress, lesson planning, competitive analysis, teaching of mechanics, safety, and ethical considerations. P.R.E. 1 semester. P.E.C. 1 semester. All majors must take a one-semester course in women's dance or one semester of general dance.

262:10:1030 Women's Sports 3 s.h.

Facilities

Offi cing
262:10:1040 Women's Sports 3 s.h.

Staff and facilities.

262:10:1050 Women's Sports 3 s.h.

Facilities

262:10:1060 Women's Sports 3 s.h.

Graduate and professional education. Varies activities upon all majors.

262:10:1070 Women's Sports 3 s.h.

Facilities

262:10:1080 Women's Sports 3 s.h.

Optional credits for selected students. Staff and facilities.

262:10:1090 Women's Sports 3 s.h.

May take 262:10 or be taken as an independent unit.

262:10:1100 Women's Sports 3 s.h.

Leadership for American Red Cross Advanced First Aid and Emergency Care Certificate.

262:10:1110 Women's Sports 3 s.h.

Staff and facilities.

262:10:1120 Women's Sports 3 s.h.

Staff and facilities.

262:10:1130 Women's Sports 3 s.h.

Staff and facilities.

262:10:1140 Women's Sports 3 s.h.

Staff and facilities.

262:10:1150 Women's Sports 3 s.h.

Staff and facilities.

262:10:1160 Women's Sports 3 s.h.

Staff and facilities.
28.113 Workshop: Methods of Teaching Sports 1.5 h.
Selected sports and the teaching of each for beginners as well as for the more advanced; observation and participation in workshop form presented to workshop form by experienced instructors.

28.111 Workshop Games 1.5 h.

28.114 Workshop Field Hockey 1.5 h.

28.115 Exploring Human Potential in Sports 3.0 h. 
Same as 27.105.

28.103 Physical Education Activities for the Exceptional Child 3.0 h.
Examination of possible adaptation of indoor and outdoor sports and games, aquatic activities, rhythmic activities and exercises to accommodate the physical limitations of exceptional children.

28.107 Social Athletics 3.0 h.
Same as 27.104, 14. 010.

28.106 Fitness and Weight Training 3.0 h.

28.105 Fitness and Weight Training II 3.0 h.

28.102 Methods and Materials in Elementary School Physical Education 3.0 h.
Teaching methods and curriculum planning for prospective teachers of elementary school physical education. Offered spring semesters. Prerequisite: 28.101 or consent of instructor.

28.104 Methods and Materials in Elementary School Physical Education II 3.0 h.
Teaching methods and curriculum planning for prospective teachers of elementary school physical education. Offered spring semesters. Prerequisite: 28.101 or consent of instructor.

28.103 Medical Foundation of Sport 3.0 h.
One-hour weekly must be taken in conjunction with physical education courses. Prerequisite: Consent of instructor.

28.100 Health Sciences 3.0 h.
One-hour weekly must be taken in conjunction with physical education courses. Prerequisite: Consent of instructor.

28.102 Research in Women's Sports 3.0 h.
Research oriented, completed, and presented for research credit to women in competitive programs.

28.109 Psychological Indicators for Teaching Physical Education 3.0 h.
Physical fitness tests and exercises for use in sport and physical activity programs. Prerequisite: 28.108.

28.108 Psychological Indicators for Teaching Physical Education 3.0 h.
Physical fitness tests and exercises for use in sport and physical activity programs. Prerequisite: 28.108.

28.107 Physical Education for the Handicapped 3.0 h.
An examination of the limitations and how they may be overcome. Both physical and social aspects will be considered in the modification or rehabilitation of physical education curriculum, teaching methods and procedures adapted special populations are examined. Prerequisites: 28.101, 28.102, and 28.107, or equivalent.

28.101 Principles of Adapted Athletics 2.5 h.
Course content is selected to provide educational value for the participant.

28.100 Sports Psychology 1.5 h.
Selected sports for skilled players; analyses and teaching techniques.

28.100 Workshop: Methods of Teaching Sports 1.5 h.
Selected sports and the teaching of each for beginners as well as for the more advanced; observation and participation in workshop form presented by experienced instructors.

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Physical fitness tests and exercises for use in sport and physical activity programs. Prerequisite: 28.108.

28.108 Psychological Indicators for Teaching Physical Education 3.0 h.
Physical fitness tests and exercises for use in sport and physical activity programs. Prerequisite: 28.108.
Dance Production 3 h.
Organizations and procedures of all aspects of dance production.

208-37 Teaching of Dance 15 h.
Preparation of dance curriculum.

208-40 Aesthetics of Dance 3 h.
History of dance and its relationship to art and society.

208-40 Art of Dance in Contemporary Society 3 h.

208-73 Composition I 3 h.
Elementary forms of choreography.

208-74 Composition II 3 h.
Continuation of 208-73.

209-91 Independent Study 1 h.
Independent study, directed.

209-92 Independent Choreography 1 h.

For Undergraduates and Graduates 3 h.

209-100 All-At-Lhurst - Arts for Handicapped 0.5 h.

209-107 Major Modern Dance I 15 h.
Intermedia modern technique. May be repeated. Prerequisite: consent of instructor.

209-108 Major Modern Dance II 15 h.
Advanced modern technique. May be repeated. Prerequisite: consent of instructor.

209-109 Major Ballet 15 h.
Advanced ballet technique. May be repeated. Prerequisite: consent of instructor.

209-111 Methods and Materials of Teaching Children's "Sport" 3 h.
Creating creative movement experiences to the elementary school child. Same as 289:125.

209-113 Ballet Pédagogie 15 h.
Elementary pedagogical technique.

209-115 History and Appreciation of Dance 3 h.
Development of dance from prehistoric time through the neoclassic ballet period, emphasis on defining form and function of dance in society, and the urban setting. Prerequisite: 209:040 or consent of instructor.

209-115 Twentieth-Century Dance 3 h.
Modern dance of the dance and the impact of style, period, and technique.

209-117 Ballet Progress 15 h.
Preparation for teaching beginning ballet.

209-120 Dance in Education 2.5 h.
Dance and contemporary topics in dance at all levels of education. Same as 78:130.

209-121 Astell in Dance 15 h.

209-122 Workshop: Art of Television 14 h.

209-123 Dance Production Laboratory 15 h.
Production experience for concert dance.

209-125 Dance Accompaniment 3 h.
Overview of music as it pertains to dance; analysis of sounds for dance sound for sound of dance.

209-126 Repertoire 15 h.

209-128 Teaching of Modern Dance 3 h.

209-129 Introduction to Movement Dynamics, Form, and Personality Growth 3 h.

209-130 Introduction to Movement Dynamics and Personality Growth 3 h.

209-131 Introduction to Movement Dynamics and Personality Growth 3 h.

209-134 Graduate Technical Top 1 h.

209-134 Graduate Technical: Modern Dance 15 h.

209-135 Graduate Technical: Jazz 15 h.

209-136 Graduate Technical: Ballet 15 h.

209-154 History of Sport in the United States 3 h.
Survey of the role of organized sport in the United States from prehistoric times to the present in its relationship to American society. Prerequisite: 209:100 or consent of instructor.

209-157 Research in Dance 4 h.
Preparation: consent of instructor.

209-159 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-161 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-162 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-163 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-164 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-165 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-166 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-167 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-168 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-169 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-170 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-171 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-172 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-173 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-174 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-175 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-176 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-177 Beginning Laboratory Theory and practice of laban's principles of movement notation.

209-178 Intermediate Laboratory 1 h.
Continued 208-117.

209-190 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-192 Dance Company Class 1 h.
Participation in current work. Prerequisite: audition.

209-193 Computer Studies in Human Movement I 2 h.

209-194 Computer Studies in Human Movement II 2 h.

209-216 Advanced Choreography 1 h.

Courses Primarily for Graduates 1 h.

209-217 Problems in Dance 1 h.
Preparation: consent of instructor.

209-218 Technical Workshop: Research on Movement Theory 1 h.

209-220 Technical Workshop 1 h.

209-230 Thesis 1 h.

Physical Therapy

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Physical Therapist Program

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.
### Physics and Astronomy

The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but who do not plan to research-oriented career in physics. This degree program can be useful to those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides for a wider choice of electives.

#### Bachelor of Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:26-28</td>
<td>Calculus I-II</td>
<td>8 h.</td>
</tr>
<tr>
<td>22M:27-28</td>
<td>Introduction to Linear Algebra</td>
<td>4 h.</td>
</tr>
<tr>
<td>22M:28</td>
<td>Calculus III</td>
<td>4 h.</td>
</tr>
<tr>
<td>22M:35-37</td>
<td>Engineering Calculus I-II</td>
<td>12 h.</td>
</tr>
<tr>
<td>22M:38</td>
<td>Differential Equations for Engineers</td>
<td>4 h.</td>
</tr>
<tr>
<td>22M:17-18</td>
<td>Introductory Physics I-III</td>
<td>12 h.</td>
</tr>
<tr>
<td>22M:18-19</td>
<td>Intermediate Mechanics</td>
<td>3 h.</td>
</tr>
<tr>
<td>22M:19-20</td>
<td>Introductory Quantum Mechanics</td>
<td>3 h.</td>
</tr>
<tr>
<td>22M:110</td>
<td>Statistical Physics</td>
<td>6 h.</td>
</tr>
<tr>
<td>22M:120-130</td>
<td>Electricity and Magnetism</td>
<td>6 h.</td>
</tr>
<tr>
<td>22M:132</td>
<td>Intermediate Laboratory (two semesters)</td>
<td>4 h.</td>
</tr>
</tbody>
</table>

Two additional courses, one of them at the 100-level, selected from:
- 22M:127 Optics
- 22M:128 Electronics
- 22M:129 Intermediate Laboratory (3rd semester)
- 22M:171 Mathematical Methods of Physics
- 22M:181 Atomic Physics
- 22M:192 Nuclear Physics
- 22M:193 Introductory Solid State Physics
- 22M:194 Plasma Physics

An additional five semester hour of introductory course work in another science or engineering field.

Undergraduate majors who plan to pursue graduate study are advised to go beyond the minimum requirements given above to the greatest feasible extent, including further work in mathematics.

#### Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in Physics:
- 22M:26-28 Calculus I-II or 8 h.
- 22M:27-28 Introduction to Linear Algebra 4 h.
- 22M:28 Calculus III 4 h.

### Undergraduate Major in Astronomy

A balanced and integrated program of study in astronomy, mathematics, and physics courses is required for the Bachelor of Science degree in astronomy. The purpose of this program is to prepare the student for a career or advanced study in astronomy, radio astronomy, or space astronomy.

The Bachelor of Arts degree program is designed for students who wish to gain a considerable knowledge of astronomy but who do not plan a research-oriented career in astronomy. This degree program can be useful to those planning careers in secondary-school science teaching, technical writing, art science-related administration. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides for a wider choice of electives.

#### Bachelor of Science

The following courses or their equivalents are required for the Bachelor of Science degree with a major in Astronomy:
- 22M:25-26 Calculus I, II or 8 h.
- 22M:27 Introduction to Linear Algebra 4 h.
- 22M:28 Calculus III 4 h.
- 22M:38 Differential Equations for Engineers 4 h.
<table>
<thead>
<tr>
<th>Course</th>
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</tr>
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<tbody>
<tr>
<td>20:17-19 Introduction Physics I, II</td>
<td>6</td>
</tr>
<tr>
<td>25:8-12 General Astronomy</td>
<td>8</td>
</tr>
<tr>
<td>29:115 Intermediate Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>29:116 Introduction to Quantum Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>29:119-120 Introduction to Astrophysics I, II</td>
<td>6</td>
</tr>
<tr>
<td>25:129-130 Electricity and Magnetism</td>
<td>6</td>
</tr>
<tr>
<td>25:132 Intermediate Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>25:137 Astronomical Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>29:191 Atomic Physics</td>
<td>3</td>
</tr>
<tr>
<td>Undergraduate majors in astronomy who plan to pursue graduate study in astrophysics are advised to go beyond the minimum requirements listed above to the greatest feasible extent, by taking one or more of the following courses: 29:117 Optics 3 s.h. 29:118 Statistical Physics 3 s.h. 29:131 Radio Astronomy 3 s.h. 29:171-172 Mathematical Methods of Physics 6 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**Bachelor of Arts**

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in astronomy:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>25:25-26 Calculus I, II</td>
<td>6</td>
</tr>
<tr>
<td>25:27 Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>25:35-37 Engineering Calculus I, II</td>
<td>12</td>
</tr>
<tr>
<td>29:171-190 Introduction to Astrophysics I, II</td>
<td>12</td>
</tr>
<tr>
<td>25:112-113 College Physics</td>
<td>12</td>
</tr>
<tr>
<td>25:191 Introductory Physics III</td>
<td>12</td>
</tr>
<tr>
<td>25:81-82 General Astronomy</td>
<td>6</td>
</tr>
<tr>
<td>29:115 Intermediate Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>29:117 Optics</td>
<td>3</td>
</tr>
<tr>
<td>29:118 Statistical Physics</td>
<td>3</td>
</tr>
<tr>
<td>29:119-120 Introduction to Astrophysics I, II</td>
<td>6</td>
</tr>
<tr>
<td>29:128 Electronics</td>
<td>6</td>
</tr>
<tr>
<td>29:129 Electricity and Magnetism</td>
<td>3</td>
</tr>
<tr>
<td>29:132 Intermediate Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>29:137 Astronomical Laboratory</td>
<td>2</td>
</tr>
</tbody>
</table>

**Undergraduate Minor in Astronomy**

The 16 s.h. of courses numbered above 100 required by the college must include 8 s.h. selected from the following list of courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>29:119-120 Introduction to Astrophysics I, II</td>
<td>6</td>
</tr>
<tr>
<td>29:121 Solar System Astrophysics</td>
<td>2</td>
</tr>
<tr>
<td>29:131 Radio Astronomy</td>
<td>3</td>
</tr>
</tbody>
</table>

29:137 Astronomical Laboratory grad student 10 semester hours from these courses or from appropriate physics courses.

**Double Major in Physics and Astronomy**

It is possible to obtain a double major in physics and astronomy. Students who are interested in such a combination should consult with their adviser. For general requirements of the College of Liberal Arts, see the "College of Liberal Arts" section of the Catalog.

**Honors**

Selected junior and senior majors may take six to eight semester hours of 29:99 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their program for the Bachelor of Arts or Bachelor of Science with honors in physics or astronomy.

**Graduate Program**

Two advanced degrees are offered in physics, the Master of Science (with thesis or with a critical essay) and the Doctor of Philosophy, and one in astronomy, the Master of Science (with thesis or with a critical essay). A student who wishes to pursue a program in astronomy beyond the M.S. level may qualify for a Doctor of Philosophy degree in physics with specialization and a dissertation in astronomy or astrophysics. An M.S. degree is not prerequisite to the Ph.D.

- The Department of Physics and Astronomy cooperates in an interdepartmental doctoral program with the Program in Applied Mathematical Sciences (see the "Graduate College" section of the Catalog).
- Each entering graduate student is assigned to a faculty adviser who will assist in preparing a plan of study and in guiding the student's progress. A graduate student becomes a candidate for an advanced degree in physics or astronomy only after passing a qualifying examination in all principal areas of the subject at the level of advanced undergraduate work. The examination is given during the first week of the second semester each year and must be taken by all first-year graduate students. After a student has selected a research specialty, the appropriate thesis or essay committee then becomes the candidate's permanent adviser, and the chair of the final examination committee.

**Master of Science in Physics**

The M.S. degree in physics is offered with thesis or with a critical essay. Either degree may be an intermediate step toward a Ph.D. degree or a terminal degree. The final examination is either case is an oral one, conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College.

The program for the M.S. degree with thesis requires 30 semester hours of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 6 of the minimal 30 semester hours may be for research (29:291 Research: Physics). The program for the M.S. degree with a critical essay requires 30 semester hours of graduate work, an independent study of the literature on a chosen topic, and the preparation of a critical essay on that topic. No more than 4 of the minimal 30 semester hours may be for the critical essay (29:292 Individual Critical Study). Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics, for example, chemistry, astronomy, geology, engineering, etc.

The candidate for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as an undergraduate or a graduate:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>29:115 Intermediate Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>29:116 Introductory Quantum Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>29:117 Optics</td>
<td>3</td>
</tr>
<tr>
<td>29:118 Critical Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>29:129-130 Electricity and Magnetism</td>
<td>6</td>
</tr>
<tr>
<td>29:133 Advanced Laboratory (two semesters)</td>
<td>6</td>
</tr>
<tr>
<td>29:171-172 Mathematical Methods of Physics</td>
<td>6</td>
</tr>
<tr>
<td>25:120 Atomic Physics</td>
<td>3</td>
</tr>
<tr>
<td>And two additional courses selected from</td>
<td></td>
</tr>
<tr>
<td>29:192 Nuclear Physics</td>
<td>3</td>
</tr>
<tr>
<td>29:193 Introductory Solid State Physics</td>
<td>3</td>
</tr>
<tr>
<td>29:194 Plasma Physics</td>
<td>3</td>
</tr>
</tbody>
</table>

The student's plan of study should provide for as much advanced work as possible and previous preparation must.

**Master of Science in Astronomy**

The M.S. degree in astronomy is offered with thesis or with a critical essay. The general requirements are the same as for the M.S. in physics (see above). Course requirements are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>29:115 Intermediate Mechanics</td>
<td>3</td>
</tr>
</tbody>
</table>
29:116 Introductory Quantum Mechanics
3 s.h.
29:117 Optics
3 s.h.
29:118 Statistical Physics
3 s.h.
29:119-120 Introduction to Astrophysics
5 s.h.
29:121 Solar System Astrophyics
3 s.h.
29:120-120 Electricity and Magnetism I
6 s.h.
29:133 Advanced Laboratory
2 s.h.
29:123 Astrophysics Laboratory
2 s.h.
29:171-172 Mathematical Methods of Physics
6 s.h.
29:181 Atomic Physics
3 s.h.
A student who intends to continue for a Ph.D. in physics with an astrophysics specialization should take the following courses as early as in his or her master's program as possible:
29:151 Radio Astronomy
3 s.h.
29:232-233 Theoretical Astrophysics
6 s.h.
29:252 Stellar Structure and Evolution
4 s.h.
29:265 Special Topics in Astrophysics
2 s.h.
29:266 Seminar: Astrophysics 16 s.h.

Doctor of Philosophy in Physics

The program of study for the Ph.D. degree with a major in physics includes:

Thorough course work in both classical and modern theoretical physics for all candidates, whether their specialized research is to be in an experimental or a theoretical area:
Comprehensive examinations;
Participation in advanced seminars;
Original research in experimental physics, theoretical physics, or astrophysics; and
preparation and defense of a written dissertation based on this work.

All candidates for the Ph.D. must take at least 37 semester hours of 200-level course work in the department, excluding 29:250, 29:251, and seminars. The following minimum program is recommended as a preparation for the comprehensive examinations:

29:181 Atomic Physics 3 s.h.
29:182 Modern Physics 3 s.h.
29:193 Introductory Solid State Physics 3 s.h.
29:194 Plasma Physics 3 s.h.
29:205 Classical Mechanics 3 s.h.
29:212 Statistical Mechanics I 3 s.h.
29:213-214 Classical Electrodynamics 6 s.h.
29:245-246 Quantum Mechanics 16 s.h.
Advanced mathematics, such as the theory of functions of a complex variable and vector and tensor analysis, is used freely in all advanced courses. An introduction to these fields is given in 29:171-172 Mathematical Methods of Physics. The selection of less advanced courses will depend on the adequacy of the student's preparation for graduate work.

The department is well equipped for research in observational astronomy. The primary instrument, a 24-inch reflector with a scanning spectrometer, is used for stellar and cometary studies. Research programs in galactic and extragalactic radioastronomy are carried out on the 18-meter paraboloid reflector located at the North Liberty Radio Observatory near Iowa City. Current long-term research activities include intergalactic VLB and spectral studies of OH masers.

Theoretical research is devoted to elementary particles and high-energy physics; plasma physics; astrophysics; atmospheric, space, and planetary physics; solid state physics; nuclear physics; and atomic and molecular physics.

Courses

Prerequisites and corequisites are specified as guides and may be waived by the instructor. An elementary course may not be repeated for credit or grade points if the student has already completed a higher level course for which the elementary course, or its equivalent, is a prerequisite. Courses 29:25, 28:1, 28:1-12, 29:17-18, 29:25, and/or 29:26-32 are accepted toward the College of Liberal Arts general education requirement in the natural sciences.

Physics

Primary for Undergraduates

284 Exploring Physics 5 s.h.
Mechanics, properties of fluids, heat, electricity and magnetism, waves, light, and modern physics. Three lectures per week, no laboratory. Prerequisites: 28:1. Repeated for credit.

285 Chemistry and Physics of the Environment 3 s.h.
Fundamental discussions and illustrations of chemistry and physics of our planet's air, water, ecosystems, and natural resources; emphasis on interaction of Earth's atmosphere, surface, and interior and the environment. Prerequisite: 28:1. Not open to students who have received credit for 29:25 or 28:15.

286 Chemistry and Physics of Earth and Life 3 s.h.
Principles, principles, and practical experience necessary for work with our environment. Topics include the nature of energy, electricity, circuits, electromagnetism, conservation and distribution of energy, weather, climatic zones, seasons, the atmosphere, radio and television reception and recording, electrical circuit components, and computers with class meeting, laboratory, discussion, consumer, and lecture instruction.

288 Basic Physics 4 s.h.
Quantitative treatment of mechanics, electromagnetism, heat, light, and waves, with emphasis on careful mathematical expression of relationships. Not open to students who have received credit for 29:15 or 29:21.

291 College Physics 4 s.h.
Lectures, laboratory, and problems in mechanics, heat, light, electricity, magnetism, and waves. Includes a complete introductory course in physics. Prerequisites: 28:1 or equivalent.

295 College Physics 4 s.h.
Lectures, laboratory, and problems in mechanics, heat, light, and modern physics. Continued from 29:11, which is prerequisite.

Physics and Astronomy/LIBERAL ARTS 173
Political Science/LIBERAL ARTS

Undergraduate Programs

Bachelor of Arts

A student seeking the B.A. degree with a major in political science must complete 27 semester hours of course work in political science and 12 in one of these departments: economics, geography, history, journalism, philosophy, psychology, sociology, or anthropology. Courses used to satisfy the general education requirement may not be used to satisfy the related field requirement.

The course work in political science must include:
- 30:1 Introduction to American Politics or 30:2 Introduction to Politics
- It must also include two of these:
  - 30:20 Introduction to Political Thought and Political Action
  - 40:20 Introduction to Comparative Politics
- 30:20 Introduction to Political Behavior or 30:20 Introduction to World Politics

It must include at least 15 semester hours in political science courses numbered 100 or above. At least 12 of the required 18 hours must be taken in regularly scheduled classroom work. Transfer students must take at least the last 27 hours of work in political science at The University of Iowa. Students majoring in political science must take at least 12 hours of 400-level courses. Students majoring in political science must complete at least 24 semester hours in political science courses numbered 100 or above. Courses used to satisfy the general education requirement may not be used to satisfy the related field requirement.

Bachelor of Science

Major requirements for the B.S. in political science are the same as for the B.A. except that students must take three semesters of mathematics or statistics, courses recommended as prelaw. A foreign language is required, and the student must take three semesters of mathematics or statistics. Courses recommended for the prelaw, mathematics, or statistics requirements are:
- 22:10 Introduction to Statistical Methods
- 22:105 Intermediate Biostatistical Methods

One course may be used, with the written approval of the director of undergraduate studies, in political science.

Teaching Major

Undergraduate plans in the area with an emphasis on political science must meet these requirements:

- Some political science course requirements for the B.A. and B.S. except that the minimum requirement...
In political science courses numbered above 100 is 11 semester hours. Twelve semester-hour courses in each of two of these areas: American history, world history, economics, geography, and sociology. Twenty semester-hour courses are required for psychology as a related field. Completion of the sequence of professional education courses leading to certification (see the "College of Education" section of the Catalog).

Honors
The department also has a program leading to a B.A. degree with honors. It is open to a limited number of students with a minimum grade point average of 3.50 on at least 12 semester hours of work in political science. To graduate with honors, the student must maintain at least a 3.2 grade-point average in political science courses and a general grade-point average of at least 3.2. Honors students must take 30-182 Honors Introduction to Political Inquiry, and must complete at least two semesters of work in the advanced 30-192-193 Honors Seminar, with a grade of B or better each semester. Students may substitute one semester of 30-184 Honors Senior Research Project for one of the semesters of the advanced Honors Seminar. Students must check with their advisors before making substitutions. Students interested in seeking a B.A. degree with honors should contact the departmental honors advisor prior to the beginning of the junior year.

Graduate Programs
At the graduate level, the department emphasizes the program leading to the Doctor of Philosophy degree in political science, which is particularly appropriate for students planning a scholarly academic career; and the Master of Arts in public affairs program, designed for students who plan to pursue careers in government service, public administration, or civic education teaching in secondary schools or junior and community colleges. The general M.A. degree is normally pursued by persons whose ultimate degree objective is the Ph.D.

Master of Arts in Public Affairs
Although all students in the public affairs program must meet the requirements indicated in the schedule below, elective opportunities make possible several areas of specialization. Students are encouraged to prepare for a single emphasis (but not necessarily in a single department). Among these available are international relations, personal income relations, public policy analysis, and quantitative methods in management.

Planning the elective program should be undertaken in consultation with the director of the M.A. in public affairs program.

The M.A. in public affairs is a nonthesis program. The student must complete at least 36 hours of work with at least a 3.0 grade-point average, and must pass a written final examination. Although the schedule suggested below implies completion within three years, the program is sufficiently flexible to accommodate students who may require additional time to meet all degree requirements.

Fall Semester
30-222 Public Policy Analysis I 3 s.h.
30-228 Introduction to Administrative Computing 3 s.h.
30-229 Introduction to Social Research Methods 3 s.h.
68-119 Economics of the Government Sector 3 s.h.
Electives 6 s.h.

Spring Semester
30-220 Administrative Theory and Public Policy 3 s.h.
30-221 Urban Administration 3 s.h.
30-223 Public Policy Analysis II 3 s.h.
Electives 6 s.h.

Summer Session
30-381 Internships in Public Policy and Administration 3 s.h.
30-392 Practicum in Public Policy and Administration 3 s.h.
Electives 3 s.h.
Total 39 s.h.

Master of Arts with Thesis
Except for the M.A. in public affairs and the M.A. offered under a joint program with the College of Law (see the "College of Law" section of the Catalog), the department normally offers the M.A. only as a terminal step toward the Ph.D.

The student usually obtains the M.A. degree by completing at least 30 semester hours with a grade-point average of at least 3.0, submitting a thesis, and passing a final oral examination. More than 8 semester hours of credit for thesis preparation will be counted toward the 30-semester-hour minimum requirement for the general M.A.

The final oral examination covers both thesis and course work.

Master of Arts without Thesis
If a student's first-year evaluation committee finds that his or her course work and research papers provide sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that he or she be allowed to proceed with a doctoral program without writing a thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.0, and review of the student's record by a final examination committee, which may waive the final oral examination.

The same requirements apply where a first-year evaluation committee finds the quality of a student's work inadequate for recommending continuation toward the Ph.D., but adequate for proceeding with the master's program, and recommends that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy
All doctoral students must acquire a level of competence in quantitative methods. This will require a thorough grounding in applied mathematics statistics which is demonstrated by passing 30-301 Advanced Research Methods and receiving a grade no lower than B. Any special tools or skills needed for conducting dissertation research e.g., foreign languages, econometrics, or experimental design—must be acquired before taking comprehensive examinations. Students in doubt about whether they need such skills should discuss it with their faculty advisors in the first two years of Ph.D. training.

Comprensive Examination
Students must take the comprehensive examination after completing the sixth semester of residence, or in the first examination period following their attainment of 45 hours of graduate credit, whichever comes later. Candidates for the Ph.D. must take written examinations in three of these areas: American Politics and Public Policy Comparative Politics International Politics Political Theory

Before taking the written examinations, candidates must present a written dissertation proposal and defend the proposal in an oral examination, which may also deal with any matter relevant to the written examinations.

Each candidate in political science must acquire at least four semesters of special supervised training in teaching and/or research. This instruction is normally given in association with the student's service as a teaching or research assistant.

A comprehensive statement of departmental requirements is set forth in the Guide to Graduate Study in Political Science. For general graduate admission and degree requirements, see...
Social Psychology 31:18 Introduction to Social Psychology 3 s.h.
31:003 Development of Children's Social Behavior 3 s.h.
31:001 Attitude Change 3 s.h.
31:077 Environmental Stress 3 s.h.
31:086 Small Group Processes 3 s.h.

"Only one of these courses can be used to satisfy an area requirement."

Honors
The department has an active honors program open to majors with at least a 3.3 grade-point average in psychology courses and at least 3.3 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in the department's 31:195 Honors Seminar in Psychology during the spring semester of the junior year. Interested majors should contact the department honors adviser early in the junior year.

Graduate Program
The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for that degree. For students entering without previous graduate work, it is a four-year program; those entering with previous graduate training will require at least two additional years in this department, depending on the nature of the earlier preparation.

The Ph.D. program has a strong emphasis on preparation for research, teaching, and scholarly endeavor, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce graduates who are deeply committed to the study of behavior, familiar with fundamental knowledge about behavioral processes, well trained in the methods and techniques for careful investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society. Prospective applicants should understand that the number of positions appropriate for graduates of this program is limited and that the competition for available openings is fairly intense.

Graduate training is organized in five broad training areas: animal learning and biopsychology, child and developmental psychology, clinical psychology, human experimental psychology, and social psychology. Each entering student is expected to identify one of these areas as primary and to follow a program which develops thorough understanding of the substantive material and methods of investigation which are central to that subdiscipline. While pursuing specialty training, all students also must meet course requirements in statistics and research methods, in learning, and in areas outside the primary one.

The training area programs are sufficiently flexible to permit a student who wishes to do so to develop substantial competence in a second training area. Several such programs have been formulated and others can be developed as student interest dictates. Joint programs involve a minor in another area of concentration and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, behavioral medicine, aging, organizational and consensual behavior, communications, and neurobiological science. Preparation in one of these interest areas will involve some special advanced seminars within the department, selected courses in other departments of the University, and participation in one or more research projects in the interest area.

Doctor of Philosophy
The Ph.D. degree requires satisfactory completion of at least 72 semester hours of graduate work in psychology, including at least 33 semester hours in this department. All students must satisfy, through one of several options, requirements in statistics and research methods, and in learning. A course in the philosophy of psychology is strongly encouraged. Each student also is expected to complete coursework outside the primary training area to develop a reasonably broad background in the discipline of psychology as a whole. The breadth of background requirements, and their placement within the graduate program, vary somewhat among the training areas, and also according to individual student's background and interests.

During each of the first three semesters, each graduate student ordinarily takes three courses, some of which are general core courses, some of which are courses in the training area, and some of which are outside area electives. The student should become familiar with the literature, strategies and special techniques in one or more research areas through engagement in independently supervised research projects. This participation, which may be with one faculty member or with a different faculty member each semester, is designed to help the student develop by the end of the third semester a reasonably detailed plan for the masters research project.

During the fourth or fifth semester in the program the student is expected to complete the masters project and defend the thesis. A comprehensive examination covering material in the primary training area and in the
secondary area, if any, is given early in the fifth semester. Achievement to Ph.D. candidacy ordinarily occurs at the end of the fifth semester, after a faculty-wide review of the student's record of performance in the M.A. project, on-individual-thematics examination, in-course work, and in teaching, research, and service activities.

During the third year, while continuing selected course work in the training and interest areas, the student develops a perspective for the dissertation research. The fourth year is devoted primarily to advanced seminars and to the conduct of the Ph.D. study and the preparation of the dissertation. In the Ph.D. filed examination the student offers an oral defense of the dissertation and exhibits an ability to relate the dissertation work to broader issues in the training and interest areas in which the student has chosen to specialize.

Master of Arts with Thesis

As indicated above, the department does not offer a specific M.A. program. The Master of Arts degree with thesis is a required step for students on the Ph.D. objective. The degree requires:

- satisfactory completion of at least 30 semester hours of graduate course work in psychology with at least 18 semester hours in this department.
- the completion of a master's thesis, a learning course, and at least one course outside the student's area of concern. The student also must complete an additional course in a minor field and conduct a successful oral defense of the thesis.

Master of Arts without Thesis

The Master of Arts degree without thesis is an intensive program for those few students who can complete their work in this department over four semesters. The student must complete at least 38 semester hours of graduate credit in psychology, which must include a statistics sequence, a learning course, and at least one course outside the student's area of concern. The student also must perform successfully on a written and/or oral examination covering the area of specialization.

Graduate Training Areas

Animal Learning and Bioscience

The focus of the program in animal learning and bioscience is on the analysis of learning and motivation in animals, primarily in nonhuman species, through the application of both behavior and biological principles. Students in this program have the opportunity to learn the most modern analytical and laboratory methods in computer-assisted experimentation, electronic instrumentation, neurosurgical and histological techniques, and biochemical assay procedures. Special faculty strengths are in the areas of classical and operant conditioning, comparative psychology, motivation, pharmacology, neuroendocrinology, and neuroanatomy.

Faculty members in animal learning and biosciences interact extensively with colleagues from a number of basic sciences departments in the College of Medicine. These collaborative activities provide excellent research and training opportunities for students interested in this emerging interdisciplinary field as behavior, medicine, and behavioral science.

Child and Developmental Psychology

Students in this area and developmental psychology are expected to acquire a broad understanding of children's development in the social, cognitive, and perceptual domains. As the training program proceeds students may focus their preparation in any of these broad areas, or may choose to develop a more particular specialization in each area. Subsequent specialization in language development, learning and memory, the development of social judgment, executive development, and abnormal development. Most of these specializations require substantial preparation at level one of the major training in this area. The program does not have a specific field focus but clinical, developmental, and experimental members in the departments are involved in research on aspects of aging and hence can provide some supervision for students interested in this area. Faculty members have close contacts with faculty members from the Department of Speech Pathology and Audiology, the department of Pediatrics, and these relationships can be useful to students who wish to gain experience on a research basis in developmental aspects of communication or of behavior.

Clinical Psychology

The core program strongly emphasizes an empirical approach to the study of psychopathology. It is designed for students who are primarily interested in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practice experience in the Master's Clinical Psychology Clinic with course work and supervised research experience.

Students in the clinical program may develop special competence in each area as psychopharmacology, personality, psychotherapy, appraisal, schizophrenic, the effective disorders, behavioral and cognitive therapies, sexual dysfunction, and child psychology. Faculty members are collaborating actively with colleagues from departments such as psychiatry, pediatrics, obstetrics and gynecology, and from agencies such as the Health Services Research Center, the Gerontology Program, and from nearby area Education. Parity as a consequence of such collaboration, interpersonal and behavioral and aging are interest areas in which a number of clinical faculty members are prepared to offer research supervision. Within the department, joint training programs in clinical-child and developmental, and in clinical-human experimental, have been established, and similar joint programs combining clinical training with work in other training areas can be arranged.

Advanced research opportunities for gaining additional practical experience through placements in clinical facilities maintained by local, state, and University agencies. Students ordinarily also complete a one-year internship at an accredited clinical facility, usually after completion of the four-year academic program. The clinical training program is fully approved by the American Psychological Association.

Human Experimental Psychology

Students affiliated with the human experimental psychology in their preparation in any of three broad sub areas: processes, experience, and perception, and experimental child psychology. Students specializing in cognitive processes acquire expertise in information processing and decision making, learning and memory, and language and behavior. Students with interests in sensation and perception may concentrate on cognitive, auditory, processes, or mathematical models of human thought and behavior. Psychophysics. Students in experimental child psychology are interested in areas such as discrimination learning, problem solving, and transfer of training.

Faculty members in the human experimental area are prepared to help students gain additional expertise in a variety of areas including human factors, communications, aging, organizational and consumer behavior, and environmental medicine. Collaborative research is underway with faculty members from the Department of Industrial Engineering, the Institute of Urban and Regional Research, the Department of Speech Pathology and Audiology, the Department of Human Services, the Health Sciences Research Center, and the Gerontology Program.
Social Psychology
The social psychology program offers a variety of perspectives on social processes. Students develop some familiarity with all of the approaches but may focus their graduate training in any of four sub-areas: social psychology, dealing with social influences of social and psychological systems; social cognition, dealing with such topics as attitude acquisition and change; cognitive consistency, attribution, and persuasion; social influences on behavior, including social learning, social development, imitation, conformity, etc.; and the social psychology of groups, dealing with cooperation and competition, group decision processes, social facilitation, and distortion.
Students in the social psychology area also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communications, human factors and behavioral medicine. Such preparation, which ordinarily will involve selected course work outside the department, e.g., in the College of Business Administration, and participation in special research projects, will broaden the student's employment prospects.

Graduate Admission
The graduate program in psychology is geared primarily to students seeking the Ph.D. degree; all applicants are considered on that basis. Occasionally a qualified applicant interested in advanced work only through the M.A. level may be admitted to pursue a joint graduate program involving psychology and another discipline or profession. An individual interested in such a program, should ensure that the required material is complete prior to filing applications.

The deadline for applications is February 15. For all materials to be on file by that date, the Graduate Record Examination should be taken no later than the December date. Applications may be accepted after February 15 and are considered only once each year between February 15 and March 15—for admission the following fall. Admission decisions are based on a composite consideration of prior academic performance, scholastic record, letters of recommendation, scores on the verbal, quantitative, and analytic sections of the Graduate Record Examination, and the applicant's statement of background and purpose. Initial review of admission materials is done by faculty members in the training area in which the applicant expresses primary interest.

An undergraduate major in psychology, including a laboratory course in experimental psychology, a course in statistics, and an understanding of the natural sciences and in mathematics, is desirable though not required. Students who have not had such a background but who are strongly qualified as others in the form of teaching assistantships, research assistantships, teaching fellowships, assistantships, fellowships, scholarships, etc. No separate application for financial aid is required.

Financial Assistance
All students admitted to the graduate training program in psychology automatically are considered, on the basis of merit, for such financial support as may be available from fellowships, teaching assistantships, research assistantships, training fellowships, tuition scholarships, etc. No separate application for financial aid is required.

Faculty
National rankings of graduate psychology programs consistently have shown this department to be among the top 10 in the nation. The widely recognized commitment of the faculty to research and scholarship is manifested in the publication of some 70 articles, books, reviews and book chapters each year, and in the fact that many of the faculty members are active as editors, associate editors, and regular consulting editors for major psychology journals.

Facilities
The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Sample Laboratory of Psychology, and adjoining space in Seashore Hall, include three separate animal facilities, several surgicaps, a histology laboratory, a laboratory, a number of small laboratory computers, automated data acquisition and reduction systems, observation areas with remote audiovisual control and recording equipment, soundproof chambers, closed-circuit video systems, electrophysiological recording rooms, conditioning laboratories, the Carl B. Seashore Psychology Clinic, and well-equipped electronic, mechanical, and woodworking shops. Specially equipped research trailers are available for use in studies conducted at schools and other locations. The University's Weep Computing Center has an IBM 370/168 and four PRIME 750 computers. Students and faculty have ready access to these systems through terminals in the department and through a satellite computer facility in Seashore Hall. Office space for graduate students and faculty is provided in Seashore Hall, and the psychology branch of the University's Main Library is conveniently located in the west wing of Seashore Hall.

The research and teaching activities of the department are greatly benefited by the facilities and staff of other University and regional agencies, including the University's General, Children's, and Psychiatric Hospitals, the Veterans Administration Hospital, the University Counseling Center, the Child Development Clinic, the Wendell Jameson Speech and Hearing Clinic, the Health Science Research Center, the Institute of Urban and Regional Research, and the Gerontology Project.

Courses
For Undergraduates
Either 31:13 or 31:17 or equivalent, is a prerequisite to all other courses in psychology. Only one of these two courses may be taken for credit.

31:13, 31:15, 31:16, 31:17, 31:19, 31:33 and 31:65 are open to freshmen who have completed an introductory psychology course, e.g., 31:1.

31:25 Elementary Psychology 24 s.h.
Courses in this area cover a behavioral science, different faculty members present lectures in their areas of expertise, assignments are required to become familiar with current research and to develop research skills through participation in observation sessions and small research studies, or through preparation of research reports. May not be taken pass-fail.

31:32 General Psychology 4 s.h.
Same as 31:17, but with additional discussion sections and greater emphasis on experimental methods in the analysis of behavior. Desirable for B.S. majors in psychology, open to all freshmen and to students who have completed courses in science. May not be taken pass-fail.

31:34 Introduction to Clinical Psychology 2 s.h.
Survey of current trends in psychology, with emphasis on contemporary methods in assessment and treatment of psychological disorders.

31:36 Introduction to Child Psychology 3 s.h.
Theory of mental research and theory of intellectual, emotional, and social aspects of development from infancy through adolescence.

31:37 Introduction to Social Psychology 3 s.h.
Trends and theories in the field of individual human behavior and the social environment: social psychological, psychosomatic, attitudes development and change, social influence on perceptual and
conceptual processes, social interactions; contributions by sociocultural and anthropological perspectives.

261/2 Introduction to Basic Processes

261/1 Survey of the study of individual human cognitive, perceptual, and attentional processes; language and communication; problem solving; decision making, and thought. Emphasis on theory/empiricism interaction; examination of joint role of social factors; biological, social psychological and ethological factors, reactions to stress and emotions.

261/2 Attention and Auditory

261/3 Comparative considerations of behavioral processes in man and animal; topics include: Us, attention and habituation; effects of habituation and generalization; points and consequences considered are behavioral, neurological, and psychopathological.

261/3 Bachelor in Business and Industry

Applications of psychology in problems of the world of work: emphasis on personnel selection, training, motivation, recruiting, job performance, etc.

261/4 Educational/Research Psychologist

Concepts and procedures basic to the evaluation and utilization of educational and behavior modification techniques. Emphasis will be on the practical application of the techniques of research. Students will have had 1-2 years of employment for only a few of the advanced courses.

261/5 Language and Psychology

Survey of language: grammar, meaning, process, and acquisition. Includes quantitative analysis, cultural and ethnic differences, implications for language development, lexical disorders, and acoustical inadequacies.

For Undergraduates and Graduates

261/1 Psychology as a Science

Impact of the nature of the concepts, laws, and theories of modern psychology, with discussion of the logic of measurement and probability. Emphasis will be on the logical structure of behavioral science and the relationship of psychology to other sciences, social science elaboration, initiation, and normal social growth.

261/2 Personality

Distinguish among the concepts, consequences of self-actualization and personality development.

261/3 Ethics, Change

Consideration of the ethical and ethical approaches to self-change. Emphasis will be on the consideration of ethical principles of change within historical and cultural frameworks.

261/4 Environmental Stress

Focus on the effects of factors including crowding, noise, urbanity, and economic change; the growth of psychology within the areas of stress, health, and emotion.

261/5 Social Group Processes

Classical work on groups comparing historical and contemporary factors. Relevant theory; topics may include: relationships, group decision, group counseling, and group therapy. Emphasis will be on the understanding and modifying group conflict. Recommended but not required.

261/6 Psychology of Appraisals

Evaluation of basic processes and research on appraisal behavior in human and animal behavior. Emphasis will be on understanding of contemporary social psychology.

261/7 Learning and Behavior in Children

Survey of research on theory on children's conditioning, discrimination learning, verbal and memory, transfer of training, and extinction of behavior.

261/8 Development of Social Judgment

Consideration of the development of competence in evaluating and assessing the social behavior of self and others, and the social judgment and social behavior in group and adult settings.

261/9 Psychology of Language

Review of theoretical and empirical studies of meaning, acquisition, perception, and comprehension of language, their universals and cultural, environmental, psychological, and linguistic differences, the nature of language and thought. Emphasis will be on 311/7.

261/10 Cognitive Development of Children

Applications of the theory of cognitive development to the psychological processes of children.

261/11 Psychophysiology of Sex Differences

Evaluations of the use of sexual differences in behavior, the implications of these differences, and the possibilities of new differences in the face of males and females. Emphasis will be on experimental literature in psychology.

261/12 Psychological Processes in Reading

Analysis of reading processes in the acquisition and maintenance of reading skills. Emphasis will be on the role of perceptual, cognitive, and social aspects.

261/13 Memory and Cognition

An introduction to contemporary cognitive psychology, with an emphasis on short-term and long-term memory, acquisition processes, and related systems in cognition.

261/14 Experimental Psychology

Legal and ethical implications of experimental methods in analysis of behavioral processes; includes overview of major psychological approaches to experimental psychology. Emphasis will be on 311/2 or equivalent psychology.

261/15 Psychology in Science

Laboratory of experimental research in psychological science, equipment, and methodology. Emphasis will be on the use of research in psychological science, studies in social psychology, experimental psychology, and behavioral science. Emphasis will be on 311/2 or equivalent; some students may be enrolled in psychology II in psychology IIA.

261/16 Psychological Assessment

In advanced laboratory in psychological assessment; knowledge will be of anticipation and language, culture, and situation.

261/17 Introduction to Research Methods in Psychology

In advanced laboratory in psychological assessment; knowledge will be of anticipation and language, culture, and situation.

261/18 Introduction to Research Methods in Psychology

In advanced laboratory in psychological assessment; knowledge will be of anticipation and language, culture, and situation.

261/19 Theory and Research in Psychology

In advanced laboratory in psychological assessment; knowledge will be of anticipation and language, culture, and situation.

261/20 Research Methods in Psychology

In advanced laboratory in psychological assessment; knowledge will be of anticipation and language, culture, and situation.

261/21 Experimental Psychology

In advanced laboratory in psychological assessment; knowledge will be of anticipation and language, culture, and situation.

261/22 Research Methods in Psychology

In advanced laboratory in psychological assessment; knowledge will be of anticipation and language, culture, and situation.

261/23 Research Methods in Psychology

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261/24 Research Methods in Psychology

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261/25 Research Methods in Psychology

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261/26 Research Methods in Psychology

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261/27 Research Methods in Psychology

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261/28 Research Methods in Psychology

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261/29 Research Methods in Psychology

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261/30 Research Methods in Psychology

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261/31 Research Methods in Psychology

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261/58 Research Methods in Psychology

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261/59 Research Methods in Psychology

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261/60 Research Methods in Psychology

In advanced laboratory in psychological assessment; knowledge will be of anticipation and language, culture, and situation.
The student must also take 9 to 15 semester hours of courses in one of the areas of concentration described below.

Community Recreation
The community recreation concentration is designed for students preparing for positions in which they will be responsible for organizing and administering recreation programs, facilities, and departments. This concentration is oriented primarily to municipal, district, and county-level recreation and park departments. Courses required for this area of concentration are:

104/130 Park and Recreation Facility Management
104/134 Introduction to Planning and Design of Recreation and Park Areas and Facilities
Three courses selected with advisor

Therapeutic Recreation
Therapeutic recreation focuses on preparing students to organize, plan, and lead recreation programs in treatment and nontreatment settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

Courses required for this concentration are:

104/130 Orientation to Rehabilitation Settings
104/131 Orientation to Special Populations
104/135 Role of Therapeutic Recreation in Rehabilitation
Three courses selected with advisor

Leisure Studies
The leisure studies concentration is designed for students preparing for graduate work, or who have a major interest in leisure research or leisure as a contemporary social issue, or an interest in diverse fields of recreation, such as park, outdoor, industrial recreation, etc. It is the most flexible of all preparations, and makes the maximum use of courses outside of the Program in Recreation Education. It is also ideal for students wishing to obtain a minor in recreation education.

Internship Opportunities
The recreation education program places special emphasis on practical experience and student involvement with the profession and practitioners. Students are encouraged to attend state and national professional conferences, and every class in the professional core includes lectures by working professionals, as well as opportunities for field experience related to course content.

The practical emphasis is climaxied by a professional internship for a full semester in an agency and setting of the student's selection. The internship is designed to lead to professional placement. More than 150 local, state, and national departments, agencies, and services provide fieldwork and internship opportunities for students in the program.

Honor's Admission to the honors program in recreation education requires a formal application, completion of at least 30 semester hours of course work at the University, completion of at least 8 of the 30 semester hours of required major coursework, and at least a 3.0 grade-point average on all college work attempted and on all work attempted in recreation education.

To graduate with honors in recreation education, the student must successfully complete six semester hours of honors work. With the permission of the chair of the student's honors committee, the student may take three semester hours of honors work in another department.

Master of Arts
The master's program is designed to prepare students for administrative, supervisory, and teaching positions in recreation systems and in universities. It offers two areas of specialization: recreation administration and therapeutic recreation. It may be taken with thesis (33 semester hours) or without (28 semester hours). An introduction to scholarly activities and research is provided through 104/103 Leisure Research, or equivalent, and preparation of a thesis or research report. The research will result in a modest contribution to knowledge, a review of a report, or a synthesis of ideas in the design and the park and recreation field.

Recreation Administration
This area focuses on the development and administration of recreational programs in settings such as municipal departments, schools, volunteer agencies, ranches, the armed forces, parks and natural areas, industries, private organizations, etc. The emphasis within these programs may be on special population groups, such as inner-city and poverty groups, the aged, children and youth, or the meaning of leisure as a social phenomenon, with study of the philosophy, historical, and social bases of leisure. Public administration and urban social planning are particular aspects of this area. To provide this emphasis on special population groups, the program draws heavily from other disciplines such as public administration, social work, urban and regional planning, geography, and psycholology.

Therapeutic Recreation Administration
Therapeutic recreation relates to the development and administration of programs serving the mentally retarded, physically disabled, emotionally disturbed, and aging in both institutional and community settings.

The program is designed toward understanding recreation's role in a comprehensive rehabilitation program, including both clinical and community facets, and thus prepares the student to work in a broad range of disability areas in either a medical setting or in the community. Through the use of related area courses, strengths in specific disability areas may be developed.

It is recommended that the student have had 10 to 12 semester hours of undergraduate credit in courses such as abnormal psychology, psychology of adjustment, kinesiology, the mentally retarded, and aging. The student should also have skills in at least two program areas.

Financial Aid
Assistance is available in the form of graduate assistantships, research assistantships, teaching assistantships, and post-master's internships for doctoral candidates. The student may obtain this assistance through the department, or through a special program in Therapeutic Recreation Service for Handicapped Children.

Facilities
Students majoring in recreation education have the opportunity to gain extensive experience, paid or voluntary, through independent research in these and other locations: The University of Iowa Psychiatric Hospital and Hospital Schools, University Recreation Services, Iowa City Parks and Recreation Department, Systems Unlimited, and various retirement and convalescence homes, and the Coralville Department of Parks and Recreation.

Courses
Primary for Undergraduates
104/124 Foundations of Recreation 3 s.h.
Basic philosophy, history, educational development in leisure and recreation; function and setting of organized recreation and survey of public and private recreation agencies and services.

104/120 Recreational Leadership 3 s.h.
Leadership in recreation; research techniques, program activities.

104/220 Societal Change and Recreation Setting 3 s.h.
Methodology and community involvement; program delivery, including recreation for the handicapped, correctional, elderly, and special groups.
Graduate Programs
The School of Religion seeks to prepare a select and limited number of graduate students to become specialists in the study and teaching of religion. Graduate study is offered in five areas, including 13 fields: Jewish and Christian Scriptures Old Testament
Post-Biblical Judaism New Testament History of Christianity Early (to 1600) Modern (since 1500) Theology and Ethics
Jewish Roman Catholic Protestant Asian Religions Methodology Religion in India, China, or Japan Religion and Personality Religion and Personality Development Religion and Health
Master of Arts
Candidates for the M.A. in religion must complete 30 semester hours of courses, to be distributed among three areas of graduate study. A maximum of 6 semester hours of graduate credit may be transferred from another institution toward the M.A. degree. Four hours may be thesis research. The comprehensive examination is ordinarily taken before writing the M.A. thesis. The master's candidate must demonstrate a reading knowledge of French or German. With the approval of the advisory committee, another language may be substituted for French or German when appropriate to the student's program of study. A thesis is required. Its purpose is to enable the student to demonstrate mastery of the tools and techniques of scholarly work in one field.
Master of Arts in Religion and Health
Study of the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University Hospitals and Clinics provide the setting for research and training in this program. Candidates for the Master of Arts in religion and health must complete 30 semester hours of course work. Four may be thesis research. She may be transferred from another accredited graduate or professional school. The program includes required courses in religion and personality, in related fields of ethics, religion in America, and other relevant fields outside the School of Religion. The student ordinarily takes the comprehensive examination before writing the thesis. Knowledge of a foreign language, statistics, or another research tool may be required, at the discretion of the student's advisory committee. In addition to the general requirements for admission outlined below, the school generally requires an on-campus interview of applicants to the M.A. program in religion and health; however, the interview may be conducted off campus by an accredited member of the Association for Clinical Pastoral Education.
Doctor of Philosophy
Candidates for the doctorate must complete a minimum of 72 semester hours of graduate course work. A maximum of 12 semester hours will be allowed for the dissertation. The student may elect one of two options for doctoral study. In the first option, in consultation with the School of Religion faculty, the student develops a broad program which will give him or her a knowledge of three of the five areas in which the school offers graduate study. Qualifying examinations, covering course work and readings in each of the three areas, provide an initial determination of the student's progress. Students entering with a master's degree or its equivalent must take qualifying examinations within two years of beginning doctoral work; other students must take them within three years. Doctoral students must demonstrate competence in either French or German before taking the qualifying examinations. Competence in both languages must be demonstrated at least 12 months before the comprehensive examination. With faculty approval, another language may be substituted for either French or German. In some areas, however, there are special additional language requirements. Doctoral students prepare for the oral and written comprehensive examinations under the supervision of a three-member faculty committee. The committee will determine three subjects for the comprehensive examination, including one subject closely related to the student's dissertation topic. The doctoral candidate must pass an oral examination on the dissertation. A student choosing the second option pursues one of six major programs: Judaism and Christianity in the Hellenistic world; History of theology and religious thought in the West; Contemporary theology and religious thought; Studies relating theology and other academic disciplines; History of Asian religions; Interdisciplinary program in religion and personality. Application for admission to these programs may be made before or after enrolling for graduate study. The student is expected to have passed the doctoral language requirement at least 12 months before pursuing the comprehensive examination. Each of the programs is supervised by a faculty committee. Beginning with the third semester of graduate work and continuing up to the semester of the comprehensive examination, the student must submit to the supervising faculty the paper best representing his or her work that semester. Depending on the student's program, the comprehensive examination will cover three or four fields. One field will be directly pertinent to the student's dissertation subject. A student who fails the doctoral comprehensive examination may, with approval of the faculty, complete a thesis for a terminal Master of Arts degree. More detailed information on degree requirements and graduate study policies of the School of Religion are in Information for Graduates Students, which is mailed to all applicants. It is regularly updated. Inquiries about any of the programs may be made to the director of the school.
Facilities
The University Hospitals and Clinics provide clinical opportunities for students in psychology, psychiatry, and social work, particularly in clinical pastoral education and the M.A. program in religion and health. Individual courses on such topics as death and dying and medical ethics utilize hospital personnel and facilities.
Graduate Financial Aid
The School of Religion has available three types of departmental financial aid: teaching assistantships; teaching assistantships; and research assistantships. Awards are made annually on a competitive basis. First-year students are ordinarily given only as research assistantships.
Graduate Admissions
All applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion...
The Rhetoric Program offers students direct opportunities, through their own oral and written communication, to evaluate their experiences and to explore and implement possibilities for their personal and intellectual growth. Receptivity to various sources of information and investigating, analyzing, evaluating, and responding to the ideas, beliefs, and attitudes of other writers and speakers are integral functions of rhetorical course work. Rhetoric instructors' primary responsibility, however, is to help students clarify their own thinking and improve their own communication.

Satisfactory proficiency in rhetoric is a requirement for baccalaureate graduation from the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). The Rhetoric Program's reading and writing labs are available to all university students, on a voluntary basis (see the "Surveys for Students" section of the Catalog).

Courses
101 Rhetoric
Instructive practice in speaking, writing, and critical reading, with the focus on expressive and critical, defensive oratory, analyzing, and developing ideas, inquiring and using library resources for employing and supporting ideas, adapting sources to readers and listeners. 3 s.h.
102 Rhetoric
Continued instruction and practice in oral and written communication with the focus on critical thinking. Emphasis is placed on maintaining a clear, logical, and organized style of writing and speaking. Opportunities are provided to employ research procedures, drafting, and presenting informative and persuasive oral presentations. Students prepare and present written and oral essays and speeches, and use research paper methodology. 3 s.h.

104 Rhetoric
Instructive practice in written communication: focus on 103 s.h. focus and expectations. 3 s.h.
105 Rhetoric
Teaching oral and written language proficiency; pattern recognition, combining with speaking and writing, and gaining oral and written proficiency; developing critical thinking, vocabulary, literacy, and understanding of reading. Open to students having similar difficulties with reading or writing proficiency who are permitted to enter in another rhetoric course.

102 Rhetoric
After an initial sequence of writing, instruction moves to the practice of reading and the analysis of each other. Open to students not enrolled in another rhetoric course.

Russian
Department chair: Ray J. Pastore, Jr.
Faculty: professor Norma Lubszcz
associate professor Héloïse Barrière
associate professor Ray J. Pastore, Jr.
Henry R. Weis, Christopher A. West
Professor Michael A. Scott

The purpose of the Russian program is to give students training in both the written and spoken Russian language and in Russian literature. An important secondary objective of the program is to give students an understanding and appreciation of Russian civilization and culture. A knowledge of Russian is valuable as an end in itself but rather a means to some other vocation. The department encourages all of its beginning students to pursue a joint major and to develop their interests in other fields. With the increasing importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, and business. Students of journalism, library science, and the social sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian or before going into law, international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanistic disciplines.

Russian majors with the B.A. and the required education courses occasionally seek teaching careers in secondary schools. A number of governmental agencies regularly interview job candidates who have advanced training in Russian. Students who develop an excellent facility with the language may pursue careers in government, business, journalism, literary and technical translation, and interpretation.

Bachelor of Arts
Students who major in Russian must complete the general College of Liberal Arts degree requirements (see the "College of Liberal Arts" section of this Catalog), and earn at least 26 semester hours of credit in advanced Russian courses. Required courses are:
41111-112 Intermediate Composition and Conversation 3 s.h.
41113 Advanced Composition and Conversation 3 s.h.
41117-112 Readings in Representative Russian Literature 3 s.h.
Three of the following:
41114 Russian Literature in Translation 1850-1860 3 s.h.
41115 Russian Literature in Translation 1860-1917 3 s.h.
41118 Tolstoy and Dostoevsky 3 s.h.
41119 Soviet Literature 3 s.h.
41126 Russian Culture 3 s.h.
41121 Russian Civilization 3 s.h.

Students majoring in Russian are urged to include related courses in economics, geography, history, or political science among their electives. All students majoring in Russian are strongly encouraged to enroll in the 4-credit seminar course 411127 Phonetics and Pronunciation. With the consent of the instructor, students may enroll in 41108 Special readings for instruction in business Russian.

For a minor in Russian the student must complete a minimum of 18 semester hours in the department, 12 of which must be advanced courses selected with the approval of the department.

Honors
Russian majors of junior or senior standing with a grade-point average of at least 3.0 both in Russian and overall may enroll in the honors program in Russian. An extensive reading program with discussions, regular reports and a seminar paper constitute each honors work unit of two semester hours. Students may take up to eight semester hours of honors work in Russian.

Summer and Study Abroad Programs
The department regularly encourages undergraduates and graduate students to participate in intensive programs of language study and culture at sites and in the Soviet Union. In recent years an increasing number of students have studied in summer and semester programs at Lingnan College University under the auspices of the Council on International Educational Exchange, and several have participated in the similar American Council of Teachers of Russian language program at the Franklin Institute in Moscow. Other students have accelerated and refined their Russian language skills in various intensive summer programs at major American universities. Information should be directed to the Russian department office.

Master of Arts
Offered with or without thesis, the M.A. program in Russian offers two major emphases, its literary or in language study.

The focus in literary studies is on the development of Russian literature, both as a national phenomenon and as a part of European culture. Students are expected to analyze writers' styles, parodies, literary techniques, recognize literary influences, and develop the ability for sound criticism of form, content, and language of works in all genres.

Students electing an emphasis on language studies focus on the historical development of Russian, and do advanced study of contemporary phonology, morphology, syntax, and stylistics.

Candidates for the master's degree must have completed the equivalent of the undergraduate major in Russian. Deficiencies in previous training may be made up by taking appropriate courses. Candidates for the master's degree are required to complete a minimum of 30 semester hours of graduate work, with or without thesis. The program should include courses in related fields such as comparative literature, history, philosophy, and other languages. A student in the Russian program may earn from four to eight semester hours of credit for thesis preparation. Candidates for the M.A. must pass a written and an oral examination; they must also demonstrate a reading knowledge of either French or German.

Financial Aid

Aid is available to graduate students in the form of tuition scholarships, University fellowships, and teaching and research assistantships. Fellowship support is awarded annually on a competitive basis to the most qualified applicants. Ordinary teaching assistantships are not awarded to first-year students, though exceptions are sometimes made on the basis of advanced language skills. Applications are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental office.

Course Work for Nonmajors

The department offers special reading courses designed for students from other fields who need a reading proficiency in Russian in either the social sciences or the humanities. A course is offered for students in sciences who need to develop reading ability for research purposes. Some courses are open to University students from all departments and are offered in English. The department also includes survey courses in Russian culture, literature, and civilization, readings in Soviet literature, and monograph courses on Tolstoy and Dostoevsky.

Special Activities

Each year the department presents several guest lecturers and sponsored films. Students sometimes put on Russian plays. Russian Circle is an organization open to graduates and undergraduates for social activities. Participation in Russian Circle also provides students with the opportunity to practice speaking Russian with other members of the department.

Language Laboratory

The University's Language Laboratory provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and shortwave radios, tape recorders, recreation players, soundproof recording rooms, and drill rooms. An electronic classroom, a soundproof workroom, and a library of tape and disc recordings are also available.

Courses

For Undergraduates and Graduates

411 First-Year Russian I
Prerequisite: 411 or equivalent.
412 First-Year Russian II
Prerequisite: 411 or equivalent.
413 Second-Year Russian I
Prerequisite: 411 or equivalent. Students are encouraged to continue in the current year for the next year's course. Students are not required to take the course the first year, but the course must be taken within five years of the first. These are two-year courses recommended for students entering major language requirement for B.A. degree and desiring better training in active use of the language. Prerequisite: 410 or equivalent.
414 Second-Year Russian II
Prerequisite: 413 or equivalent.
415 Russian for Business I
Prerequisite: 413 or equivalent.
416 Russian for Business II
Prerequisite: 415 or equivalent.
416B Russian for Business I
Prerequisite: 415 or equivalent.
418 Business Russian I
Prerequisite: 417 or equivalent.
419 Business Russian II
Prerequisite: 419 or equivalent.
420 Advanced Russian I
Prerequisite: 417 or equivalent.
421 Advanced Russian II
Prerequisite: 420 or equivalent.
422 Interdepartmental Russian Composition and Conversation
Prerequisite: 414 or equivalent.
423 Interdepartmental Russian Composition and Conversation
Prerequisite: 413 or equivalent.
424 Advanced Composition and Conversation
Prerequisite: 414 or equivalent.
425 Advanced Composition and Conversation
Prerequisite: 413 or equivalent.
427 Russian and Philosophy
Prerequisite: 415 or equivalent.
451 Russian Literature in Translation 1800–1980
Conducted in English.
452 Russian Literature in Translation 1800–1980
Conducted in English.
453 Special Reading
Prerequisite: 414 or equivalent.
454 Special Reading
Prerequisite: 414 or equivalent.
455 Special Reading
Prerequisite: 414 or equivalent.
456 Special Reading
Prerequisite: 414 or equivalent.
457 Special Reading
Prerequisite: 414 or equivalent.
458 Special Reading
Prerequisite: 414 or equivalent.
459 Special Reading
Prerequisite: 414 or equivalent.
461 Special Reading
Prerequisite: 414 or equivalent.
462 Special Reading
Prerequisite: 414 or equivalent.
463 Special Reading
Prerequisite: 414 or equivalent.
464 Special Reading
Prerequisite: 414 or equivalent.
465 Special Reading
Prerequisite: 414 or equivalent.
466 Special Reading
Prerequisite: 414 or equivalent.
467 Special Reading
Prerequisite: 414 or equivalent.
468 Special Reading
Prerequisite: 414 or equivalent.
469 Special Reading
Prerequisite: 414 or equivalent.
470 Special Reading
Prerequisite: 414 or equivalent.
471 Special Reading
Prerequisite: 414 or equivalent.
472 Special Reading
Prerequisite: 414 or equivalent.
473 Special Reading
Prerequisite: 414 or equivalent.
474 Special Reading
Prerequisite: 414 or equivalent.
Introduction to applied science (technology), and a sequence in education.

Because science education is transdisciplinary, program planning requires the cooperation and involvement of a variety of University departments and colleges. Most of the formal requirements are drawn from courses offered in a variety of departments.

The Science Education Program has attracted national and international attention. The program has received over $50 million in federal support since 1960. This support has helped establish a specific program for gifted and talented secondary school students, major teacher education programs, an extensive program of instruction and services for in-service teachers across Iowa, a skills program for assisting undergraduates in their studies of basic science, a history and philosophy of science sequence at the undergraduate and graduate levels, a program evaluation component, and a variety of special longitudinal research programs.

Undergraduate Programs

The undergraduate program in science education represents a transdisciplinary major in science for all students while providing an appropriate option for students interested in science teaching, one of the medical professions, or allied health field, specific preparation for graduate study in various scientific training, or such areas as scientific journalism and law.

The science education major is not intended to prepare students for advanced study in any one area of science. When graduates of the Science Education Program seek admission to graduate studies in a single area of science, it is often necessary for them to complete additional courses in that discipline prior to admission to the Graduate College.

Since the Bachelor of Arts degree in general science requires a minimum of 44 semester hours and the Bachelor of Science degree requires 48 (see "General Science" in this section of the Catalog), the 56 semester-hour emphasis in science education qualify graduates for either degree. The language proficiency requirements are the only difference between the two degrees.

All of the emphasis areas in science education have the following characteristics in common:

- Depth in a general area of science, equivalent to three years or six semesters of sequential study;
- Preparation in a second area of pure science, equivalent to two years or four semesters of sequential study;

- Introduction to two other fields of science;
- A specific proficiency in mathematics as a tool of science (more mathematics is required for the physical science emphasis than the biological emphasis);
- A view of science from an historical/philosophical/cultural perspective; and
- Experience with the application of scientific knowledge in a technological sense.

Students who wish to qualify for secondary teaching certificates with endorsement to teach science must complete a total of 26 semester hours in specified courses (see "Secondary Education" in the "College of Education" section of the Catalog). Outlines for the five areas of emphasis offered in science education are as follows:

**Biology Emphasis**

**Courses in Biology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>21:11 Introduction to Botany</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>37:33 Principles of Animal Biology</td>
<td>5 s.h.</td>
<td></td>
</tr>
<tr>
<td>21:128 Fundamental Genetics</td>
<td>3 s.h. (same as 57:136)</td>
<td></td>
</tr>
<tr>
<td>21:128 Evolution</td>
<td>4 s.h. (same as 97:113)</td>
<td></td>
</tr>
<tr>
<td>21:128 Ecology</td>
<td>4 s.h. (same as 97:132)</td>
<td></td>
</tr>
<tr>
<td>21:180 Intermediates Physiology</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24 s.h.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Courses in Chemistry**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>41:13-14 Principles of Chemistry I-II</td>
<td>6 s.h.</td>
<td></td>
</tr>
<tr>
<td>57:128 Principles of Chemistry I</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td>41:121 Organic Chemistry I</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>Electives in Chemistry</td>
<td>5 s.h.</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16 s.h.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Courses in Geology and Physics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>25:120 Basic Physics</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>123 Principles of Physical Geology</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6 s.h.</strong></td>
<td></td>
</tr>
</tbody>
</table>

(More advanced course sequences are recommended for students able to complete more than the required 6 semester hours.)

**Mathematics as a Tool**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>23:116 Mathematics for the Biological Sciences</td>
<td>4 s.h.</td>
<td></td>
</tr>
</tbody>
</table>
| **Additional courses are recommended.**

**Application of Science**

Two approved courses (4 semester hours) chosen with the advisor's assistance; a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools will satisfy this requirement.

**History/Philosophy/Sociology of Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>97:128 Meaning of Science</td>
<td>2-3 s.h.</td>
<td></td>
</tr>
<tr>
<td>97:130 Science in Historical Perspective</td>
<td>2-3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**Earth Science Emphasis**

**Courses in Geology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:5 Introduction to Geology</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>12:3 Earth History and Resources</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>12:34 Man and His Physical Environment</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>12:5 Evolution of the Earth</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>12:12 Geology of Iowa</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>12:14 Mineralogy</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>12:108 Introduction to Oceanography</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td>Electives (chosen)</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20 s.h.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Supporting Science Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>41:13-14 Principles of Chemistry I-II</td>
<td>6 s.h.</td>
<td></td>
</tr>
<tr>
<td>37:11-12 College Physics</td>
<td>6 s.h.</td>
<td></td>
</tr>
<tr>
<td>30:100 Modern Astronomy</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18 s.h.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Courses in Geography**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:101 Weather and Climate</td>
<td>5-6 s.h.</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5-6 s.h.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Mathematics as a Tool**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>23:120 Elementary Functions</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>
| **Additional courses are recommended.**

**Application of Science**

Two approved courses (6 semester hours) chosen with the advisor's assistance; a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools satisfy this requirement.

**History/Philosophy/Sociology of Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>97:128 Meaning of Science</td>
<td>2-3 s.h.</td>
<td></td>
</tr>
<tr>
<td>97:130 Science in Historical Perspective</td>
<td>2-3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**Environmental Studies Emphasis**

**Courses in Biology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1 Introduction to Botany</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>37:3 Principles of Animal Biology</td>
<td>5 s.h.</td>
<td></td>
</tr>
<tr>
<td>21:128 Fundamental Genetics</td>
<td>3 s.h. (same as 57:136)</td>
<td></td>
</tr>
<tr>
<td>21:128 Evolution</td>
<td>4 s.h. (same as 97:113)</td>
<td></td>
</tr>
<tr>
<td>21:128 Ecology</td>
<td>4 s.h. (same as 97:132)</td>
<td></td>
</tr>
<tr>
<td>Electives in Biology</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>23 s.h.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Courses in Chemistry**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>41:13-14 Principles of Chemistry I-II</td>
<td>6 s.h.</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6 s.h.</strong></td>
<td></td>
</tr>
</tbody>
</table>
Physics
29-11-12 College Physics 8 s.h.
97:105 Societal and Educational Applications of Selected Concepts in Physics 3 s.h.
Physics electives 10 s.h.

General Science
2:1 Introduction to Botany 4 s.h.
28:61 General Anatomy 4 s.h.

12:3 Principles of Physical Geology 2 s.h.
or
12:4 Principles of Historical Geology 3 s.h.
4:13 Principles of Chemistry I 3 s.h.
29:11 College Physics 4 s.h.

Environmental Studies Emphasis
2:1 Introduction to Botany 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
37:132 Ecology 2 s.h.
4:13 Principles of Chemistry I 3 s.h.
Electives in environmental engineering 3 s.h.
97:140 Problems in Teaching the Environmental Science 3 s.h.

Earth Science
12:3 Principles of Physical Geology 2 s.h.
or
12:4 Principles of Historical Geology 3 s.h.
29:61 General Astronomy 4 s.h.
Geology and astronomy electives 10 s.h.
97:102 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h.

Iowa-ASSIST

Iowa-UPSTEP

Iowa-UPSTEP is a continuing program for UI undergraduate students interested in exploring science as a career option. Students register for prerequisite courses and a variety of practical experiences. In addition to experiences with youth, with savants, and with regular courses, students are involved in excursions, social activities, and special action projects.

Graduate Programs

The Science Education Program offers graduate study leading to the degrees Master of Arts in Teaching, Master of Science, Educational Specialist, and Doctor of Philosophy.

The M.A.T. program is designed for persons who have had strong undergraduate preparation in science and have decided after receiving the bachelor's degree that they wish to teach science in secondary schools.

The other graduate programs in science education are for persons desiring additional preparation in science and education for persons interested in supervisory and/or administrative positions in schools, for persons interested in educational evaluation, for persons wishing to teach science and/or science education at the college level, and for persons interested in developing instruction programs in science, industrial, and/or related settings.

The graduate programs in science education continue the philosophy and pattern of the undergraduate programs outlined above. Specific components of each of the graduate programs are as follows:

Master of Arts in Teaching

TF:101 Educational Psychology 3 s.h.
TF:107 History of Western Education or TF:117 Philosophy of Education 2 s.h.
TF:170 Human Relations for the Classroom Teacher 3 s.h.
TF:151 Science Methods I: Individualizing Instruction in Science 2 s.h.
TF:152 Science Methods II: Resources and Teaching Strategies 2 s.h.
TF:150 Individual Projects in Laboratory Practice 2 s.h.
TF:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
97:139 Meaning of Science 4 s.h.
97:130 Science in Historical Perspective 2 s.h.
Science (beyond 60-semester-hour undergraduate requirement) 10 s.h.
Minimum total 40 s.h.

Master of Science without Thesis

Advanced education science 12 s.h.
(Major/Philosophy of science when not part of undergraduate program Major field of science (beyond emphasis area for undergraduate major) 12-18 s.h.
Applied science 4 s.h.
Minor science field 10 s.h.
Minimum total 36 s.h.

Master of Science with Thesis

Advanced education science 10 s.h.
Major/Philosophy of science (when not part of undergraduate program) 4 s.h.
Advanced science 14 s.h.
Applications of science 2 s.h.
Research 4 s.h.
Minimum total 30 s.h.

Special Programs

Iowa-ASSIST

Iowa-ASSIST is a special program in science education which involves 200 in-service teachers each year in special curriculum revision and implementation efforts. Summer and academic year workshops provide the basic mode of operation for the program. Associated with Iowa-ASSIST is a materials center which provides printed and laboratory materials for workshop and school program implementations.

In addition, Iowa-ASSIST administers a two Science and Education Conference that attracts more than 500 teachers each year. The conference sponsors a spring Science and Humanities Symposium, jointly with the U.S. Army Research Branch, for about 400 high-ability students and their teachers, sponsors several conferences for the improvement of science teaching and public awareness of science-society issues; and each summer sponsors special workshops utilizing national authorities and enrolling 200 teachers, graduate students, and administrators.

Chautauqua Short Course Programs

The Science Education Center also administers the NSF-sponsored and AASL-processed Chautauqua Short Course programs for college science teachers. Over 300 college teachers of
science are involved in such continuing education activities.

Research
Each faculty member in science education is responsible for one or more lines of research. Major areas of faculty and graduate-student research include:
- Philosophy and sociology of science
- Values education in science
- Individualized learning
- Educational technology
- Computer-assisted learning
- Simulation systems
- Classroom interaction studies
- Creativity
- Planned development psychology
- Cross-cultural experiences
- Health education
- Instructional psychology
- Teacher behavior
- Mathemagical activity
- Inquiry processes
- Instructional modes
- Concept formation
- Aptitude X Treatment interaction (ATX)
- Articular and other affective outcomes of instruction
- Classroom sociometrics and climate

International Programs
Another dimension of the Science Education Center is its emphasis upon international issues. A substantial number of foreign students are enrolled. The faculty has been involved in extended periods in international programs and teaching as well.

Facilities
The physical facilities for science education at the University of Iowa are exemplary. The Science Education Center is located in the modern Physics Building near the center of the University campus. Facilities on the fourth floor include the main office of the Science Education Center; a photographic laboratory; a departmental conference room, a library, and a counseling center; a suite of offices for student program activities; space for the elementary school courses of the program; laboratory for the elementary school science methods courses; and two large teaching laboratories for the Fundamentals of Science program.

Third-floor facilities include an interactive curriculum laboratory and secondary methods laboratory; a curriculum and materials resource center; an office for coordinating Iowa-ASSIST; a model in-service program for assisting schools in implementing new national curriculum programs in Iowa schools; and a resource center including both living and expendable materials. The seventh floor includes central offices for the history and philosophy of science laboratory in the Science Education Center and secondary school teacher education programs; a self-instructional/laboratory including laboratory and audiovisual materials; a large seminar room used as an instructional center for some of the secondary school education sessions, including many facets of the Iowa-UPSTEP project; multiple offices for graduate assistants; a common area for small group interactions and individual work and two large areas for small group and committee work.

Courses
The following are special courses offered by the Science Education Program to supplement the undergraduate emphasis areas in science education and to provide science options for elementary and special education majors. The College of Education offers many basic courses in science education; for a list of specific offerings, inquire at the Science Education Program Office.

Primary for Undergraduates
9710 Cooperative Education Internship 3 a.h.
9712 Fundamentals of Science 4 a.h.
Science topics and laboratory investigations drawn from physics, life, and earth sciences, focus on problem solving and process skills in problems. The second semester includes a capstone research project.
9713 Investigations in Science 3 a.h.
Special projects in science for high-ability secondary school students. May be repeated.
9745 Science Survey 2 a.h.
Survey of current literature related to science education, emphasis on ethical implications of research, history, and current issues.
9746 Science Survey 2 a.h.
Experiences in elementary school science, emphasis on student centered learning. Prerequisite: 1 semester of high school science required.
9746 Science Seminar 3 a.h.
Experiences in elementary school science, emphasis on student centered learning. Prerequisite: 1 semester of high school science required.
9746 Special Topics 3 a.h.
Experiences in elementary school science, emphasis on student centered learning. Prerequisite: 1 semester of high school science required.
9746 Research Seminar 3 a.h.
Research experiences required of undergraduates pursuing honors degrees.

For Undergraduates and Graduates
9712 Societal and Educational Applications of Earth Science Concepts and Issues 3 a.h.
Review of major theories and principles of earth sciences, with emphasis on current applications to today's world.
9715 Societal and Educational Applications of Biological Concepts 3 a.h.
Review of basic oncological themes characterizing the science of biology, and a review of processes relating to the student in discerning them; major activity is with current societal issues related to biology.
9746 Special Topics II 3 a.h.
9715 Societal and Educational Applications of Selected Concepts of Physics 3 a.h.
Review of major ideas of physics and how they have been applied; emphasis on how such ideas affect modern society.
9715 Societal and Educational Applications of Chemical Concepts 3 a.h.
Application of the principles of chemistry to industry, communication, and daily living; activities assisted in by Endowment for Medical Science.
9715 Fundamentals of Selected Science and Education Topics 2 a.h.
Survey of a range of subjects; special reference to implications of teaching.
9715 Advanced Science Foundations 3 a.h.
9715 Special Study 2 a.h.
9715 Individual Study 2 a.h.
9715 Honors Study 2 a.h.
Critical examination of the scientific enterprises in social, ethical, cultural, anthropological perspectives.
9715 Science in Historical Perspective 3 a.h.
Science and the contemporary social issues from the perspective of their historical development.
9715 Involving the Teaching of Fundamental Science 2 a.h.
Principles of environmental education resources in the community, including human, governmental, and natural influence (behavioral) field or environmental education in K-12 teaching.
9715 Activities Designed to Enhance Environmental Awareness 3 a.h.
9715 Components of Comprehensive School Health 3 a.h.
9715 Activities Designed to Enhance Protective Factors 3 a.h.

Social Studies Education
Chair: Robert M. Picht
Professor, Robert M. Picht
Assistant professor, James Myers
Degrees offered: B.A., M.A., Ph.D.

Bachelor of Arts
The major in social studies education is an interdisciplinary, nonspecialized major. It provides an excellent foundation for careers in law, social work, religion, urban planning, and development, and government service at all levels. Its major purpose, however, is to provide a general education for students preparing to teach in secondary schools. Together with the professional requirements for certification, this major meets the standards for teaching social studies established by the North Central Association of Colleges and Secondary Schools.
Major requirements for the B.A. degree in social studies education total 60 semester hours of credit extended in departments cooperating in the social studies education program. Distribution of the coursework is as follows: 12
semester hours in history; 12 semester hours each in economics, political science, and sociology; at least 9 semester hours in geography; and 9 semester hours in political anthropology, or psychology.

Students pursuing a social studies education major will take survey courses introducing them to the various social sciences. Many of the departmenals also offer independent study and readings as alternatives to formal classes.

There is no separate honors program in social studies education. Students who qualify are encouraged to do honors work in the social science department in which they wish to concentrate their work.

Admission Requirements
Transfer students must have earned a minimum grade-point average of 2.75 on all work done in the subjects of the cooperating departments in order to be admitted to the program. Approval of candidacy for the bachelor's degree will be granted only to students who have a minimum 2.75 grade-point average in all college work undertaken in the cooperating departments.

Master of Arts

Some graduates of this program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some are serving as curriculum consultants for school districts, while others are staff members in community colleges. A few have found the degree excellent preparation for their professional work in various correctional and penal institutions. For a small number, the master's degree in social studies education has provided access to civil service positions at various levels of government.

The student may elect to take the master's degree with or without a thesis, under either of two plans, both requiring 36 semester hours of credit in graduate courses.

In one plan the student completes at least ten semester hours of courses in the cooperating departments, and may complete the remaining eight semester hours in one or more of the cooperating departments.

In the other plan the student completes at least twenty semester hours of courses in the cooperating departments and not more than ten in education, and may complete the remaining eight semester hours in either or both of his or her related departmental areas.

All candidates must also complete 98:201 Individual Instruction in Social Studies Education and 98:202 Seminar: Social Studies Education.

Admission Requirements

A student wishing to major in social studies education for a master's degree must have earned at least 20 semester hours of graduate credit in one discipline of social studies at an accredited institution, and must have a minimum grade-point average of 3.0 on all work undertaken in social studies up to the time of application. After declaring their social studies education major, the M.A. candidate must maintain at least a 3.0 grade-point average.

Doctor of Philosophy

Some graduates of the social studies education doctoral program have gone into administration in institutions of higher education and are serving as presidents, provosts, or deans of faculty graduate schools. Some are departmental chairs in colleges of education or curriculum directors in large school districts. Many are engaged in teacher education programs in colleges and universities, while others are college instructors or their areas of academic concentration.

The program consists of a minimum of 90 semester hours of course work and dissertation credit beyond the bachelor's degree, minimum of tool requirements established by the College of Education. These credits are to be distributed among the cooperating disciplines and professional education. Following is a breakdown of the major educational needs of the candidate, work in the disciplines shown will comprise between 60 and 75 percent of the total 90 semester hours, work in education between 25 and 40 percent.

Depending upon the areas of study he or she chooses, the candidate will have an opportunity for regular classroom, small group instruction, and independent study, fieldwork, and laboratory and computer experience. Seminar and advanced work in courses numbered 400 or above is required in each of the areas of study. All candidates must complete 98:201 Individual Instruction in Social Studies Education and 98:202 Seminar: Social Studies Education.

After completing most of his or her course work, the candidate must take a qualifying examination covering each of his or her fields of emphasis.

The candidate must complete and orally defend a dissertation based on original research in either of his or her academic fields of study or on some aspect of social studies education.

Admission Requirements

Admission to doctoral study in social studies education requires a bachelor's degree in history or social science at an accredited institution, a master's degree in history, a social science, or education; satisfactory performance on the Graduate Record Examination; and an academic record showing promise of scholarly success.

Facilities

Students in social studies education have access to the facilities and services of the cooperating departments and the College of Education. Special agencies and services are also available, such as the University Hospital School, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Educational Information Center, the Curriculum Laboratory, the Statistical Consulting Center, the Reading Clinic, the Weep Computing Center.

The faculty members who serve as social studies education advisors and coordinators of their experienced classroom teachers whose advanced degrees have been earned in history, the social sciences, and education. They are active in professional organizations, consultative work, and in working with schools in curriculum revision.

Courses

98:201 Individual Instruction in Social Studies Education 14-16 hours
individualized readings, field studies, and individual problem in history and social science or an problem of professional education. May be repeated Prerequisite: consent of instructor.

98:202 Seminar: Social Studies Education 3 hours. Reading and discussion in significant developments in social studies. Prerequisite for non-education, admittance investigation paper required. Credit 4 hours. Prerequisite: consent of instructor. Same as 75:277.
Social Work

Director: Ralph E. Anderson

Faculty: Dr. Wilma Soviero, N. Wayne Johnson, Thomas H. Wert

program director: Dr. Vivian S. Stobick, Wilma Soviero
adjunct professor: Beveridge C. Tosty


associate professor: W. Bradley Good
college adjunct professor: Marvin E. Brown

associate professor: Fredrickson, Howard J.

assistant professor: Catherine A. B. W. Eleanor

assistant professors: Lois Baverer, Robert C. Zemansky, Alan Green, Donald Greens, Ken Hallowell, Robert A. Johnson, Donald D. Jacobson, Warren E. Kullman, Michael E. Moore, John T. O’Rourke, James E. Poplin


Degree conferred: B.A., M.S.W.

The School of Social Work provides an accredited program, professional training in the baccalaureate and master’s level. The school provides both a physical and social milieu that supports a people-centered approach to professional education.

Bachelor of Arts

The B.A. program prepares students for beginning professional social work practice. The goals of the program are to prepare students for employment in social services, to prepare D.A. graduates, such as public welfare, for graduate study in social work or allied professions; and to prepare students for informed community participation in social welfare issues.

The program is accredited by the Council on Social Work Education.

Undergraduate students majoring in social work are required to complete the Social Work College of Liberal Arts requirements, excluding the general education requirement in social sciences. For general education requirement in natural sciences include 11.5 Human Biology. The following courses are required for the major:

Freshman/Sophomore Years

32:1 Introduction to American Politics 3 s.h.
31:10 The American Political System 3 s.h.
31:1 Elementary Psychology 4 s.h.
31:3 General Psychology 4 s.h.
31:4 Introduction to Sociology: Psychology 4 s.h.
Any basic experience course 2-4 s.h.

Juniors/Senior Years

42:22 Introduction to Social Work 4 s.h.
42:140 Human Behavior in the Social Environment 3 s.h.
42:141 Social Work Practice I 4 s.h.
42:171 Social Work Practice II 3 s.h.

Honors

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. Students interested in such a program should contact the school.

Admission

Admission to the undergraduate program in social work requires:

Completion, with at least a C grade, of 42.2 introduction to Social Work, which can be taken the sophomore year.
At least a 2.25 grade-point average on a 4-point scale; and
Passage of an interview process.

For more information, contact the coordinator of the undergraduate program in social work.

Master of Social Work

The M.S.W. program prepares social workers for leadership in the profession and for advanced social work practice either as generalists or in one of three concentrations. The common goals of the program, to be met through a set of core requirements, are to enable all students to understand the dynamics of human development and change; to develop themselves to make human service organizations responsive to people; understand the linkages between the society and the individual; and acquire intervention skills for working with individuals, families, small groups, organizations, and communities.

The Master of Social Work degree requires at least 60 semester hours of credit in graduate courses approved by the school including at least 36 semester hours earned after admission to the program. The student must obtain an adequate final grade in the hours of 12 semester hours of graduate and foreign language requirements do not count toward the 12 semester hours.

American Studies

Anthropology

Business

Economics

Education

English

History

Home Economics

Journalism

Political Science

Psychology

Recreation Education

Religion

Sociology

Spanish

Honors

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. Students interested in such a program should contact the school.
successfully complete a final examination project in lieu of the comprehensive examination the Graduate College generally requires. The student may elect a thesis option for credit, and the final examination is the oral defense of the thesis. Either the advanced research requirement or the final examination project/thesis must be related to the concentration selected.

The following is an outline of the M.S.W. degree requirements:

Core courses:
42:140 Human Behavior in the Social Environment 3 s.h.
42:141 Social Work Practice I 3 s.h.
42:142 Social Welfare Program and Policy 3 s.h.
42:144 Social Work Research 3 s.h.

Other required courses:
42:203 Interpersonal Communication and Change 3 s.h.
42:204 Human Service Administration 3 s.h.
42:201 Community Organization 3 s.h.
42:206 Advanced Research Seminar 2 s.h.
42:127 Social Work and Racism or 2 s.h.
42:119 Social Work and 2 s.h.
Discrimination

General option: an additional course in each concentration 0-6 s.h.

Concentration option: at least three additional courses in the concentration 6-9 s.h.

Practicum and practicum seminar 14 s.h.

Final examination project/thesis 0-6 s.h.

Electives 9-12 s.h.

Total 60 s.h.

Concentrations

After admission, students may choose one of four plans of study. They may elect either to pursue advanced work as a social work generalist or to choose from among three concentrations. Concentrations focus on intervention at one of three levels of social systems.

The generalist option is designed to provide students with basic knowledge and skills in all three concentrations. It is especially suitable for students who expect to practice in rural communities where they will be expected to perform a variety of functions. It may also be the suitable choice for students who wish to focus on a particular field of practice rather than a particular level or system of intervention. Generalists are required to take some 9 semester hours of courses in each concentration, including the required advanced practice courses in each. Giver courses which can serve to meet the requirement will be made available upon entry into the program. Practicum will include some opportunity for practice experience at each system level.

The concentration in individual, family, and small group services prepares students for intervention with these client groups. It seeks to develop practice competence in students both as analysts of personal change and as brokers/advocates for individuals and families. Topics include family law and family policy, work with children, working with couples and families, and working with groups.

The concentration in organization of human services is designed to develop practice competence for a variety of administrative roles in human service agencies as well as to enable students to act effectively in making such organizations more responsive to their clientele. Topics include program evaluation, grants development, administrative law, and health and family policy.

The social work concentration is designed to prepare students for intervention in neighborhoods, communities, and social institutions. An international perspective is part of this concentration. It focuses both on developing more harmonious forms of organization and social norms, and on mobilizing the alienated and oppressed to obtain equity. Topics include international aid, foreign policy, social planning, women's roles, and organizational change.

Concentrators complete a minimum of 9 semester hours of practicum in their concentration. In addition, either the advanced research course or the final project must be related to their concentration.

Satellite Centers

In addition to offerings on the Iowa City campus, the school offers both class work and practicum learning in Des Moines, Sioux City, and Quad Cities satellite centers. Regular Schnell of Social Work faculty are available for student advising and teaching all required courses.

The centers have three major purposes: to enrich the educational programs of full-time students by providing greater diversity of practicum opportunities; to make pursuit of the graduate degree in social work geographically available to students; and to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on the master's student's needs, practicum can begin as early as the second semester. Some students remain in the Iowa City-Cedar Rapids area for the remainder of their programs, but most are assigned to the Des Moines orQuad Cities Centers. This generally involves the student's relocation.

The Des Moines Center, 115 miles from Iowa City, is the location of the state capitol. It is also the largest city in the state. Many of the department's opportunities are available in state department offices, child and family agencies, mental health programs, and a variety of other settings.

The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles from Iowa City. As part of the Quad Cities metropolitan area of 716,000 people, this center also provides a wealth of practicum opportunities unavailable in Iowa City. Regional and advocacy planning, agencies serving racial and ethnic minorities, and programs for the elderly are just a few examples. Students relocating in the Quad Cities also have the opportunity to commute to Iowa City for some classes and special events.

The Siouxland Center, located in Sioux City in the northeast corner of the state, provides opportunities for part-time, degree study and continuing education. It is different from the others in that a full program is unavailable there. Intensive, short-term, split session courses are offered on the Iowa City campus in the summer to facilitate students from other centers taking on-campus courses.

Part-Time Program

The School of Social Work has one of the largest part-time programs in the nation. Admission and degree requirements are the same as for full-time students but the program enables aging parents, working people, and others unable to pursue a degree on a full-time basis to complete the program. Part-time students complete the program in no more than two semesters with only two semesters of full-time registration (9 semester hours or more).

Students may complete the part-time program in Iowa City, or in the Quad Cities or Des Moines Centers. The Siouxland Center also provides opportunities for part-time study toward the master's degree, although students cannot complete the entire program there. They must complete at least 12 semester hours of course work on the main campus or at the Des Moines Center.

Joint Degree and Special Programs

The school has formal agreements with the University of Iowa City Department of Urban and Regional Planning for joint degrees. M.S.W. students must be accepted by each department through its regular admissions process. Twelve credits in
Graduate Admission

The criteria for admission to full-time and part-time study in the M.S.W. program are:

A bachelor’s degree from an accredited college or university, with a minimum of 18 semester hours in the social sciences and humanities; at least a 3.0 grade point average for the junior and senior years of undergraduate study; and seminars, summer or other periods of course work (exceptions noted below).

Three positive letters of reference, including at least one regarding academic abilities and one or more regarding social work experience.

A personal statement from the applicant about his or her interests and career objectives; and

Quality and quantity of previous experience in the human service, graduate school field experience, volunteer experience, and previous enriching life experiences (e.g., cross-cultural, biographical experience and background, minority status).

In addition, the school requires personal interviews with applicants for admission to part-time study, and it invites that foreign applicants score at least 600 on the Test of English as a Foreign Language (TOEFL).

It is the school’s policy to admit 10 to 25 percent of the M.S.W. class with grade-point averages below 3.0. Those who are admitted are required to complete the above criteria on the basis of the other criteria may be selected as admissible. Since the

school seeks to maintain a heterogeneous student body, it makes special efforts to admit students representing a diversity of racial, ethnic, and socioeconomic backgrounds. Students with developmental disabilities are also encouraged to apply. Admissions to full-time study are accepted beginning September 1 for the next academic year. Applications for part-time study may be made at any time.

A complete statement of graduate admissions policies is available upon request.

Continuing Education

Through the Saturday and Evening Class Program in Iowa City and the School of Social Work’s Des Moines, Cedar Rapids, and Sioux City centers, non-degree students may enroll for courses and workshops. Twelve credits of graduate course work may be applied to the master’s degree requirements for students who later enroll in the program.

Courses

Courses Primarily for Undergraduates

4320 Introduction to Social Work

Social welfare as a social institution; settings and environments of social work practice; profession of social work; Historical development of American welfare and social work movements; the role of the social worker; four-hour seminar in social work; Spring (or Fall, as scheduled by the program). 4 credits.

4321 Social and Governmental Systems

Behavioral characteristics of aging, aging policies and programs, and policy with the elderly client; understand contemporary social problems; the social system and its impact on society; dimensions, goals, concepts of traditional and contemporary programs, and public sector programs; 3 credits. 4 credits.

4371 Social Work Practice in Public Social Services

Types of services which exist in the public social service systems—human maintenance, family care, adoption, protective service; child, youth, family; 4 credits.

4322 Social Work for Health

An introduction to the school of medical social work practice, emphasizing the physical, psychological, and social dimensions of health; the work environment; health policies and programs; 3 credits.

4323 Social Work Practice I

An overview of the role of the social worker in a variety of settings, such as hospitals, community agencies, and mental health clinics; an introduction to the use of social work techniques; Spring (or Fall, as scheduled by the program). 4 credits.

4324 Social Work Practice II

An overview of the role of the social worker in a variety of settings, such as hospitals, community agencies, and mental health clinics; an introduction to the use of social work techniques; 3 credits.

4328 Group Practice

An introduction to group social work practice with a focus on group intervention techniques in agencies and communities; 3 credits.

4329 Field Experience Seminar

Designated to provide opportunity for sharing experiences from a variety of placements and to explore issues important in the placement of students in agency or institutional settings; 2 credits.

4330 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4331 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4332 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4333 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4334 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4335 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4336 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4337 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4338 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4339 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4340 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4341 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4342 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4343 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4344 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4345 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4346 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4347 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.

4348 Field Placement Seminar

An intensive seminar in the social worker’s role in the social work field; the role of the social worker in the social work field; 2 credits.
Social Work/LIBERAL ARTS

201

possibilities; exploration of values and assumptions underlying different paradigms for human help forms.

4312 Social Work Practice in Children's Issues 3 ah.
Social work practice in children's issues, with emphasis on problem-solving, specific issues related to children's needs, and to treatment approaches related to play therapy with children. Prerequisite: Junior standing.

4313 Issues in Criminal Justice and Corrections 3 ah.
Analysis of contemporary programs, organizational structures, and escalating problems in criminal justice. Includes social, legal, and political issues.Prerequisite: Consent of instructor.

4314 Prerogative of Social Work as Book 3 ah.
For continuation and for selection by the School of Social Work, for the degree it is essential to complete the contents of this book. Requirement is an introductory course in the fields of general social work.

4315 Participatory Social Work in Social Welfare 3 ah.
Special topics in the areas of human behavior, practice theory and social welfare policy; study of the intersections of social work, social change and policy through an existing course. Prerequisite: Consent of instructor.

4316 Social Welfare Research and Social Work 3 ah.
Applications of research skills to specific social work practice situations, public policy, and social welfare policy. Prerequisites: Junior standing and permission of instructor.

4317 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4318 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

4319 Social Work Practice in Children's Issues 3 ah.
Social work practice in children's issues, with emphasis on problem-solving, specific issues related to children's needs, and to treatment approaches related to play therapy with children. Prerequisite: Junior standing.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4321 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4322 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4323 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4324 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4325 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4326 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

4327 Social Work Practice in Children's Issues 3 ah.
Social work practice in children's issues, with emphasis on problem-solving, specific issues related to children's needs, and to treatment approaches related to play therapy with children. Prerequisite: Junior standing.

4328 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4329 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4331 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4332 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4333 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4334 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4336 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4337 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4338 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4339 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4341 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4342 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4343 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4344 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4346 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4347 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4348 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4349 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4351 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4352 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4353 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4354 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4356 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4357 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4358 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4359 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4361 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4362 Comparative Social Work 3 ah.
Comparative social work practice, including the practice of social work in different cultural contexts. Prerequisite: Junior standing.

4363 Social Welfare Policy 3 ah.
Social welfare policy, its development in historical and political context, and recent issues. Prerequisite: Junior standing.

4364 Social Planning and Administration of Social Welfare 3 ah.
Social planning and administration of social welfare programs. Prerequisites: Junior standing and permission of instructor.

Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.

4366 Social Development and Social Welfare 3 ah.
Examines major historical, social, political, and philosophical developments in social welfare and social change, with emphasis on the role of social welfare in society.
Sociology

Chair: David A. Parker
Faculty: professors Jeanne Kim, Edward J. Lowrie, Harold A. Parker, James L. Prin, Lyric N. Sherman, Richard K. Ungar

Associate professors: Carl J. Cozan, Mark D. Kozin, Charles H. Mueller, Phil C. Napp, Todd L. Parker, Verne Pope, John R. Stramb, Nancy W. Talcott

Instructors: Barbara A. Bailey, Yvonne A. Von der Mehden, Robert F. Stansel, David S. Wagner

Advisors: Harold A. Parker, Richard K. Ungar

Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not intended to be a specific career field, but completion of baccalaureate study in sociology may provide a desirable background for employment in several fields, such as social services, criminal justice, personnel, applied social research, community organizations, and social science teaching is secondary school.

The degree equips the student for study for advanced work in sociology which qualifies for graduate for college or university teaching and administers, private, or governmental research positions. The program also provides a good background for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and similar areas.

Undergraduate students majoring in sociology should plan their program in joint consultation with a social advisor and an advisor from the student’s intended career field.

An undergraduate student majoring in sociology may elect either a Bachelor of Arts or a Bachelor of Science degree program. Students interested in careers in the physical, biological or social sciences are advised to seek the Bachelor of Science degree.

Both programs require 26 semester hours of course work in sociology, including:

Sociology Teaching Major

To major in sociology and qualify for a teaching certificate, students must complete the following:

All departmental requirements for either a B.A. or a B.S. degree.

Two related fields of 12 semester hours each, taken from economics, geography, history, psychology, political science, and/or psychology.

The professional courses required for certification (23 semester hours).

Sociology courses taken to fulfill the general education requirement in social science requirements may also be counted toward the sociology teaching major. Other social science or history courses taken to satisfy general education requirements may not be counted toward the hours required in related fields.

Honors

Students who wish to graduate with honors in sociology must be admitted to the honors program, have a departmental advisor, and complete 34:160 The Development of Modern Social Theory and 34:199 Honors Research in their programs, and take an oral examination upon completion of their honors research.

Graduate Programs

The graduate programs in sociology are designed for doctoral candidates. Depending upon which the student chooses, the master’s programs prepare the student for doctoral studies or for professional positions applying sociology.

The doctoral program has a research component and requires an original research dissertation. Opportunities for research, teaching, survey, experimental, and observational methods, are available in the faculty.

Master of Arts

The M.A. degree in sociology requires 30 semester hours with thesis or 36 semester hours without thesis. The program without thesis is intended for persons who desire a terminal degree and for whom a wider range of course content in sociology is appropriate.

All candidates for the M.A. degree must complete 34:201 History of Sociological Theory and 34:214 Elementary Statistics and Data Analysis, and 34:215 Sampling.
Measurement, and Observation
Techniques, with grades of B or higher.

M.A. in Criminal Justice and
Corrections
This program is designed for individuals desiring to prepare for careers in the criminal justice system. It provides the student with training in the social and behavioral sciences, the administration of justice, counseling techniques, and administrative procedures. The program is administered by the Department of Sociology and has a strong sociological emphasis.

A limited number of students are admitted to the program each year, so a low-faculty-student ratio is maintained. Internships are available with local criminal justice agencies. This program requires a minimum of 45 semester hours and a research paper.

Joint Program in Sociology
and Law
A student may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. The College of Law will credit up to 12 hours of graduate work taken after entering the joint program toward the 90 hours required for the J.D., even though those hours are not credited forward as M.A. in sociology. At the discretion of the student's M.A. committee, the Department of Sociology may credit up to 12 hours of law course work toward the M.A. degree. This cross-credit allows a student to receive the J.D. and the M.A. by taking less credit hours. It is not necessary if the two degrees were pursued simultaneously or if the program is highly individualized and allows the student to explore various aspects of the relationship between law and sociology.

Doctor of Philosophy
The doctorate degree in sociology requires a minimum of 72 semester hours of graduate-level course work, including the post-M.A. courses 34:216, 34:217, 34:218, 34:219, 34:220, 34:221 Theory and Research Design. Candidates must also pass comprehensive examinations and write a dissertation. All doctoral candidates are examined in the basic tool areas of sociology—history, history of theory, methodology, and statistics. In addition, each is examined on one major and one minor area chosen from among the areas currently represented by the faculty, such as social interaction, social structure, social deviation, criminology, family, social stratification, criminology, theory, methods, and statistics.

A detailed statement of regulations for graduate study is available upon request. Prospective doctoral candidates should carefully examine this statement.

Graduate Admission
Admission to graduate study in sociology normally requires a minimum undergraduate grade-point average of 3.0 and a total score of 1,100 from the quantitative plus verbal sections of the Graduate Record Examination. In addition to fulfilling the Graduate College requirements, candidates must: (1) complete a departmental application statement and use its personal reference forms in obtaining three letters of recommendation; (2) be admitted to the Graduate College (see the "Graduate College" section of the Catalog), the applicant completes a departmental application statement and uses its personal reference forms in obtaining three letters of recommendation.

Admission decisions are based on a comprehensive consideration of prior academic performance, personal reference letters, scores on the Graduate Record Examination (GRE) Aptitude Test, and the applicant's statement of reasons for pursuing advanced work in sociology. The department has no specific undergraduate course requirements for admission, but a background in the social sciences with some mathematical training is useful. A foreign language is not required for admission and there are no foreign language requirements for either the M.A. or the Ph.D. degrees in sociology. Inquiries concerning admission should be directed to the chair, Admissions Committee, Department of Sociology.

Admission to the M.A. program in criminal justice and corrections requires a B.S. or B.A. degree, a grade-point average of 2.5 and a total score of 1000 from the quantitative plus verbal sections of the Graduate Record Examination (GRE) Aptitude Test. Application is currently limited to five admissions per year. A descriptive publication is available at the department office.

Graduate Financial Aid
The Department of Sociology offers three types of awards to graduate students: teaching assistantships, research assistantships, and teaching/research fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive assistantships work twenty hours each week for faculty members on either teaching or research assignments. The department also provides an "off-campus" scholarship to some students.

Facilities
The department maintains four interactive terminals for communicating with the University's mainframe computer (IBM 370-158 and five PRIME 750s) and with the University's Newfield-Packard 2000F educational computer. Also available for faculty and students are the facilities of the Department of Sociology Research Laboratory and the Iowa Urban Community Research Center (UICRC). The Research Laboratory consists of 17 rooms specially designed for social psychological research. The facilities include a small-group laboratory with audiovisual, videotape, and interactional process recording equipment; programming equipment; and a shop for constructing apparatus. The data archives house the results of numerous surveys available to faculty and students for teaching and research purposes. The UICRC maintains a research library, data bank, and laboratory. Surveys in the data bank are accessible for secondary analyses. (See the "Research Activities" section of the Catalog.)

Courses
For Undergraduates Only
Courses open to freshmen without prerequisites: 34:1, 34:2, 34:15, 34:40, 34:84, and 34:120. All other undergraduate courses are open to freshmen with prerequisites.

34:1 Introduction to Sociology: Midwest and Urban Conditions
Examination of how individuals are isolated into social groups, relating to the emphasis by sociologists to understand the process of social change. The emphasis is on the behavior, norms and institutions of individual, family, community, and social groups in the Midwest and urban area.

34:2 The Social and Cultural Background of American History
Examination of the impact of society on various selected aspects of interpersonal, structural, and institutional processes. Emphasis on the role of the sociologist or equivalent, as a member of society.

34:3 Sociology Labor Research and Methods
Logic and methods of social science research; major groups in testing social science theories; selecting reliable data, and interpreting results; problems in help students in critical evaluation of social science research.

34:5 Women in Society
Analysis of the impact of society on women. Selected aspects of interdisciplinary, structural, and institutional processes. Emphasis on the role of the sociologist or equivalent, as a member of society.

34:10 Sociology Research Laboratory
Facilities
The department maintains four interactive terminals for communicating with the University's mainframe computer (IBM 370-158 and five PRIME 750s) and with the University's Newfield-Packard 2000F educational computer. Also available for faculty and students are the facilities of the Department of Sociology Research Laboratory and the Iowa Urban Community Research Center (UICRC). The Research Laboratory consists of 17 rooms specially designed for social psychological research. The facilities include a small-group laboratory with audiovisual, videotape, and interactional process recording equipment; programming equipment; and a shop for constructing apparatus. The data archives house the results of numerous surveys available to faculty and students for teaching and research purposes. The UICRC maintains a research library, data bank, and laboratory. Surveys in the data bank are accessible for secondary analyses. (See the "Research Activities" section of the Catalog.)

Courses
For Undergraduates Only
Courses open to freshmen without prerequisites: 34:1, 34:2, 34:15, 34:40, 34:84, and 34:120. All other undergraduate courses are open to freshmen with prerequisites.

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Spanish and Portuguese

department chair: George De Medio

Professor: Ana-Carolina Cordero, Oscar Fernandez, Joseph Sorensen

professors Emeriti: Antonio da Cruz, E. R. Wrey emeritus professor George De Medio, Walter Dobbie, R. Thomas Doughty, Dennis Fabriando-Braz, Robin Frank, Oscar Hahn, Cotera, Jaime, Marlo Sanz, assistant professor Elena Rieke, Thomas E. Luce-

non-Mexican-American, (Spanish) and Portuguese, M.A. (Belmont), Ph.D. (Fordham)

The department provides coursework for undergraduate and graduate majors in Spanish or Portuguese, for the satisfaction of foreign language requirements for bachelor's and advanced degrees in other fields, and for the saturation of the second

Undergraduate Programs in Spanish

First-year and second-semester Spanish courses include the four major departments: English, Spanish, German, and the dual major Spanish and English. These courses are designed to provide a broad base of knowledge in each area. Students majoring in Spanish or Portuguese may pursue opportunities in both fields as business, transportation, industry, journalism, international broadcasting, and public relations. As well as teaching, research, library work, and translating.

Major in Spanish

The undergraduate major in Spanish consists of 30 semester hours of required coursework, according to the following program:

Language (12 s.h.)
- SP 101 First-Year Language I 4 s.h.
- SP 110 First-Year Language II 4 s.h.
- SP 117 Fourth-Year Language I 4 s.h.

Literature (9 s.h.)
- SP 101 Renaissance and Golden Age Literature 3 s.h.
- SP 102 Modern Spanish Literature 3 s.h.
- SP 103 Contemporary American Fiction 3 s.h.
- SP 104 Spanish American Poetry 3 s.h.
- SP 116 Spanish American Drama 3 s.h.
- SP 117 Spanish American Literature of Fantasy 3 s.h.
- SP 118 Survey of Pre-Twentieth Century Spanish American Literature 3 s.h.
- SP 121 Contemporary American Novel and Short Story 3 s.h.
- SP 112 Twentieth-Century Spanish Women Writers 3 s.h.
- SP 117 Nineteenth Century Spanish Women Writers 3 s.h.
- SP 118 Representative Spanish Writers, Since the Civil War 3 s.h.
- SP 151 Spanish Novellas, since the Civil War 3 s.h.
- SP 153 Spanish masterpieces, Modern Spanish Literature 3 s.h.
- SP 154 Representative Works of Gold Age Fiction 3 s.h.

Civilization (3 s.h.)
- SP 114 Spanish Civilization 3 s.h.

Electives (6 s.h.)
- Electives may be SP 100 Accelerated Portuguese or any course numbered 300 or above, except that no more than 3 semester hours may be elected in conversation courses—2 semester hours each of SP 108 Spanish Conversation, Junior Level and SP 135 Spanish Conversation, Senior Level—no more than 3 semester hours may be elected each semester. Work courses and the following courses may not be elected to this requirement:
- SP 125 Spanish Language Practicum 3 s.h.
- SP 130 Methods: Foreign Language 3 s.h.
- SP 131 Language Laboratory Equipment Procedures 3 s.h.
- SP 135 Spanish Language Practicum 3 s.h.
- SP 154 Accelerated Elementary Spanish 3 s.h.
- SP 155 Accelerated Intermediate Spanish

One course given in English may be taken to satisfy 3 semester hours of this requirement, provided additional readings are done in Spanish.

High School Certification

Spanish majors who wish high school certification must complete the required courses above for the major in Spanish. Several courses in the course of study above are also required, as one semester of practice teaching, taken in the senior year.

Minor

A minor in Spanish requires 16 semester hours of coursework in Spanish at the University of Illinois. University of Illinois students should contact the Department of Spanish and Portuguese, M.A. (Belmont), Ph.D. (Fordham) for information on the minor.

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35:109 Latin American Studies
Seminar
3-4 s.h.
35:173 Special Work
1-3 s.h.

Students who plan to use the Spanish minor in teaching on the secondary level or in a bilingual program are encouraged to complete language study through 36:127 Fourth-Year Language I or its equivalent, and to elect additional courses in Spanish phonology, and Hispanic literature and civilization.

Transfer Credit
A maximum of 12 semester hours of credit in approved courses may be transferred from other institutions toward the requirements for the major in Spanish.

Foreign Study Programs
The department has two foreign study programs, one in Mexico City and the other in Burgos, Spain, both of which are for eight weeks in the summer. A limited amount of credit earned in these and other foreign study programs may be applied toward the requirements for the major or minor in Spanish.

Honors
Admission to the honors program in Spanish requires a minimum 3.0 overall grade-point average and a minimum 3.2 average in Spanish. Graduation with honors in Spanish requires, in addition to the above, a 3.5 honors average in 36:127-128 Honors Literature and/or 36:129-124 Honors Spanish Language, an honors essay in Spanish, and an oral examination conducted in Spanish.

Undergraduate Programs in Portuguese

Major in Portuguese
Beginning courses in Portuguese are for students without prior language study in Portuguese. Classes are small, providing for a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking and comprehending basic Portuguese phrases and incorporate cultural material in the form of films and music.

The undergraduate major in Portuguese requires the following courses, or their equivalents, for a total of 24 semester hours of course work beyond the second-year level.

Language (8 s.h.)
36:117 Advanced Portuguese I 4 s.h.
36:118 Advanced Portuguese II 4 s.h.

Literature (6 s.h.)
36:105 Brazilian Literature I 3 s.h.
36:108 Brazilian Literature II 3 s.h.

Civilization (6 s.h.)
36:115 Brazil: People and Culture 3 s.h.
36:116 Modern Portugal 3 s.h.

Electives (4 s.h.)
36:102 Modern Brazilian Fiction I: Short Story 2 s.h.
36:104 Modern Brazilian Fiction II: Novel 2 s.h.
36:107 Introduction to Portuguese Literature 3 s.h.
36:108 Black Literature of Portuguese Expression 3 s.h.
36:109 Nineteenth-Century Brazilian Novel 3 s.h.
36:118 Tucanos in Portuguese Linguistics 3 s.h.

Minor in Portuguese
The undergraduate minor in Portuguese consists of 18 semester hours in Portuguese, including 12 semester hours of 100-level courses.

Offerings for Undergraduate Nonmajors
Undergraduate students in other disciplines may meet part of the Liberal Arts requirements in foreign civilization and culture and general education requirements with 36:6 Contempory Latin American Narrative, readings in English. The department offers several other literature and culture survey courses which are taught in English and are of general interest.

Latin American Studies Program
The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization, economy, art, and literature of Latin America, leading to a certificate in Latin American Studies.

Students receiving this certificate must have satisfied competency in Spanish or Portuguese to be able to background readings in the language before enrolling in the required winter seminar. For further information on the Latin American Studies Program see "Latin American Studies Program" in the Catalog.

Master of Arts in Spanish
Candidates for the M.A. degree must have completed the equivalent of the undergraduate Spanish major.

Deficiencies may be remedied with the appropriate course work.

Required Course Work
Spanish phonology (either 36:157 Spanish Phonology I or phonology component of 26:208)
36:208-209 Graduate Spanish
Linguistics I 8 s.h.
36:220 Cervantes's Don Quixote 3 s.h.
36:233 Seminar in Teaching 1 s.h.
36:251 Medieval Spanish Literature 3 s.h.
36:263 Historical Iberian-Romance Language I 2 s.h.
Course in Golden Age literature 3 s.h.
Course in Modern Spanish literature 3 s.h.
Courses in Spanish American literature 6 s.h.
Electives bringing student's total to the required minimum of 36 semester hours in the M.A. program

The student is also responsible for the works listed in the departmental reading list.

Maximum Study Loads
Maximum course registration is 15 graduate hours during the fall or spring semesters, and 8 graduate hours during the summer session. One-quarter and one-third time teaching assistants are permitted to register for the maximum study loads. One-half time teaching assistant may register for not more than 12 semester hours in the fall or spring semester, and for not more than 6 semester hours in the summer.

Additional hours may be taken only with Graduate College approval.

Transfer Credit
A maximum of 9 semester hours of graduate credit in approved courses may be transferred from other institutions toward the 36-semester-hour requirement for the M.A. degree.

Teaching Certification
Exclusion from the practice-teaching requirement, graduate students may take the prerequisites to secondary teaching certification while completing M.A. requirements in the department.

Examinations
Three written examinations and one oral examination are given. For the written examinations, the student must include at least one topic each from two of these three areas (both Spanish and Hispanic-American literature must be represented): I. Spanish linguistics; II. Medieval, Renaissance or Golden Age literature; and, III. Modern Spanish literature, Hispanic Studies, Latin American literature or Iberian-Brazilian literature.

Spanish and Portuguese/LIBERAL ARTS

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Doctor of Philosophy in Spanish

Two doctoral programs are available.

One is dedicated to Hispanic literatures. Before admission to this program, an examination the candidate must become well acquainted with another Romance language and literature (a Portuguese-Brazilian program is separately recommended); complete the equivalent of a year of college Latin, and demonstrate a reading knowledge of another approved foreign language.

Qualifying examinations, to be taken during the second semester of residence by all students whose work at other institutions, consist of a two-hour written examination covering two to four literary works, or one major literary work and a research paper prepared at The University of Iowa.

The second doctoral program provides for specialization in Spanish linguistics and literature with emphasis on linguistics. Before his or her comprehensive examination, the candidate must complete a course in linguistics and the equivalent of three semesters of college Latin, and demonstrate a graduate-level knowledge of a second approved foreign language and a reading knowledge of a third approved foreign language.

In both programs, course work and the dissertation are designed to give the candidate a thorough knowledge of the Spanish language, its literature, and related civilization, from medieval to modern times; provide adequate exposure to the Romance languages; and develop the candidate's capacity for critical analysis of literary texts.

The following fields together with the departmental doctoral reading list are considered a basic minimal program for the doctoral degree. The requirement may be fulfilled by acceptable studies at another institution except that seminar requirements must be satisfied at The University of Iowa. The following are the requirements at The University of Iowa indicated in parenthesis. The requirement may also be met by Independent reading and examination. The candidate is encouraged to pursue further studies in these and other areas, in line with his or her particular interests and in order to improve employment opportunities.

Program I: Emphasis on Literature

History of the Spanish Language and Medieval Literature

35:205 Medieval Spanish Literature I 3 s.h.

One additional course in Medieval Spanish Literature 3 s.h.

35:263 Historical Ibero-Romance Languages I 3 s.h.

One additional course in Spanish or Romance linguistics 2 s.h.

Golden Age Literature

35:229 Drama of the Spanish Age 3 s.h.

35:229 Cervantes' Don Quixote 3 s.h.

One of the following:

35:227 Fiction of the Golden Age 3 s.h.

35:229 Lyric Poetry of the Golden Age 3 s.h.

35:262 The PicarosNovel 3 s.h.

Modern Peninsular Literature

Three of the following (at least one must be selected in each of the two centuries; a seminar may be substituted for one of the courses, provided the two-century stipulation is met):

35:220 Nineteenth-Century Spanish Novel 3 s.h.

35:229 Nineteenth-Century Spanish Poetry and Drama 3 s.h.

35:223 Twentieth-Century Spanish Poetry 3 s.h.

35:244 Twentieth-Century Spanish Novel I 3 s.h.

35:236 Twentieth-Century Spanish Novel II 3 s.h.

35:241 Twentieth-Century Spanish Drama 3 s.h.

Latin American Literature

Four courses (12 semester hours) selected from a minimum of three of the following areas:

Area A

35:264 Novel of the Mexican Revolution 3 s.h.

35:271-273 Spanish-American Novel of the Twentieth Century I 3 s.h.

Area B

35:220 Spanish American Essayists and Thinkers 3 s.h.

35:242 Spanish American Literature of the Nineteenth Century 3 s.h.

35:206 Images of Women in Latin American Literature 3 s.h.

Area C

35:230 20th-Century Latin-American Poetry 3 s.h.

35:244 Spanish-American Poetry of the Twentieth Century 3 s.h.

35:257 Modernism 3 s.h.

35:275 Latest Currents in Spanish American Poetry 1950-Present 3 s.h.

Area D

35:261 Latin American Drama 3 s.h.

35:245 Spanish American Short Story 3 s.h.

35:264 Spanish American Short Story of the Century 3 s.h.

Area E

Course in Brazilian literature 3 s.h.

Contemporary Linguistics

35:208-300 Graduate Spanish Linguistics I 6 s.h.

35:167 Spanish Phonology I or Phonology course of 35:208

Literary Theory

35:244 Types of Modern Criticism 3 s.h.

Professional Training

35:211 Research Methods and Bibliography 2 s.h.

35:233 Seminar in Teaching 1 s.h.

Seminars

Two 300-level seminars in literature 4 s.h.

Specialization

Students in program I desiring to specialize in Medieval literature, Golden Age literature, Modern Spanish literature, Latin-American literature, or another approved area may be allowed to substitute courses in that area for one non-required course in each of the other areas. However, it is strongly recommended that whenever possible these courses be taken in addition to those in the usual program, as initial employment opportunities are enhanced by writing preparation in several areas.

Program II: Emphasis on Linguistics

History of the Spanish Language and Medieval Literature

35:251 Medieval Spanish Literature I 3 s.h.

One additional course in Medieval Spanish Literature 2 s.h.

35:263 Historical Ibero-Romance Language I 3 s.h.

One additional course in Spanish or Romance linguistics, excluding courses listed below 3 s.h.

Comparative Linguistics

35:260 Comparative Romance Linguistics 3 s.h.

Golden Age Literature

35:229 Drama of the Golden Age 3 s.h.

35:229 Cervantes' Don Quixote 3 s.h.
Modern Peninsular Literature
One of the following:
35:205 Nineteenth-Century Spanish Novel
3 s.h.
35:221 Nineteenth-Century Spanish Poetry and Drama
3 s.h.
One of the following:
35:223 Twentieth-Century Spanish Poetry
3 s.h.
35:224 Twentieth-Century Spanish Novel
3 s.h.
35:234 Twentieth-Century Spanish Essay
3 s.h.
35:241 Twentieth-Century Spanish Drama
3 s.h.
Latin American Literature
Three courses from at least two of the Latin American literature areas listed in Program I
3 s.h.
Contemporary Linguistics
35:197 Spanish Phonology I
3 s.h.
or
Phonology component of 35:206
Graduate-level phonology/phonetics
2 s.h.
35:200-202 Graduate Spanish Linguistics I and II
8 s.h.
Additional graduate linguistics (excluding seminars below)
2 s.h.
Literary Theory
35:284 Types of Mind
3 s.h.
Professional Training
35:211 Research Methods and Bibliography
2 s.h.
35:233 Seminar in Teaching
1 s.h.
Seminars
Two 300-level seminars in language
4 s.h.
Ph.D. Comprehensive Examinations
The doctoral comprehensive examinations assume a general knowledge of Spanish peninsular and Spanish American literatures and cover five broad fields, such as a literary genre or a historical literary period, chosen by the candidate so as to include at least two Peninsular and two Hispanic American Areas.
Candidates following the program with emphasis on linguistics take comprehensive examinations primarily, if not entirely, in linguistic areas, as determined by the candidate, with approval of the departmental faculty.
The length of time during which the different examinations are taken is determined by the candidate. They may be taken during the course of a semester or limited to a shorter period.
One four-hour and four three-hour written examinations are administered, followed by a two and a half hour oral examination covering the candidate's main field of study (45 minutes), the remaining fields (300 minutes total), and the Ph.D. reading list (45 minutes).
Financial Aid
Teaching and research assistantships are available to qualified graduate students. Normally, two years of such support are available for the completion of a master's degree, and three years beyond the receipt of the M.A. for the Ph.D. As long as a graduate student's assistantship performance meets departmental standards, he or she will continue to receive support over a reasonable period of time, but usually not over five years. A student wishing financial support should apply directly to the departmental office.
All graduate students pursuing an advanced degree in the Department of Spanish and Portuguese are required to attend at least one academic year as a teaching or research assistant in the department.
Facilities
The language laboratory provides facilities for language learning, teaching, and research. These include standard and shortwave radio, tape recorders, record players, soundproof recording rooms, two drill rooms with 80 dual-channel tape recorders providing a simultaneous record of two duplicates and student record, an electronic classroom, a soundproof work room, 16mm and 8mm projection equipment and facilities, and a library of tape and disc recordings. The department offers to its majors and graduate students in language laboratory procedures.
The Imitation sponsors a 30-minute Spanish-Spanish-speaking program, "Suenos en Espaiol, o Pufu/Pufu" ("Happenings in Spanish and English") broadcast weekly over University radio station WGU.
Spanish Courses
Primary for Undergraduates
An undergraduate student who has had less than two years of high school study in Spanish will be placed in a first- or second-semester class. A student with two or more years of high school Spanish will be placed in a third- or fourth-semester class. Prospective and entering students should consult a departmental advisor. Students wishing more advanced placement may take the placement test. Transfer students who have taken comprehensive examinations and their equivalences will be placed according to courses previously completed.
A student may not, except with the approval of the chair, take for credit an elementary course after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.
35:000 Cooperation Internships 6 s.h.
35:116 Elementary Spanish I 4 s.h.
35:117 Elementary Spanish II 4 s.h.
Prerequisite: 35:116 or equivalent.
35:138 Elementary Spanish III 4 s.h.
Prerequisite: 35:117 or equivalent.
A complete introductory course satisfies requirements for majoring or minoring one year of college-level foreign language.
35:238 Introduction to Hispanic Literature I 4 s.h.
Designed to introduce the broad diversity of Hispanic literature in the Americas, with attention to discussions of Hispanic cultural influence in Africa and Asia. Readings focus on geography, social and political history, politics and literature. Same as 35:60.
35:239 Introduction to Hispanic Literature II 4 s.h.
Designed to introduce the broad diversity of Hispanic literature in the Americas, with attention to discussions of Hispanic cultural influence in Africa and Asia. Readings focus on geography, social and political history, politics and literature. Same as 35:60.
35:328 Spanish for Transfers I 3 s.h.
Basic conversational Spanish designed to satisfy the language requirement for Spanish-speaking students. Does not satisfy the University of time language requirements. Offered only for Elementary and Developing Class Program.
35:404 Contemporary Latin American Literatures
Primary focus on themes and narrative techniques in the major texts of the decades: 1945-75, an overview of cultural and political aspects. Does in English: readings in English, fulfillment of humanities and foreign language and cultural general education requirements.
35:417 Spanish 6 s.h.
Continuation of 35:6. Same as 35:67.
35:438 Spanish for Health Professionals 3 s.h.
Intensive conversation course designed to equip students with basic vocabulary and when necessary, with more advanced vocabulary, depending on the student's professional field. Students will gain oral proficiency in Spanish. In addition, students become familiarized with some common aspects of the Hispanic persons. May be taken in place of other Spanish course for specific requirements.
35:438 Spanish for Health Professionals I 3 s.h.
Designed to enhance knowledge of reading, writing, and speaking Spanish.. In general, specific emphasis on interpreting names and numbers and reading, writing, and understanding of dates, appointments and deciphering of formal and informal requirements and paperwork.
35:452 Advanced Elementary Spanish 3 s.h.
Prerequisite: 35:238 or equivalent.
35:456 Elementary Spanish I 3 s.h.
Designed for the non-major student in a native environment; emphasis on developing and improving skills in speech, writing, and listening. Students are introduced to grammatical notions and terminology will facilitate students' understanding of systems of standard and regional varieties of Spanish.
35:465 Intermediate Spanish I 3 s.h.
Prerequisite: 35:238 or equivalent.
35:466 Intermediate Spanish II 3 s.h.
Prerequisite: 35:465 or equivalent.
35:468 Advanced Intermediate Spanish 4 s.h.
A comprehensive second-year course, prepared in one semester. Students desiring credit for both 35:467 and 35:468 to satisfy various language requirements.
35:505 Study Abroad in Spain 3 s.h.
Discussions in Spanish in daily situations; review of basic syntax and phrases. May be repeated.
Prerequisite: 35:465 or equivalent.
35:565 Spanish for Second Language Speakers 3 s.h.
Emphasis on audiolingual methods of teaching and on in-depth reading and writing skills, independent reading assignments. Combination of 35:465-35:600.
35:593 Spanish Language Practice 2 s.h.
Emphasis on accuracy in pronunciation: designed to increase language ability in non-classroom situations; practice in speaking, reading, writing, and awe, with emphasis on listening and comprehension. Offered selectively fall only.
35:600 Spanish for Second Language Speakers 3 s.h.
A beginning course for graduate students in areas requiring a reading knowledge of Spanish, and
Speech Pathology and Audiology

Department chair: John W. Davis
Faculty professors: James C. Harris, Thomas C. Harris, James C. Harris, David C. C. Kwon, Karen D. Coren, and Deke Williams
Assistant professor Emeritus: James F. Curtis, Dorothy H. Shaw
Associate professors: Paul J. Abbe, Charles V. Anderson, John W. Fink, David B. Hulse, Richard A. Harris, Mary P. Thiel, John A. Zemel, and Daniel E. Jones
Assistant professor Emeritus: James E. S. Davis, S. B. S., B.A., M.A., Ph.D.

The courses and degree programs of the Department of Speech Pathology and Audiology are planned to meet the needs of students seeking to prepare themselves for career opportunities such as clinical service, college and university teaching, and research concerned with speech, language, or hearing processes and disorders. The offerings also include courses for students with vocational and professional goals in other fields, such as psychology, education, speech and dramatic arts, dentistry, and medicine, whose preparation may be enriched by the study of speech and hearing processes and their disorders.

Holders of advanced degrees in this field provide clinical services for people with speech, hearing, or language problems in hospitals, community clinics, rehabilitation facilities, and elementary and secondary schools; teach in colleges and universities; and/or conduct research in laboratories concerned with communication processes and disorders.

All professional programs leading to the M.A. degree are accredited by the Education and Training Board of the American Speech-Language-Hearing Association.

Undergraduate Programs

Since the master's degree or its equivalent is the minimum level of preparation for persons seeking professional careers in this field, the undergraduate courses leading to B.S. or B.A. degrees in speech and hearing science do not qualify an individual to work professionally in this field but have as a primary purpose the preparation of students for graduate work. Hence, the undergraduate programs emphasize the normal processes of speech, hearing, and language. These undergraduate programs may also be taken by persons who want a degree in the College of Liberal Arts but who do not desire a career in this field.

The major requirements for the B.S. or B.A. degree in speech and hearing science are as follows:

1. Introduction to Speech and Hearing Processes and Disorders
2. Introduction to Articulatory and Acoustic Phonetics
3. Introduction to Anatomy and Hearing Mechanisms
4. Fundamentals of Speech Science
5. Introduction to Hearing Science
6. Psychology of Language I
7. Psychology of Language II
8. Physics of Speech and Music
9. Introduction to Statistical Methods
10. Elementary Psychology
11. General Psychology
12. Child Psychology

One of the following. Courses marked with * are preferred.

* 13. Introduction to Child Psychology
14. Development of Children's Social Behavior
15. Learning and Motivation in Children
16. Development of Social Judgment
* 17. Cognitive Development of Children
18. Individual Differences in Developmental Psychology
19. 10. Growth and Development of the Young Child
* 20. Child Development

Psychology of Personality

One of the following:

13. Introduction to Clinical Psychology
14. Personality
15. Psychology of Sex Differences
16. Abnormal Psychology
17. Behavior Disorders in Children
18. Behavior Modification

One additional course in psychology, anthropology, or sociology

Students majoring in speech and hearing science must also complete or have the equivalent of college algebra and trigonometry, college physics dealing with light and sound, and a college course in the biological sciences.

Honors

The senior-year program leading to the B.A. or B.S. degree with honors in speech pathology and audiology is open to students who at the beginning of the senior year have completed at least ten semester hours of coursework that can
be counted toward a major in the department, and have earned at least a 3.2 grade-point average on all major courses and all work at the University. For graduation with honors, the student must complete two semesters of full-time study in residence after entering the senior-year honors program; maintain a minimum grade-point average of 3.0 overall in all courses and in the required 8 semester hours of designated honors courses; and be recommended for graduation with honors by the honors thesis advisor and the departmental honors advisor.

At any time during undergraduate study, students who have earned a minimum grade-point average of 3.0 and have not entered the University as honors students may apply for honors classification in the College of Liberal Arts and in this department by recommendation of the departmental honors advisor.

Graduate Programs

Master of Arts

The M.A. program in speech pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program planned for the students who desire to complete additional study for the Ph.D. degree. The programs for the professional M.A. are specified to ensure that upon graduation the student will have met the requirements for immediate professional employment; the general M.A. program allows greater flexibility in individual program plans.

The M.A. candidate usually has a background of undergraduate courses in speech, hearing, speech science, acoustics, auditory science, language, and human behavior; essentially equivalent to an undergraduate major in this field at the University of.

Before the first year in registration in the program, the entering M.A. degree candidate must take proficiency examinations covering the speech and hearing coursework considered prerequisite to the graduate study. The results of these examinations provide the student and faculty advisor with a basis for developing a plan of study.

Professional Program

The professional M.A. program is designed to prepare clinicians in speech-language pathology and audiology. The program will provide a professional function independently in a variety of clinical settings. The professional M.A. program meets the academic requirements for certification by the American Speech-Language-Hearing Association.

The department offers the professional M.A. with various emphases. Each requires a minimum of 36 semester hours of graduate credit for a master's degree in this department. Candidates for the professional M.A. degree are not required to present a thesis, but students demonstrating research aptitude and interest are encouraged to do so. All candidates preparing for the professional M.A. degree without thesis are required to take final written comprehensive examinations.

Requirements for the professional M.A. degree include the following:

A. All Majors

1. 3:18 Neuronal Processes of Speech and Language

2. 3:12 Articulation Disorders

3. 3:12 Hearing Loss and Audiology

4. 3:12 Developmental Language Disorders

5. 3:24 Rehabilitative Audiology

6. FC 199 Counseling for Related Professionals

7. 3:100 Psychological Issues and Counseling Techniques for the Communication Disorders Professional

8. 3:100 Seminar: Introduction to Research in Speech and Hearing

9. Advanced seminars or research electives

Additional semester hours of practicum registration sufficient to meet supervised, direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association, and to provide broad supervised practicum experience.

Any equivalent undergraduate course will be accepted as meeting requirements.

B. Speech-Language Pathology, General Clinical Emphasis

Courses listed under A and:

3:182 Stuttering

3:212 Voice Disorders

3:235 Neurophonetics of Speech and Language

3:237 Cleft Palate

Practicum, research, and elective courses to bring total to at least 36 semester hours.

C. Speech-Language Pathology, Emphasis on Clinical Work in Elementary and Secondary Schools

Courses listed under A and:

3:104 Remedial Methods in Speech and Hearing

3:192 Laboratory Practice in Elementary School

Practicum, research, and elective courses to bring total to at least 36 semester hours.

D. Audiology, General Clinical Emphasis

Courses listed under A, and:

3:120 Fundamentals or Instrumentation

3:2401 Hearing and Communication

3:2402 Clinical Audiology and Hearing

3:241 Advanced Audiology

3:242 Clinical Audiology and Hearing Aids

3:245 Audiological Procedures for Special Populations

Practicum, research, and elective courses to bring total to at least 36 semester hours.

E. Audiology, School Hearing Clinician

Courses listed under A and D, and:

7E:104 Remedial Methods in Speech and Hearing

7E:192 Laboratory Practice in Elementary School

Practicum, research, and elective courses to bring total to at least 36 semester hours.

Requirements for Employment

A number of states, including Iowa, require a state license in speech-language pathology or audiology for individuals who work in locations other than the public schools. Students who meet the requirements listed above for the M.A. degree also meet the academic requirements for the license in Iowa, as well as in most other states.

Students preparing for clinical positions in public schools must meet the certification requirements of the states in which they plan to work. Completion of the following courses, in addition to those listed under C or G above, will meet the certification requirements of Iowa and most other states:

7E:120 Exceptional Persons

7E:170 Human Relations for the Speech-Language Pathologist

7E:104 Remedial Methods in Speech and Hearing

7E:192 Laboratory Practice in Elementary School

Education electives

11 hours

General Program

This general M.A. program is for the student intending to continue in the Ph.D. program in the professional M.A. program. Additionally, students in the general M.A. program are required to present a thesis and successfully complete a final oral examination.

Doctor of Philosophy

The Ph.D. program provides comprehensive training for the scholar and researcher in speech and hearing processes and their disorders, and offers intensive specialization in
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particular clinical problems in which the student may have special interest. The Ph.D. program is usually planned with specialization in speech-language pathology, audiology, speech science, psychology of language, or hearing science. Within each area the candidate and advisor may provide for further concentration through suitable selection of advanced seminars and research areas. Most students will find that their special interests lie in one or more of the listed areas. The department encourages candidates with special interests and goals to develop individualized programs in consultation with their advisor and the faculty, provided they clearly define their purposes and present adequate plans to study.

In addition to the M.A. courses listed above, or their equivalents, the following courses are recommended for the Ph.D. in speech pathology or audiology:

A. All Candidates

3:120 Fundamentals of Laboratory Instrumentation 3 s.h.
3:218 Language Acquisition 3 s.h.
3:218 Experimental Psycholinguistics 3 s.h.
3:220 Advanced Laboratory Instrumentation 3 s.h.
3:250 Acoustics and Biomechanics of Speech 5 s.h.
3:840 Research Speech Pathology or Audiology 3 s.h.
3:591 Research Audiology or Audiology 3 s.h.
3:992 Research Experimental Phonetics 3 s.h.
Statistics beyond introductory course Courses in computer science Courses in psychology (psychophysical, learning, motivation, personality)

B. Speech-Language Pathology

Seminar in areas of interest Clinical practicum

C. Audiology

3:254 Psychoacoustics 3 s.h.
3:256 Psychoacoustics Laboratory 4 s.h.
3:256 Physiology of Hearing 4 s.h.
Seminar in areas of interest Clinical practicum

D. Speech and Language Sciences

3:254 Psychoacoustics 3 s.h.
3:255 Psychoacoustics Laboratory 4 s.h.
Seminar in areas of interest Courses in linguistics and psycholinguistics Courses in Biological and Physical Sciences and Mathematics

E. Hearing Science

3:254 Psychoacoustics 3 s.h.
3:256 Psychoacoustics Laboratory 4 s.h.
3:256 Physiology of Hearing 4 s.h.
3:224 Sensory Processes in Speech and Language 4 s.h.
Seminar in areas of interest Courses in biological and physical sciences and mathematics

Students following programs in speech and language science or hearing science are normally expected to register for research credit during each semester of residence. Courses recommended for the Ph.D. beyond those included in the departmental seminar series, are drawn mainly from the areas of physics, engineering, mathematics, statistics, psychology, neurology, anatomy, and physiology.

Doctoral students who have not written a master’s thesis must complete the equivalent of a master’s thesis project before taking the comprehensive examination for the doctorate. All doctoral candidates must pass the comprehensive examination preferably before the end of the first year of full-time study in the Ph.D. program, and must successfully complete and submit a dissertation based on original research.

Admission and Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments which supplement those specified by the Graduate College. A brief summary of these requirements is presented below. For more detailed information, contact the department chair.

Application Form
All applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the departmental informational form, which can be obtained from the department chair.

Admission to M.A. Program
The department bases M.A. admission on the applicant's credentials relative to those presented by other applicants for the same year. An undergraduate grade-point average above 3.0 does not ensure admission. The department admits few applicants with an undergraduate grade-point average below 3.0.

Completed applications must be received no later than February 1 for enrollment in the next summer semester or fall semester. Later applications will be considered only in special circumstances. Applications to begin study in the spring semester will be considered only under special circumstances and only if they are received no later than the pre-admitting November 1.

Applicants to Ph.D. Program
Completed applications should be received at least two months prior to the beginning of the term for which application is made: approximately April 1 for summer session, July 1 for fall semester, November 1 for spring semester. However, if an applicant wishes to be considered for graduate appointment, the application admission must be filed by the deadline for appointment applications specified below. Applicants will be notified of action on their admission within six weeks after their applications are complete.

Applications for Graduate Appointment

The following information applies to all financial appointments administered by the department:

Graduate appointment usually begins only in fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester. Scores on the Graduate Record Examination (GRE) Aptitude Test are required for consideration for financial assistance.

Appointment applications must be received by February 1 to insure consideration for appointment beginning the following fall semester. Initial appointment offers are generally mailed by April 1: however, the department continues to make offers after this time.

Clinical Facilities

The clinical training programs are granted by agreement from the University of Iowa and the University of Iowa. The University of Iowa, located in the community of Iowa City, is the health care center of the state, and that service is readily available for the clinical training programs in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include The University of Iowa Speech and Hearing Clinic; the division of speech and hearing in the Department of Otolaryngology and Maxillofacial Surgery; Speech and Hearing Services, University Hospital School of Speech and Hearing Services; Pediatrics Specialized Child Health Services; Speech-Language Pathology Service; Child Psychiatry; Audiology and Speech Pathology, Veterans Administration Hospital. Directors of these programs form the Council on Speech and Language Pathology and Audiology at the University of Iowa.

The University of Iowa Speech and Hearing Clinics serve the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech-hearing, and language problems, and a six-week summer residential program for
Research Facilities

Facilities are the Wolsey Johnson Speech and Hearing Center include audiological testing suites, diagnostic and therapy suites, modern equipment for diagnosis and therapy, a closed-circuit television system, and laboratories for acoustic, phonetic, and perceptual studies of speech. These facilities are designed to serve the needs of the clinical research program. For detailed information, please contact the department's administrative assistant.

Courses

315 Introduction to Speech and Hearing Processes and Disorders (3)
Seminars, laboratory, and auditory behavior as a basis for scientific study, description of types of speech, hearing, and language disorders.

327 Hearing losses
Hearing losses, hearing aids, principles of audiology, and audiological research.

332 Hearing Test
Techniques for hearing tests and procedures for hearing research.

315 Psychological issues in Counseling Techniques for the Communication Disorders Profession (3)
Psychological issues associated with counseling clients with hearing and speech disorders. Focus on counseling basic counseling techniques. 310 Introduction to Measurement and Research in Speech, Language, and Hearing (3)
Introduction to the research process, including the formulation of research questions, design of experiments, and statistical analysis of data. Emphasis on experimental design and data analysis.

315 Psychoacoustics (3)
Introduction to psychoacoustics, including the perception of sound, loudness, pitch, and frequency. 315 Speech and Language Processes and Products (3)
Speech and language development, including phonology, morphology, syntax, and language disorders.

315 Language and Communication Disorders (3)
Assessment and treatment of language and communication disorders, including articulation, phonology, and pragmatics.

315 Hearing, Speech, and Communication Disorders (3)
Hearing, speech, and communication disorders, including hearing loss, speech disorders, and communication disorders.

315 Speech and Language Development (3)
Speech and language development, including phonology, morphology, syntax, and language disorders.

315 Language Assessment (3)
Assessment of speech and language disorders, including articulation, phonology, and pragmatics.

315 Hearing Disorders (3)
Hearing disorders, including hearing loss, tinnitus, and other auditory impairments.

315 Reading and Language Disorders (3)
Reading and language disorders, including dyslexia, learning disabilities, and language disorders.

315 Clinical Psychology (3)
Clinical psychology, including assessment, diagnosis, and treatment of psychological disorders.

315 Educational Psychology (3)
Educational psychology, including learning theories, motivation, and personality development.

315 Child Psychology (3)
Child psychology, including development, learning, and personality development.

315 Human Development (3)
Human development, including physical, cognitive, and social development.

315 Developmental Psychology (3)
Developmental psychology, including growth and development across the lifespan.

315 Social Psychology (3)
Social psychology, including social cognition, social influence, and social behavior.

315 Personality and Social Psychology (3)
Personality and social psychology, including personality traits, social interaction, and social influence.

315 Cognitive Psychology (3)
Cognitive psychology, including perception, learning, and memory.

315 Language Acquisition (3)
Language acquisition, including the development of language in children.

315 Language Disorders (3)
Assessment and treatment of language disorders, including articulation, phonology, and pragmatics.

315 Communication Disorders (3)
Communication disorders, including hearing loss, speech disorders, and communication disorders.

315 Hearing and Speech Disorders (3)
Hearing and speech disorders, including hearing loss, speech disorders, and communication disorders.

315 Speech and Language Disorders (3)
Speech and language disorders, including articulation, phonology, and pragmatics.

315 Hearing, Speech, and Language Disorders (3)
Hearing, speech, and language disorders, including articulation, phonology, and pragmatics.

315 Psychopathology (3)
Psychopathology, including assessment, diagnosis, and treatment of psychological disorders.

315 Clinical Psychology (3)
Clinical psychology, including assessment, diagnosis, and treatment of psychological disorders.

315 Educational Psychology (3)
Educational psychology, including learning theories, motivation, and personality development.

315 Developmental Psychology (3)
Developmental psychology, including growth and development across the lifespan.

315 Social Psychology (3)
Social psychology, including social cognition, social influence, and social behavior.

315 Personality and Social Psychology (3)
Personality and social psychology, including personality traits, social interaction, and social influence.

315 Cognitive Psychology (3)
Cognitive psychology, including perception, learning, and memory.

315 Language Acquisition (3)
Language acquisition, including the development of language in children.

315 Language Disorders (3)
Assessment and treatment of language disorders, including articulation, phonology, and pragmatics.

315 Communication Disorders (3)
Communication disorders, including hearing loss, speech disorders, and communication disorders.

315 Hearing and Speech Disorders (3)
Hearing and speech disorders, including hearing loss, speech disorders, and communication disorders.

315 Speech and Language Disorders (3)
Speech and language disorders, including articulation, phonology, and pragmatics.

315 Hearing, Speech, and Language Disorders (3)
Hearing, speech, and language disorders, including articulation, phonology, and pragmatics.

315 Psychopathology (3)
Psychopathology, including assessment, diagnosis, and treatment of psychological disorders.

315 Clinical Psychology (3)
Clinical psychology, including assessment, diagnosis, and treatment of psychological disorders.

315 Educational Psychology (3)
Educational psychology, including learning theories, motivation, and personality development.

315 Developmental Psychology (3)
Developmental psychology, including growth and development across the lifespan.
Curriculum Structure

The planning curriculum comprises a 48-semester-hour, four-semester (plus internship) program, comprising two academic years. The curriculum is built on the premise that planners must develop the theoretical and analytical skills that will enable them to identify issues and recommend alternative courses of action. The plan is designed to fully involve students in professional planning courses and seminars. The plan also provides an introduction to the theories and practices of planning. The plan is designed to develop critical judgment and insight in the application of theory through case studies and extended field problems. Students may request a waiver of any core course on the basis of previous training and experience.

The Job Market

The second year of the program is directed toward the development of an area of concentration, the sectoral major. Its purpose is to apply the concepts presented in the core to specific issues. The student fulfills the sectoral major requirement by completing nine semester hours of credit in courses offered by various departments and schools of the University, including the planning program.

Currently, there are eight sectoral majors: land use, transportation, housing, health, environmental quality, urban services, regional development, and urban management, and others can be designed by the student, subject to faculty approval.

All majors are organized around public policy problems, rather than emphasizing skills such as quantitative methods, public finance, or community organization. These skills, while important, are taught to all students as part of the core curriculum. As interest dictates, additional skill development is possible by selecting the appropriate elective courses.

The balance between core courses, a sectoral major, and elective courses provides the opportunity to acquire a rigorous and consistent foundation for policy planning, specialized knowledge to enhance entry-level employment prospects, and exposure to other specialties within the planning field.

Other Requirements

A core examination is required for all students. The exam reviews skills and concepts with emphasis placed on the ability to synthesize material from the various core courses. A sectoral major examination is also required. A variety of options for meeting this requirement exist, including a major paper, several shorter papers, or a written examination. The latter may be written to meet specific course requirements. A thesis is not required, although a student may petition to write one for up to six semester hours or sectoral major credit, in which case successful completion of the thesis satisfies the sectoral major examination requirement.

Each student is encouraged to complete an internship in a planning or related agency or organization and to submit a brief summary of the experience. The program faculty takes an active role in aiding students to secure these internships. Alternatively, the student may elect to complete an additional semester's worth of credit, bringing the total to 60 hours.

Joint Programs

Law and Planning

The Urban and Regional Planning Program and the College of Law cooperate in admitting qualified students to the joint program, which satisfies the degree requirements in both the M.A. in Planning and a J.D. law degree. This is a reduction of one academic year from the total requirements of the two programs taken separately. Separate admissions to both academic units are required.

Preventive Medicine and Environmental Health

A joint master's degree exists between the Urban and Regional Planning Program and the Department of Preventive Medicine and Environmental Health in the College of Medicine. This option results in either an M.A. or M.S. in planning and an M.S. in Preventive Medicine and Environmental Health. Separate admissions to both academic units are required.
Hospital and Health Administration

The Urban and Regional Planning Program and the School of Social Work, leading to an M.A. in planning and an M.S.W. in social work. This joint program prepares students to address the planning and policy issues involved in social service delivery. Twelve semester hours of credit in planning are accepted toward an M.S.W., and 12 semester hours of credit in social work are accepted toward an M.A. in planning. Separate admissions to both academic units are required.

Social Work

A concurrent studies program is offered between the Urban and Regional Planning Program and the School of Social Work, leading to an M.A. in planning and an M.S.W. in social work. This joint program prepares students to address the planning and policy issues involved in social service delivery. Twelve semester hours of credit in planning are accepted toward an M.S.W., and 12 semester hours of credit in social work are accepted toward an M.A. in planning. Separate admissions to both academic units are required.

Urban Transportation

The urban transportation research and training program is offered through the Center for Transportation Studies of the Institute of Urban and Regional Research. The Institute is a hospital administrative unit at The University of Iowa. A fellowship program is awarded to students in academic graduate departments or programs within the University who complete a prescribed set of courses in transportation. These courses are taught in the planning program and several other units.

The fellowship program allows planning students with sectorial majors in transportation to extend their training and obtain an additional credential. For particulars, see "Urban Transportation."
Urban Transportation

A number of departments and programs at the University of Iowa involv'es in urban transportation issues. Some academic units to obtain a comprehensive view of urban transportation issues.

Urban Transportation

As an effort is made to develop useful technical skills and provide an urban-oriented education in such fields as travel behavior, transport systems, urban and regional planning, regulation of transportation, transport finance, and impact evaluation. The Graduate Program in Urban Transportation is coordinated by the Center for Transportation Studies within the Institute of Urban and Regional Research. Academic certification has been authorized by the Graduate College of the University of Iowa, and completion of the program is documented on the student's transcript. Eligible students include those who hold a bachelor's degree in the following academic units: business administration, economics, geography, law, political science, psychology, sociology, transportation, urban and regional planning. The program is completed in conjunction with the established graduate degree arrangements of the various departments, programs, and colleges.

Curriculum Structure

Considerable flexibility exists within the program to enable students to pursue individual interests. The course of study consists of 18 semester hours; 12 of these semester hours must be in transportation courses, and remaining 6 semester hours can be in related courses outside the student's discipline. Transportation-related courses may include those in urban development, land use, environmental quality, urban service provision, logistics, regional science, marketing, analytic techniques, and planning processes.

Four core courses are required to obtain the transportation certificate: 102:260 Transportation Policy and Planning; 102:281 Problems in Transportation; and Land Use: 687-272 Urban Transportation Planning; and 102:311 Transportation

Urban Growth in Developing Countries

Program coordinator: Michael L. McClure

A nondegree graduate program of interdisciplinary and cross-cultural seminars and courses focuses on the problems of development in Third World countries and offers training in the Designated Center for Development Studies within the Institute of Urban and Regional Research. Intended to facilitate and coordinate interdisciplinary instruction and research, the program is available to graduate students from departments throughout the University.

In addition to a number of development-related courses offered in specific departments, the program includes a graduate course, 102:273 Urban Growth in Developing Countries, offered in the departments of Anthropology, Economics, Geography, Political Science, Social Welfare, Sociology, and Urban and Regional Planning. Taught by an interdisciplinary team, the course introduces students to the analysis of urban problems in developing countries from a cross-cultural and interdisciplinary perspective.

A graduate workshop provides a forum for graduate students and faculty members from a variety of departments to meet regularly to discuss problems of mutual interest. Additional information may be obtained by contacting the program coordinator.
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Program Seminar. The latter seminar may be repeated, and students are asked to take it for one-half of a semester during their tenure in the urban transportation program. The seminar forum for discussion of various topics within the realm of transportation. Students are strongly encouraged to gain practical experience through internships or other forms of research assistantships. Faculty associated with the urban transportation program take an active interest in helping students find positions.

Research

Transportation research projects at Iowa are often focused on problems at the state and regional levels. Participation in projects administered by program faculty provides students with the opportunity to develop a broad base of skills in such fields as planning methodology, project analysis, and impact assessment. Program faculty have recently conducted research funded by the National Science Foundation, the U.S. and Iowa Departments of Transportation, the Iowa Legislature, and numerous local and regional organizations.

As part of 102/201 Problems in Transportation and Land Use, students have conducted their own small-scale research projects for clients within the Iowa Department of Transportation or other public agencies. Early in the semester students meet with an instructor to identify possible subjects. At the end of the first quarter the students formally present their findings. Beyond the substantive knowledge acquired through concentration on the research topic, research methodology, and communication skills are acquired. An excellent environment for student research exists within the Institute of Urban and Regional Research, which houses the Center on the University's Old inlet Research Park. A selective collection of transportation materials, including census documentation, computer tapes, microfiches, and periodicals not available elsewhere on campus is maintained at the bookshelf. The collection is augmented with extensive reliance made upon transportation and related subject areas on the campus. Advanced computer facilities exist at the University as well. The Weig Computer Center has a complete library of software packages tied to IBM 370, PDP-11, and Hewlett-Packard 2000 computer systems.

Financial Aid

Research assistantships are awarded on a competitive basis, with the level of financial support normally ranging from quarter-time to half-time. Students receiving financial aid during the academic year are eligible for summer research assistantships. Out-of-state students receiving research assistantships are eligible for in-state tuition rates. Academic year and summer assistantships may be provided by participating academic units in conjunction with projects funded through the Center for Transportation Studies.

Admission

Entry into the urban transportation program is limited to students pursuing graduate degrees in the academic units listed above. Interested students are encouraged to contact the director of the Center for Transportation Studies. The admission procedure consists of submitting to the director a current transcript, two letters of recommendation, and a brief statement relating the nature and extent of the applicant's interest in transportation.

Courses

The following courses are part of the sequence in the Urban Transportation Program:

44:143 Introduction to Urban Transportation 3 s.h.
44:134 Urban Transportation (Same as 102:133) 3 s.h.
585:113 Transportation Systems Analysis 3 s.h.
44:230 Urban Travel Behavior in a Large Area 3 s.h.
102/201 Problems in Transportation and Land Use 3 s.h.
102/203 Urban Transportation Planning Process 3 s.h.
102/206 Transportation Regulation and Policy 3 s.h.
44:248/267:334 Urban Transportation Planning 3 s.h.
44:211 Transportation Program Seminar 1 s.h.

Women's Studies


The Women's Studies Program is a multidisciplinary program emphasizing the teaching and study of women in culture and history. Its major site is to bring the university community a better understanding of women as a group frequently overlooked by traditional disciplines. By taking courses through many departments, students become acquainted with the growing knowledge about women in the humanities and social sciences and learn of new analytical skills and perspectives developed within feminist scholarship, which they may then apply as a field of concentration or as a tool for other majors.

Undergraduate Study

Undergraduate students may complete a minor in women's studies by taking 18 semester hours in departments and courses associated with the program, including at least 12 semester hours in upper-level courses (numbered 100 or above), and maintaining a 2.0 grade-point average in these courses.

Undergraduate is the Bachelor of General Studies program may choose a special area of concentration in women's studies.

Undergraduates may also elect women's studies courses from those listed below.

Graduate Study

Graduate students in master's or doctoral programs may choose a concentration in women's studies within existing disciplines. Graduate students who wish to pursue the Ph.D. in women's studies may do so by filling a plan of study for the ad hoc interdisciplinary Ph.D. through the Graduate College.
Undergraduate Program

The undergraduate degree program in zoology provides a liberal arts background for a career in biological science. Graduates may enter directly into government service or industry. The program also prepares students for certification or advanced degree programs leading to research, teaching (university, four-year college, community college, secondary, and primary school), health professions (medicine, dentistry, paramedical practice, medical technology, nursing, dental hygiene, physical therapy, etc.).

The basic courses offered in the department serve as both the major's own majors and others planning to enter health-related professions, or fields such as psychology, anthropology, and sociology, as well as students in other fields who have a cultural interest in biological science.

A core introduction, 3-9 credits of Animal Biology, stresses the major's own majors and leads to the course in the ecology department. Majors must also take basic courses in genetics (usually immediately following the introductory course), evolution, and cell physiology.

Beyond this "core" curriculum, the student has a virtually unrestricted choice of 100-level courses in zoology, to a minimum of 33 semester hours. A student may substitute 100-level course work in other areas of natural science or in mathematics, inclusive of the 400-level core requirements listed below, provided that the student has completed the 33-semester-hour total required in zoology.

In other departments:

6-13 hours required by Writing

22-25 Calculus I

or 23M:10 Calculus for the Biological Sciences

3 s.h.
Honors
Students in the college-wide honors program may earn an honors degree in zoology by completing a total of at least 8 semester hours in 37:198 Honors Laboratory Research. 37:197 Honors Readings in Zoology, and 37:198 Honors Seminar in Zoology. A 3.2 overall grade-point average as well as a 3.2 grade-point average in zoology courses are required. A research paper, approved by the research supervisor, is also required at the conclusion of Honors Research.

Introduction to Research
The department offers 37:199 Introduction to Research to appoint seniors majoring in zoology with the nature of practicing scientists' work, through association with one of the department's research groups in experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

Graduate Programs
The graduate programs of the department are designed to prepare students for different kinds of professional activities, including teaching at various levels; participation in research in private, educational, or government laboratories; or service involving some planning or administrative functions. More than 70 percent of the doctoral students graduating from this department in the last seven years have engaged in college or university teaching. The substantial number of students completing their training with the M.S. degree have established technical or professional positions, some of which require independent responsibility in performance or planning.

Prior to registration in August, all graduate students in zoology take a diagnostic examination covering topics in developmental biology, genetics, physiology, with an emphasis on cell physiology, ecology, and zoology. On the basis of examination results, students may be excused from further work in one or all of these fields, or required to take specific courses to enhance their backgrounds in these areas. The student must make in any deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor's degree other than biology or zoology may request modification of the list of the area requirements; the student's degree committee will decide whether the student may waive portions of the requirements. All members of the faculty in zoology engage in research. Areas of departmental research include cell biology, development biology, genetics, molecular biology, neurobiology, zoology, behavior, physiology, and parasitology. Most projects have an auxiliary aspect involving work in other departments, sometimes with joint sponsorship of the faculty in those departments. For purposes of graduate student advising, research in zoology is categorized in four general areas: developmental biology, ecology, and behavior, genetics, and physiology. Each semester students select one of these general areas for his or her concentration, and is advised by a committee of faculty members in that area.

Master of Science in Zoology
The M.S. degree with thesis requires 30 semester hours of graduate credit and a thesis based on original research. Ordinarily 8 to 12 semester hours are assigned to thesis research and writing. The remaining hours are to be selected in consultation with the student's advisory committee, the choice of courses will be subject to the student's background and career goals. The student can receive credit for courses he or she is required to take on the basis of the diagnostic examination (see "Orientation" below), but not for courses required by the advisory committee to make up undergraduate deficiencies. After the thesis is accepted, the candidate must pass an oral examination based mainly on the work reported in the thesis and on related subject matter.

The M.S. degree without thesis requires 34 semester hours of graduate credit and a library research report. No more than 4 semester hours of credit may be granted for the research report. Credit may be included in the 34-semester-hour minimum required to complete the program. These courses are determined in consultation with the student's thesis committee and tailored to fit the student's background and career goals. Credit received in courses at the 100- level or above, with the exception of courses in zoology required to make up deficiencies revealed by the diagnostic examination (see above), may be included in the 34-semester-hour minimum required to complete any committee. On completion of the hours requirement, the student's advisor will issue a recommendation to the research report by the student's faculty advisor, the student must pass a written examination covering all of his/ her graduate program in zoology, including the area of the student's report.

Master of Science in Biology
The M.S. program with thesis requires 30 semester hours of graduate credit. Ordinarily 8 to 12 semester hours are assigned to thesis research and writing, 8 to 12 semester hours to graduate courses in zoology. 8 semester hours to graduate courses in botany, and the remaining semester hours to free electives.
Iowa Lakeside Laboratory Courses in field biology and aquatic biology at the Iowa Lakeside Laboratory extend the on-campus work in ecology. See the "Iowa Lakeside Laboratory" section of the Catalog.

Courses

For Undergraduates

227 001 Comparative Education (Intensive) 4 s.h.
227 062 Principles of General Biology (Laboratory) 4 s.h.
227 077 methods of research, organization, metabolism, synthesis and degradation. An introduction to natural history, evolutionary biology, and behavioral ecology. An introduction to the principles of evolution and behavior. 3 s.h.

227 048 Marine Biology 4 s.h.
227 020 Principles of Animal Behavior 3 s.h.
227 031 Marine Biology 3 s.h.
227 020 Principles of Animal Behavior (Laboratory) 3 s.h.
227 048 Marine Biology (Laboratory) 3 s.h.
227 020 Principles of Animal Behavior (Intensive) 3 s.h.
227 048 Marine Biology (Intensive) 3 s.h.
227 020 Principles of Animal Behavior (Intensive Laboratory) 3 s.h.
227 048 Marine Biology (Intensive Laboratory) 3 s.h.
College of Business Administration

The college is organized into six academic departments: Accounting, Economics, Finance, Industrial Relations and Human Resource Management, and Marketing.

The undergraduate and graduate programs of the college are fully accredited by the Accreditation Board of the College of Business, Research, executive development, and continuing education activities are supported by the external programs of the college. Students are enrolled in the Industrial Relations Institute, Institute for Economic Research, Institute for Entrepreneurial Development, Institute for Insurance Education and Research, Labor Center, and Management Center.

Bachelor of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) degree in all six departments. The B.B.A. student completes coursework either in the College of Liberal Arts or at The University of Iowa or in another institution, and usually enters the College of Business Administration as a junior.

The college’s B.B.A. curriculum requires 120 semester hours for graduation, with at least 48 semester hours in business courses and at least 48 semester hours in nonbusiness courses. Limited specialization is possible through the student’s designated major.

The last 30 (or 45 if the last 60) semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration, and at least 8 semester hours of credit in the student’s major, must be earned at The University of Iowa.

A student who has not satisfied the quantitative methods, psychology/ sociology, accounting, and economics requirements when admitted to the college must undertake them in the first enrollment and continue them until successfully completed. In general, students should complete all common requirements by the end of the junior year.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all course work, all course work attempted at the University, all business and economics course work attempted at the University, in all course work attempted at the University in all course work attempted at the University in the major.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Rhetoric Communications
  - Historical-cultural
  - Literature
  - Social psychology
  - Quantitative methods
  - 8 s.h.

- Business Communication
  - 3 s.h.

- Business Statistics
  - 3 s.h.

- Economic Analysis
  - 3 s.h.

- Business Policy
  - 3 s.h.

- Business Law
  - 3 s.h.

- Introductory Business
  - 3 s.h.

- Computer Programming
  - 3 s.h.

- Consulting
  - 3 s.h.

- International Business
  - 3 s.h.

- Marketing Management
  - 3 s.h.

- Advanced Management
  - 3 s.h.

- Advanced Business
  - 3 s.h.

- Accounting
  - 3 s.h.

- Auditing
  - 3 s.h.

- Business Policy
  - 3 s.h.

- Business Law
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- Business Statistics
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- Economic Analysis
Requirements for Undergraduate Study*)

To be considered for admission to the business minor program, the courses listed below will satisfy all requirements for the minor in business administration:

- A computer programming course 3 s.h.
- A mathematics course numbered 225 or higher 3 s.h.
- A statistics course numbered 225:8 or higher 3 s.h.
- Principles of microeconomics 3 s.h.
- Principles of macroeconomics 3 s.h.
- 6A:1 Introduction to Financial Accounting 3 s.h.
- 6A:2 Introduction to Managerial Accounting 1 s.h.
- *6L:100 Introductory Financial Management 3 s.h.
- *6L:100 Administrative Management 3 s.h.
- *6L:47 Introduction to Law 3 s.h.

*Must be taken in junior or senior year

Interested students should complete or be registered for the first seven courses listed above before applying for admission to the business minor program. The first seven courses listed above may be used to satisfy elective hours toward a baccalaureate degree and in some instances specific College of Liberal Arts requirements. Admission to the program is limited and meeting minimum standards does not ensure admission.

The requirements for a minor in business administration may also be satisfied by taking the 100-100 level courses of M.B.A. core concentration.

Credit by Examination

Students may earn up to 32 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) of the College Entrance Examination Board are used. It is possible to receive credit for some of the common requirements of the college. Information on the CLEP examination is available from the Liberal Arts Advisory Office.

Maximum Schedule

Course schedules of more than 16 semester hours for a semester or 9 for a summer session require approval of the assistant dean.

Pass/Fail Grading

Of the total semester hours required for a B.S.A. degree, up to 8 may be taken on a pass/fail or pass/no-pass basis with the consent of the advisor and instructor. However, a student may not count more than 16 semester hours of pass/fail or pass/no-pass credit in his/her last 80 semester hours of coursework associated with the major. This includes the 6A, 6E, 6F, 6L, or 6M prefix which are taken to satisfy the requirements of the College of Liberal Arts. As stated above, all such courses must be completed during the first three weeks of a semester or the first two weeks of a summer session. For courses taken on a pass/fail basis, an "F" grade rendered in any of the courses listed above is recorded as a "P"; otherwise, the grade earned (D or F) is recorded.

Second-Grade-Only Option

Unless otherwise indicated in the catalog, if and with permission of the assistant dean, a student may be permitted to repeat a University course and have only the grade and credit of the second registration used in calculating his or her cumulative grade point average. This option may be applied to a maximum of 16 semester hours of work.

Admission

The college normally admits undergraduate students at the beginning of their junior year. Second-semester sophomore may be admitted if an accelerated program record has been established. Unconditional admittance requires at least a 2.25 grade-point average at the successful course undertaken, including all college-level courses undertaken at The University of Iowa and all business and economics courses. The candidate should have satisfied the following common requirements: rhetoric-communication, psychology/sociology, quantitative methods, accounting and economics, and either historical-cultural or literature.

No more than 60 semester hours, or equivalent, of transfer credit will be accepted for a student transferring from a two-year institution. Transfer credits for business and economics courses taken during the freshman and sophomore years are counted toward the B.B.A. degree only if such courses are normally offered during the fall and spring semester courses at The University of Iowa.

Fulfillment of the minimum requirements does not ensure admission. The college's admission committee reviews all applications and selects the applicants who appear best qualified.

Students who have minor deficiencies in meeting admission requirements may be granted conditional or probationary admission.

Interdepartmental Graduate Programs

The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Arts (M.A.) in business administration, Master of Business Administration (M.B.A.), and Doctor of Philosophy (Ph.D.) in business administration. Joint degree options, allow M.A. in business administration or M.B.A. candidates to pursue a second graduate degree in another college. For information on the programs of The University of Iowa, in accounting and graduate programs in economics, see "Department of Accounting" and "Department of Economics." sections of the Catalog.

Master of Business Administration

The Master of Business Administration (M.B.A.) program is designed for individuals preparing for professional careers in business, government, the insurance or public sector. The program enhances career opportunities for the individual and at the same time provides industry and government with professional personnel required in a dynamic economy.

The curriculum is designed for college graduates in any field. Prior courses in business are not required for admission. From 32 to 60 semester hours are required, depending upon students' undergraduate academic background. For students with no prior business administration course work, 60 semester hours of course work will be required. For students with prior course work in business administration, some of the foundation courses may be waived on the basis of examination examination or equivalent course work of high quality.

Undergraduate students in any institution that may take courses as part of their undergraduate degree program which are equivalent to one or more of the UI M.B.A. foundation courses. For advice on these equivalencies, contact the Graduate Programs in Business Office, College of Business Administration. In particular, seniors in the colleges of Liberal Arts and Engineering at the University of Iowa may seek M.B.A. foundation courses to satisfy elective requirements in their undergraduate degree programs.

Since administrative and course work may allow such students to complete a bachelor's degree in four years and the M.B.A. degree in the fifth year.

Foundation Courses (27 semester hours)

1A:62 Introduction to Financial Accounting—M.B.A. 3 s.h.
6E:191 National Income Analysis 3 s.h.
6F:194 Managerial Finance 3 s.h.
6L:191 Computer Information Systems 3 s.h.
6L:197 Quantitative Methods—M.B.A. 3 s.h.
6A:1 Management of Organizations—M.B.A. 3 s.h.
6A:5 Marketing Management 3 s.h.

In the M.B.A. integrated core and elective courses, students are encouraged to continue the broad study begun in the sequence of foundation courses listed above and pursue in greater depth more advanced study associated with their own career objectives.
Following are the integrated and applied core course requirements. (27 semester hours) and the area of concentration requirement (6 semester hours):

**Integrated Core (18 semester hours)**

- **6A214 Managerial Accounting—M.B.A.**
- **6C261 Administrative Science**
- **6C256 Administrative Policy—M.B.A.**
- **6L265 Administrative Policy—M.B.A.**
- **6K271 Statistical Methods—M.B.A.**
- **6K273 Managerial Economic Theory—M.B.A.**
- **6K276 Operations Research—M.B.A.**

**Applied Core (9 semester hours)**

Three of the following, or two of the following and an approved elective:

- **6K280 Management Systems Information Systems—M.B.A.**
- **6L295 Industrial Relations—M.B.A.**
- **6M332 Marketing Management II—M.B.A.**

**Area of Concentration (6 semester hours)**

In addition to courses required of all students, students must select, with the approval of the assistant director of the M.B.A. program, an area of concentration which includes at least 6 semester hours of course work in that area. Areas of concentration include administrative studies, finance, industrial relations and human resources, management systems, management accounting, and marketing. Requests for other areas of concentration may be approved.

Evening course offerings allow students to pursue the M.B.A. degree on a part-time basis in low, Cedar Rapids, and the Quad-Cities. Part-time students usually take one or two courses each semester and complete the program in three to five years.

**Executive M.B.A.**

A special program, the Executive M.B.A., also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in low City followed by classes one day a week on alternating Fridays and Saturdays. Participants progress through the program together as a single group.

Further information about the program, fees, and application procedures may be obtained by contacting the director of the Executive M.B.A. Program, Graduate Programs in Business Office, College of Business Administration.

**Master of Arts**

The course of study in business administration is designed for students seeking specialization in one of several areas of business administration. The master's degree in business administration permits a research emphasis and related areas of concentration such as finance, industrial relations and human resources, insurance, and management systems. The minor may be given in approved course combinations within the College of Business Administration or outside the college.

All students in the M.A. program must pass the comprehensive examination. The comprehensive examination is given at the end of the academic year in which the student expects to graduate. The examination is structured in five areas: accounting, marketing, and the economic and legal environment pertaining to profit and nonprofit organizations.

**Doctor of Philosophy**

The Ph.D. program in business administration is designed to meet the career needs of individuals preparing for faculty research and teaching positions in academic institutions as well as for positions in business and government. The program is designed to permit individual specialization according to their capabilities, background, and personal goals.

**Prerequisite Courses**

The common body of knowledge required of the Ph.D. program must be satisfied. In addition, candidates for the Ph.D. program must have completed the following courses:

- **Economics and/or Organizational Behavior**
- **Production and Operations Management**
- **Management Information Systems**
- **Research Methods (2) (2 SEM)**

**Area of Study**

A minimum of 12 semester hours of approved doctoral-level coursework is required in the following areas: accounting, finance, human resources
management, industrial relations, insurance, management science, marketing, or organizational behavior.

Minor Area of Study
A minimum of 9 semester hours of doctoral-level courses beyond the Ph.D. core course requirements must be taken. Available areas include all major areas of study listed plus concentrations outside the College of Business Administration.

Comprehensive Examinations
Students must complete a written examination in both the major and minor areas of study and must demonstrate a mastery of content in the areas of examination. The examination committee is comprised of a minimum of three faculty members.

Upon completion of the written comprehensive examinations in both the major and minor areas of study, students must pass an oral comprehensive examination encompassing subject matter in the major, minor, and related areas. The examination committee is comprised of a minimum of five faculty members.

Dissertation
A dissertation proposal must be presented before a faculty attended by dissertation committee members and open to interested faculty and graduate students as established by departmental procedures. Students are required to complete 18 semester hours of dissertation credit. The completion of research and writing associated with the dissertation normally requires one year of full-time effort.

Final Examination
The completed dissertation must be defended in an oral examination attended by the dissertation committee members. It is also open to interested faculty and graduate students.

Graduate Admission
Applicants seeking admission to graduate work in business must submit the Graduate College application form and fee, official transcripts of all course work taken, and official Graduate Management Admission Test (GMAT) scores to the Admissions Office, Carlson Hall. Three letters of recommendation from former instructors or employers should be submitted to the Graduate Program in Business Office, College of Business Administration. Graduate Record Examinations (GRE) scores may be submitted in place of GMAT scores in the applying to the Ph.D. in Business Administration program. See the “Graduate School in Business Administration” in the Catalog for more information.

Other Graduate Programs
Joint Programs
Joint programs have been established which allow students to pursue concurrently an M.A. or M.B.A. in the College of Business Administration and a J.D. in the College of Law, an M.A. in library science in the School of Library Science, or an M.D. in hospital and health administration in the College of Medicine. Such programs allow students to earn both degrees more rapidly by counting a portion of the graduate course work toward both degrees. These joint degree programs carry an exchange of 12 semester hours each between the J.D. and the M.A. and 9 semester hours each between the M.A. in library science or M.A. in hospital and health administration and the M.B.A.

In addition to the established joint programs listed above, individually tailored joint master’s programs may be set up between an M.A. or M.B.A. in the College of Business Administration and other degree programs at The University of Iowa. Students should contact the Graduate Program in Business Office, College of Business Administration, M.A. in Accounting (See “Department of Accounting” in this section of the Catalog.) M.A. and Ph.D. in Economics (See “Department of Economics” in this section of the Catalog.)

Facilities
The College of Business Administration is located in Philipps Hall, an air-conditioned high-rise building designed especially for programs of the college. The building contains seminar and conference rooms, a computer laboratory, an auditorium, and the Business Library in addition to a wide range of classroom facilities.

Extensive research materials for business and economics are maintained in the Main Library, and the facilities of the University computing center are available to all students. Additionally, students have direct access to a complete computer laboratory within the college. The laboratory serves the instructional programs of the college, and the staff maintains a current library of computational programs and data tapes to serve user needs.

Industrial Relations Institute
The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations for the purposes of curriculum matters and research, and to conduct continuing education seminars and workshops for practitioners in the field of industrial relations.

Institute for Economic Research
The institute for Economic Research facilitates cohesive and continuing economic research and establishes a formal mechanism for providing interaction with and economic advice to industry and government. The institute’s main objectives are to provide economic information, service, and advice on a continuing basis to businesses and to public agencies; to provide a state focal point for applied economic research; and to promote and enhance academic research and teaching in economics.

Institute for Entrepreneurial Management
The Institute for Entrepreneurial Management was created in 1976 to promote the entrepreneurial spirit among individuals; to assist prospective entrepreneurs in evaluating the economic viability of their proposed business ventures; to train owner/managers in the effective and profitable operation of their enterprises after they are successfully launched; and to provide career guidance for college students as well as others. These institute objectives are achieved primarily through a multidisciplinary research and continuing education program.

Institute for Insurance Education and Research
The Institute for Insurance Education and Research is a division of the college’s continuing education unit in the field of insurance. The institute conducts seminars and workshops throughout the year at The University of Iowa campus in Iowa City and at other locations across the country. It also engages in contract research related to insurance for public and private organizations.

Labor Center
The Labor Center serves as the continuing education division of the college in the area of labor education. Labor Center staff members have combined on-campus and off-campus programs in order to reach the greatest possible percentage of their constituency. The staff members tailor their instruction to the specific needs of the labor movement in Iowa.
Management Center
The Management Center is a major continuing education branch of the college and provides relevant information to management and government representatives in Iowa. Current administrative, behavioral science, and management knowledge related to the work life of men and women in organizations is disseminated through on- and off-campus conferences.

Interdepartmental Courses
For M.B.A. students only
See individual department listings for additional M.B.A. course offerings.

60515 Cooperative Education Master M.B.A. 3 s.h.
60517 Willa Communication Skills - M.B.A. 3 s.h.
60525 M.B.A. Certificate in Writing for Business Purposes 3 s.h.
60526 M.B.A. Certificate in Service Management 3 s.h.
60535 M.B.A. Certificate in General Management 3 s.h.

Accounting
Department head: Russell J. Peterson
Faculty: professors B. L. Burrell, David W. Cebula, William R. Kleins, Jr. (Master Professor), Velda Z. Lerman, Donald L. Schaefer, John H. Smith, William C. Ulm, reconstruction assistant professor Robert W. Agee
Assistant: B. A. M. B. A. Ph.D.

Professional Program in Accounting
The Professional Program in Accounting at The University of Iowa is a three-year upper-division and graduate program which leads to a Master of Arts (M.A.), degree with a major field in accounting. (Students may elect to receive the B.B.A. degree after successful completion of the first two years of the Professional Program.) The M.A. program (three-year program) is designed to develop the technical proficiency and the conceptual, analytical, and communication skills required in the accounting profession. Students choose the undergraduate level preparation for the Certified Public Accounting (CPA) or Certified Management Accountant (CMA) examinations may meet their goal by completion of the first two years of the Professional Program. The M.A. program (three-year program) is designed to prepare candidates for careers in all areas of accounting and also provides advanced coursework which will prepare candidates for the CPA and CMA examinations, and which will also provide preparation for demanding leadership roles in the field of accounting. Students may apply for admission to the Professional Program in Accounting after completion of two years of preprofessional study which satisfies the general education requirements of the University, the business requirements of the College of Business Administration, and the admission requirements of the Accounting Department (see program 1 below). Students may also apply for the M.A. program after completion of a bachelor's degree in a major field in accounting from another institution (see program 2 below) or after completion of a bachelor's degree in a field other than accounting (see program 3 below). Admission applications for program 1 must be submitted to the Assistant Dean of Undergraduate Programs in the College of Business.

Students in the Professional Program in Accounting must maintain a 3.0 grade point average in all graduate-level accounting courses and must pass an oral comprehensive examination upon completion of the M.A. program. All candidates for the M.A. degree are required to submit a score on the GMAT test as a final test for admission to the third year of the Professional Program in Accounting. Most students in program 1 take this admissions test in January of the second year of the three-year program. Satisfactory completion of this examination is a final admission to the third year of the Professional Program in Accounting.

Program 1
This program is for students completing their preprofessional program at The University of Iowa.

An undergraduate student at The University of Iowa may also apply for admission to the Professional Program in Accounting after completing 60 semester hours of course work, including the common requirements for the B.B.A. and the Statistics, Analytic, and after earning grades of A (4.0) in 6A-1 Introduction to Financial Accounting and 6A-2 Introduction to Managerial Accounting, or the equivalent. Upon acceptance of their application to the Professional Program in Accounting, such students are designated accounting majors.

After successful completion of the first two years of the Professional Program in Accounting, a student can receive the B.B.A. in Accounting.

These are the typical first, second, and third year requirements of the Professional Program in Accounting:

First Year
6A-115 Introduction to Taxation 3 s.h.
6A-131 Financial Accounting I 3 s.h.
6A-170 Managerial Information Models 3 s.h.
6E-103 Microeconomics 3 s.h.

Second Year
6A-132 Financial Accounting II 3 s.h.
6A-145 Financial Accounting III 3 s.h.
6A-144 Auditing 3 s.h.
6A-146 Cost Accounting for Management Analysis and Control 3 s.h.
6A-147 Law and Business 3 s.h.
6A-150 Business policy elective 3 s.h.
Electives 9 s.h.

Third Year
6A-220 Accounting Theory I 3 s.h.
6A-221 Advanced Accounting Theory II 3 s.h.
Graduate accounting electives 9-12 s.h.
Graduate electives 12-15 s.h.
6A-292 Accounting issues Series 0 s.h.

These courses are available upon unconditional admission to the third year of the program.

Program 2
This program is for students who have completed bachelor's degrees with concentrations in accounting from other institutions and must apply for the M.A. program to the Associate Dean for Graduate Studies at The University of Iowa. Such students will normally be required to take only the third year of the Professional Program (Program 1 above) to complete the M.A. degree.

Program 3
This program is for students who have bachelor's degrees with no prior training in business or accounting.

A student with an undergraduate degree in a field other than business/ administration can, with careful planning, complete the Professional Program in Accounting requirements in two calendar years after admission to the Graduate College. A nonbusiness undergraduate planning to enter the program should include as many first-year courses in the undergraduate program as possible. For students entering in the fall semester with no previous accounting or business courses, the typical first-year courses include:

6A-102 Financial Accounting — M.B.A. 3 s.h.
6A-214 Managerial Accounting — M.B.A. 3 s.h.
6A-116 Introduction to Taxation 3 s.h.
6A-132 Financial Accounting II 3 s.h.
6A-102 Financial Accounting II 3 s.h.
6E-103 Microeconomics 3 s.h.
6E-104 Managerial Finance 3 s.h.
6M-106 Marketing Management M.B.A. 3 s.h.
6M-107 Quantitative Methods M.B.A. 3 s.h.
Microsoft Excel Skills

- Basic and intermediate Excel skills
- Formulas, functions, and data manipulation
- Creating charts and graphs

Microsoft Word Skills

- Basic and intermediate Word skills
- Creating documents, formatting text, and managing documents
- Tables, lists, and footnotes

Microsoft PowerPoint Skills

- Basic and intermediate PowerPoint skills
- Creating presentations, adding and formatting content
- Transitions, animations, and multimedia elements

Database Management

- Basic and intermediate database management skills
- Data entry, sorting, and filtering
- Creating queries, reports, and pivot tables

Word Processing

- Advanced word processing skills
- Formatting content, managing email, and creating documents

Spreadsheets

- Advanced spreadsheet skills
- Formulas, functions, and data analysis
- Creating tables, charts, and pivot tables

Microsoft Word

- Advanced word processing skills
- Formatting content, managing email, and creating documents

Microsoft PowerPoint

- Advanced presentation skills
- Creating presentations, adding and formatting content
- Transitions, animations, and multimedia elements

Data Analysis

- Basic and intermediate data analysis skills
- Descriptive statistics, hypothesis testing, and regression analysis
- Using Excel for data analysis

Computer Science

- Basic and intermediate computer science skills
- Programming languages (e.g., Python, Java)
- Algorithm design and problem-solving

Web Development

- Basic and intermediate web development skills
- HTML, CSS, and JavaScript
- Creating responsive websites

Project Management

- Advanced project management skills
- Planning, scheduling, and risk management
- Using project management software

Data Management

- Advanced data management skills
- Database design and implementation
- Data mining and data warehousing

However, to ensure the privacy and security of your data, it is recommended to implement additional security measures such as encryption, access controls, and regular backups. It is also important to stay updated with the latest trends and technologies in the field, as the field of data management is rapidly evolving.
prosperity and depression, inflation and unemployment, big business and labor unions, and hundreds of other matters that intimately affect the way people live.

The purpose of study in economics is to develop an understanding of how complex economic systems work and to acquire training in the methods of economic analysis which can be applied to a wide range of economic problems.

Undergraduate Majors

The bachelor's degree program in economics provides an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations, and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics is also regarded as excellent preparation for law and for graduate study in such fields as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees in economics—the B.A. and B.S. degrees in the College of Liberal Arts and the B.B.A. in the College of Business Administration.

The B.A. and B.S. programs are designed for a well-rounded liberal arts education. Requirements for the B.B.A. degree emphasize instruction in the business fields of accounting, finance, marketing, business law, and management.

For descriptions of the B.A. and B.S. degree programs in economics, see the "College of Liberal Arts" section of the Catalog.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. degree in economics requires eight credit hours in 100-level economics courses, including:

6E:103 Microeconomics 3 s.h.
6E:105 Macroeconomics 3 s.h.

Master of Arts

The department offers a three-semester M.A. program in applied economics, with opportunities in environmental economics, urban and regional economics, international economics and finance, economic development, financial and monetary economics, economics of the public sector, health economics, economic planning and budgeting, and business and managerial economics, or labor economics and labor relations.

The first-year course sequence for the basic M.A. program is as follows:

6E:103 Statistical Methods in Economics 3 s.h.
6E:202 Price Theory 3 s.h.
6E:204 Microeconomics I 3 s.h.
6E:205 Macroeconomics I 3 s.h.
6E:211 Mathematical Economics 3 s.h.
6E:221 Econometrics I 3 s.h.
Field course 3-5 s.h.

Second Semester

6E:104 Methods of Quantitative Economics 3 s.h.
Electives 9 s.h.

*The M.A. program requires a course in economic history or history of economic thought.

In addition to the core courses (15 semester hours), the student has the option of taking 13 hours of electives and writing a thesis (4 hours) for a minimum total of 32 semester hours of graduate credit; or taking 16 hours of electives and writing a research paper in each of two 200-level economics courses, for a minimum total of 24 semester hours of graduate credit.

A student who performs well in the first semester of the M.A. program may apply for transfer into the Ph.D. program at that time, without loss of credit.

Joint M.A.-J.D. Program

The department collaborates with the College of Law in offering a joint program in which the department accepts up to nine semester hours of law credit toward the M.A. degree in economics, and the College of Law accepts graduate credit in economics toward the Juris Doctor (J.D.) degree.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation.

The core sequence:

First Semester

6E:190 Mathematics for Economists I 3 s.h.
6E:193 Statistical Methods in Econometrics 3 s.h.
6E:355 Microeconomics I 3 s.h.
6E:304 Macroeconomics I 3 s.h.

Second Semester

6E:191 Mathematics for Economists II 3 s.h.
6E:356 Microeconomics II 3 s.h.
6E:305 Macroeconomics II 3 s.h.
6E:306 Macroeconomics II 3 s.h.

Third Semester

6E:211 Mathematical Economics 3 s.h.
6E:221 Econometrics I 3 s.h.
6E:291 Economic History of the United States 3 s.h.
Field course 3-5 s.h.

Fourth Semester

6E:222 Econometrics II 3 s.h.
Field course 3 s.h.

An additional four semester hours in economic history, history of economic thought or economic methodology are to be completed during the third year of residence. Written examinations in microeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year complete the core requirements.

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study of a field and in courses that enable the student to understand the relationship between this his specialty and related fields. The student must achieve at least a 3.0 grade-point average in the major area courses.

The student must present and defend a dissertation prospectus during the third year. Admission to candidacy is granted upon successful defense of the dissertation prospectus.

Teaching and Research

The Ph.D. program requires candidates to engage in teaching and research for at least two semesters (or summer sessions). The typical amount of service in each term is 25 hours per week.

Courses

Primary for Undergraduates

Note: 6E:1 and 6E:2 may be taken in either order or they may be taken simultaneously; they satisfy the general education requirement in social sciences.

MIS 1813 Business Information Systems 3 s.h.
6D:1 Principles of Economics 4 s.h.
6D:2 Principles of Economics 4 s.h.
6E:1 Principles of Economics 4 s.h.
6E:2 Principles of Economics 4 s.h.
6E:3 Principles of Economics 4 s.h.
6D:1 Principles of Economics 4 s.h.
6D:2 Principles of Economics 4 s.h.
6D:3 Principles of Economics 4 s.h.
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6D:2 Principles of Economics 4 s.h.
6D:3 Principles of Economics 4 s.h.
E220 Urban Smith in Developing Countries
Confrontational and cross-sectional analysis of problems associated with urbanization and development in the developing nations. Same as E320, E325, E425, 102.325, E326, 102.376, 179.376.

E222 E-Mental Health
Theory of life trends, belief systems and policy trends. Prerequisite of 320, 325.

E224 Industrial Economics
Theory of economic openness, balance of payments adjustment, exchange controls, international investment, real estate investment, in open economies. Prerequisite of consent of instructor.

E225 Macroeconomics
Panel of current research topics in microeconomics. Prerequisite of 320, 325, or consent of instructor.

E226 Mathematical Foundations of the Social Sciences
Systematic exposition of applications of mathematical methods to problems in economics, political science, and management science. Several mathematical models, examples or instructor's discretion. Prerequisite of consent of instructor or department.

E228 Mathematical Economics
Foundation of economic behavior, non-cooperative and cooperative, with applications to general economic equilibrium. Prerequisites: 221, 222.

E229 Mathematical Economics II
Principles of economic behavior, non-cooperative and cooperative, with applications to general economic equilibrium. Prerequisites: 221, 222.

E230 Production Theory and Policy
Systematic exposition of production theory, of production function, of the theory of optimal allocation of resources, and of the theory of economic growth. Prerequisites: 220, 221.

E231 The Economics of Inflation
The nature of inflation and its effects, current inflation problems and the role of monetary policies in inflationary episodes. Prerequisites: 220, 221.

E232 Econometrics I
Single linear regression models, estimation methods, testing of hypothesis, prediction and forecasting, use of matrices to solve simultaneous equations. Prerequisite: 220, 221.

E233 Econometrics II
Multiple linear regression models, estimation methods, testing of hypothesis, prediction and forecasting. Prerequisite: 222, 223.

E234 Mathematical Economics I
Non-cooperative theory of economic behavior with emphasis on applications to economic decision problems. Prerequisites: 220, 221, 222, 223.

E235 Mathematical Economics II
Non-cooperative theory of economic behavior with emphasis on applications to economic decision problems. Prerequisites: 220, 221, 222, 223.

E236 Mathematical Economics III
Non-cooperative theory of economic behavior with emphasis on applications to economic decision problems. Prerequisites: 220, 221, 222, 223.

E237 Econometrics III
Advanced econometric theory and methods, topics selected from Censor, Hansen, O. 620.144 and 620.145. Prerequisite: 222, 223.

E238 Advanced Economic Development
Economics of economic development in underdeveloped countries. Prerequisite: consent of instructor.

E239 Food Cycles and Food Insecurity
Study of food production, food distribution, food consumption, and food security. Prerequisite: consent of instructor.

E240 Advanced Food Security
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Study of food production, food distribution, food consumption, and food security. Prerequisite: consent of instructor.

E269 Advanced Food Security
Study of food production, food distribution, food consumption, and food security. Prerequisite: consent of instructor.

E270 Advanced Economic Development
Economics of economic development in underdeveloped countries. Prerequisite: consent of instructor.

E271 Industrial Organization
Theoretical analysis of oligopoly, market concentration, and market structure. Prerequisites: 220, 221.

E272 Cost Accounting
Introduction to cost accounting. Prerequisite of consent of instructor.

E273 Cost Accounting
Introduction to cost accounting. Prerequisite of consent of instructor.

E274 Cost Accounting
Introduction to cost accounting. Prerequisite of consent of instructor.

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E298 Cost Accounting
Introduction to cost accounting. Prerequisite of consent of instructor.

E299 Cost Accounting
Introduction to cost accounting. Prerequisite of consent of instructor.
The undergraduate finance program deals with the theory, organization, and operations of the financial system from both the social and managerial viewpoints. Students are expected to develop analytical abilities and to present their analyses in both written and oral form. Students graduating with a major in finance may specialize in either finance or insurance. Finance specialists may look forward to managerial positions in controllership or treasury work in non-financial businesses, or in the entire range of financial businesses, or be nonprofit or government organizations. Insurance specialists may find employment in risk management departments in public and private agencies, in large businesses, or in insurance companies. The education received is either area is correlated with progress toward responsible managerial positions.

Requirements for the Bachelor of Business Administration degree with a Finance major and specialization in either finance or insurance are as follows:

**Finance**

- 6F21: Statistical Analysis
- 6F11: Investments
- 6F10: Financial Markets and Institutions
- 6F17: Intermediate Financial Management

At least 2 semester hours of accounting beyond the basic core, followed by any two of these:

- 6F12: Security Analysis
- 6F11: Commercial Banking
- 6F18: Case Problems in Financial Management

**Insurance**

- 6F21: Statistical Analysis
- 6F11: Investments
- 6F21: Life and Property Insurance

At least one of the following:

- 6F20: Public Economic Security Programs
- 6F16: Risk Management

Three additional hours of courses specified by the student's advisor.

**Graduate Programs**

Refer to "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

**Courses**

**Primarily for Upper-Division Undergraduates**

- 6F05: Cooperative Education Internship
- 6F10: Introductory Financial Management
- 6F11: Direct Sales in Finance

Individual-guided readings in selected topics in business.

- 6F12: General Insurance

Theory of risk and risk bearing; arrangements for dealing with financial risk: insurance industry: types of hazards, the history of insurance and government regulation of risk: social reforms, hold an open discussion of current topics in insurance. Prerequisite: 6F11 and 6F22.

- 6F13: Investments

Activities involving in selecting among alternative financial assets from the viewpoint of the individual, present value security market, industry development. Prerequisite: 6F20 or consent of instructor.

**Insurance**

- 6F11: Security Analysis

Variation of corporate securities: financial statement analysis: economic and regulatory environment. Prerequisite: 6F11 or consent of instructor.

- 6F12: Financial Markets and Institutions

The role of money and capital markets in the processes of business and development: flow of funds, international aspects. Prerequisite: 6F10 or consent of instructor.

- 6F17: Intermediate Financial Management

Management of commercial banks and other financial institutions, tools and concepts of running in a bank, and abilities. May use case studies. Prerequisite: 6F13 or consent of instructor.

- 6F18: Financial Markets

Historical development of laissez-faire trading, trading practices and procedures, hedging and regulatory aspects. Prerequisite: 6F20 or consent of instructor.

- 6F19: International Financial Management

Analysis of financial decisions made by financial managers, e.g., capital structure, dividend policy, lease-or-buy, mergers, and takeover of other companies. Prerequisite: 6F10 or consent of instructor.

- 6F20: Case Problems in Financial Management

Case study methods of analyzing and solving financial management problems. Students develop strategies, develop planning of security, and select of capital. Prerequisite: 6F11 or consent of instructor.

**Insurance**

- 6F10: Underwriting Topics in Finance

In-depth study of selected topics in Riaas not covered by regular courses; credit hours and course content determined by instructor. Prerequisite: consent of instructor.

- 6F11: Property and Liability Insurance

Body of knowledge needed for insurance, fire insurance, marine insurance, and other lines; public adjusters, other property and casualty; insurance contracts and underwriting. Prerequisite: 6F10.

- 6F12: Life and Health Insurance

Lives, health and annuity contracts from the viewpoint of the underwriter, liability, casualty, homeowners insurance. Prerequisite: 6F10 for health and annuities, 6F11 for all other.

- 6F13: Public Economic Security Programs


- 6F15: Actuarial Principles of Life Insurance

Principles of life insurance.

- 6F16: Real Estate and Urban Economic Analysis

Urban: regional: national economic forecasts and real estate markets; market forecasting; economic principles; investment analysis, and real development. Prerequisite: 6F20 or consent of instructor.

- 6F17: Entrepreneurship and the Small Business

Characteristics of the successful entrepreneur and of making the decision to go into business for one's self: development of a project: analysis of financial requirements: factors affecting financing. Prerequisite: senior standing.

- 6F18: Foreign Trade and Small Business

Role of small business in the economy: development of the small business: small business development of small business enterprises.

- 6F19: Agribusiness and Meat Marketing

Development and marketing of beef and beef products. Prerequisite: 6F18 or consent of instructor.

- 6F20: International Business

Intermediate for students having special interests in international commerce and trade, development of test developed countries, foreign investment in economic and domestic business operations emphasis. Prerequisite: 6F18 or consent of instructor.

**Finance**

- 6F21: Real Estate Appraising

Practicum of valuing real property. Prerequisite: 6F12.

- 6F22: Experimental Course

Available on topic. Prerequisite: not regularly offered.

- 6F23: Managerial Finance-F.B.A.

Uses of financial management, characteristics of financial instruments and markets, cost of funds and allocation of resources, management capital management, and capital structure.

- 6F24: Direct Sales in Finance

Individually guided readings in selected topics in finance.

- 6F25: Research Project

For students a la. Contains only. One-hour credit for a major paper. Prerequisite: consent of instructor.

- 6F26: Contemporary Trends in Finance

**Investment Management**

Examination of the criteria of security analysis: investment in financial statements and evaluation of securities methods of management of ex- investment portfolio. Prerequisite: 6F14.

- 6F27: Financial Policy of Securities

Problems appear to policy, structural problems and role of the government, current and past asset administration, funding costs, the capital, capital budgeting, dividend, and repurchase. Prerequisite: 6F14 or equivalent.
Industrial Relations and Human Resources

Department chief: Anthony V. Stimpson
Deputy chief: Robert L. Smith
Deputy chief: William L. Kennedy
Director: Thomas O'Neal
Director: Mary Franz
Assistant director: Rebecca Brilli, Jane Flanagan
Director: Nancy Mueser, Cheryl L. Merck
Director of Public Affairs: B. A. N. M., M. A., Ph.D.

Students majoring in industrial relations take courses of study and have experiences dealing with labor relations and human resource management. The program is designed to give the student an appreciation and understanding of the problems of the areas of study as well as understand the underlying philanthropic essentials and applications to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are blended to include the theoretical and practical aspects of the fields.

Graduates of the program are prepared for a variety of line and staff positions in business, government, and nonprofit institutions. The areas of work for graduates qualified include personnel administration, wage and salary administration, staff supervision, selection and recruitment, performance appraisal, industrial training, collective bargaining, complaint administration, group handling, dispute resolution, and such labor legislation areas as employee organization, social security, insurance, equal pay, affirmative discrimination, and labor relations law.

Undergraduate Program

Requirements for the Bachelor of Business Administration degree with a major in industrial relations or human resource management are as follows:

- 100-106 Business Legislative Act
- 106-110 Collective Bargaining
- 106-110 Personnel Management
- 106-119 Industrial Relations or Human Resource Management

Total: 15-18 a.

Students select courses in the specialized area on the basis of their individual interests and with the advice and consent of their advisers.

Graduate Programs

See "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primarily for Upper Division Undergraduates

IL-003 Comparative Education Internship

IL-031 Introduction to Law

IL-101 Directed Readings in Industrial Relations and Human Resource Management

IL-102 Organizational Communication

IL-103 Organization, Organizations, and Technology

IL-104 Office Management

IL-105 Policy and Planning

IL-110 Professional Development

IL-111 Policy and Planning

IL-112 Policy and Planning

IL-113 Policy and Planning

IL-114 Policy and Planning
Marketing
Chair: Peter C. Ries
Faculty: professor Peter C. Ries, associate professor Paul S. Barney, David J. Garry, Robert J. Hahn, Donald J. Marian, Marita M. Morkness, and M. E. Mehlman
Degree offered: B.B.A., M.B.A., M.B.A.-Ph.D.

Undergraduate Program
The Department of Marketing offers courses that help undergraduate students understand the social as well as the economic role of marketing. Several decades ago the study of marketing dealt simply exclusively with business activities involved in the flow of goods from production to consumption. Today the study of marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods.

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Graduate Program
Marketing.

Courses
For Undergraduates and Graduates

For Undergraduates and Graduates

For Undergraduates and Graduates
Primarily for Graduates

68-281 Directed Readings in Marketing
Individual topics and readings in selected topics in marketing. Prerequisite: consent of instructor.

68-282 B.A. Research Report
Student writes a major paper. For northwest M.A. candidates only. Prerequisite: consent of instructor.

68-285 Contemporary Topics in Marketing
Special topics in contemporary trends at the graduate level. Prerequisite: consent of instructor.

68-288 Internship in Marketing—B.A.
Internship and academic environment of marketing decisional and behavioral science applied to consumer behavior, media and micro market appreciation, marketing goals, plans, and strategies. Prerequisites: 68-185 and 68-228.

68-289 Marketing Research Methods
Methods of design and analysis of marketing research studies, including surveys and laboratory and market studies requirements, interpretation of statistical data, and computer applications. Emphasis on data collection and statistical analysis. Prerequisite: consent of instructor.

68-288 Special Studies
Study of behavior of consumers and industrial buyers; examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

68-296 Product Management
Preparation of product planning, development, and management as corporate strategy; analysis of product portfolio theory, search for new product ideas and their evaluation, structure of planning and standardization of product lines, product development processes, and management of product flow. Prerequisites for B.A.A. students. Prerequisite: consent of instructor.

68-298 Marketing Communications
Examination of marketing communications as dialogues between producers and consumers and how promotional mix evolves; emphasis on advertising, sales promotion, and personal selling. For B.A.A. students with no prior course work in advertising, marketing, communications, or promotion strategy. Prerequisite: consent of instructor.

68-298 Multivariate Methods in Marketing
Statistical computer methods and concentration on those methods as they relate to marketing problems: regression analysis, factor analysis, discriminant analysis, canonical analysis, and market simulation. Prerequisites: consent of instructor.

68-290 Marketing Models
Examination of theoretical and operational models in marketing with emphasis on recent advances; logical flow and quantitative models which divide in some detail a number of models representing the range of a number of models and participation in modern development projects. Prerequisite: consent of instruction.

68-293 Psychological Scaling for Marketing Applications
Uses of a number of psychological scaling techniques which have applications in consumer research in marketing: topics include definitions and uses of rank order scales, semantic differential scales, multidimensional scaling models, nominal scales and cluster analysis, other algorithms on data collection methods and computer algorithms such as ALCAL and MCAHANTY. Prerequisite: consent of instructor.

68-295 Social Research in Marketing
Examination of current marketing literature and current research interests of faculty and students. Prerequisite: consent of instructor.

68-295 Research in Marketing
Individually guided research projects on as appropriate topics in marketing. Prerequisite: consent of instructor.

68-295 In Marketing
Prerequisite: consent of instructor.

68-295 Field Studies in Marketing
Supervised knowledge regarding specific aspects of marketing studied in real problems in ongoing business firms, individuals or teams of students conduct field studies under faculty supervision. Prerequisite: consent of instructor.
The College of Dentistry is both administratively and physically an integral part of the University. It draws upon and contributes to the University’s diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the colleges of Medicine, Nursing, and Pharmacy in the University Health Center, whose teaching, research, and service activities have earned international recognition.

**Doctor of Dental Surgery**

The basic educational program leading to the degree Doctor of Dental Surgery (D.D.S.) consists of at least three years of preprofessional study and approximately four years of study in the College of Dentistry. The dental curriculum consists of five main units:

**Basic Sciences**
- Gross anatomy; biochemistry; histology; physiology; general pathology; oral pathology; pharmacology; microbiology.

**Restorative Dental Sciences**
- Gross, microscopic, and radiographic dental anatomy; dental materials; endodontics; operative dentistry; fixed partial prosthesis; removable prosthesis.

**Oral Medicine**
- Preventive dentistry; oral diagnosis; dental radiology; oral pathology; anesthesia and pain control; oral surgery; periodontology. In addition, there are selected courses in the bioscience options program which are correlated with the basic and clinical sciences.

**Community Dentistry**
- Ethics; epidemiology; nutrition; preventive dentistry; community health; principles of human behavior; dental economics; dental jurisprudence; geriatrics.

**Pediatric Dentistry**
- Facial growth and development; pedodontics and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient treatment situations during the first year.

The second-year program includes further activities in the basic and clinical sciences.

Third-year dental students rotate through a series of “clerkships” which expose them to each of eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment which simulates conditions in private dental practice. Fourth-year students also are exposed to various extramural health programs that include state and University Hospitals and the State Department of Health; also, there are preceptorships in which fourth-year dental students assist in selected dental offices throughout Iowa. The preceptorships expose students to facets of dentistry usually not observable in an academic setting, such as practical business management procedures, appointment-book control, the dynamics of presenting treatment plans to private patients, and the relationship of the dentist to the community.

**Promotions and Graduation**

Student promotions and graduation are determined by the academic and professional performance committees appointed by the dean from the basic preclinical and clinical sciences, and from the other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

**Committee for Appeals**

When a student has been asked to withdraw from the college, a special consideration on problems concerning promotion or graduation, he or she may appeal this decision to the dean. All appeals shall be heard by an ad hoc committee appointed by the dean. The committee considers each matter on its own merits with regard to achievement, promotion, abaseness, and general fitness to enter the dental profession. The recommendation of the appeals committee is submitted to the dean for final action.

**State Board of Dentistry Licensure Examination**

The states of Kansas, Colorado, Minnesota, Oklahoma, Texas, Wisconsin, Nebraska, Minnesota, Wyoming, North Dakota, and South Dakota have joined in
the formation of the Central Regional Dental Testing Service to replace clinical examinations previously given by the states individually. These examinations are administered at several testing sites located at schools of dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service and are available from its administrative secretary. Successful completion of requirements of the Central Regional Dental Testing Service will be accepted as the member states for a five-year period is lies of their individual states' examination requirements.

Facilities

The Dental Science Building, a major unit in an expanded health center, enables the college to accelerate its research activities, and facilitates the development of interdiscipline communication in health center teaching, research, and student-care activities. The health center includes the colleges of medicine, nursing, and pharmacy; the Bowen Science Building; University Hospital; and a Health Sciences Library. The Health Sciences Library houses all of the University's special health science holdings, a total of 173,000 volumes, including the College of Dentistry's collection of more than 18,000 volumes on dentistry and allied scientific areas, and 263 dental journals the college currently receives. The library receives a total of 2,800 journals from the combined health professions.

The Dental Science Building consists of two connected four-story wings located on either side of the main building. The main wing is devoted to clinical teaching, with various departmental clinics, support laboratories, clinical research space, offices, and the teaching learning center. The north wing houses a variety of teaching, administrative, and research facilities, including teaching laboratories, research laboratories, administration area, an individual production center, and the programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local organization, the Iowa Student Dental Association. In addition, there are local chapters of the American Association of Women Dentists and the American Society of Dentistry for Children. Students who rank in the upper 12 percent of the senior class are eligible for election to Omicron Kappa Upsilon, national scholastic honorary dental society. The American dental professional fraternity, Delta Sigma Delta and Psi Omega, have chapter houses at Iowa, and both have spouses' organizations.

There is also a Dental Student Wife Club.

Expenses

The College of Dentistry maintains a Supply-Inventory Management System (S.I.M.S.) that provides the student with most of the instruments and supplies necessary throughout dental training.

The instrument usage fee for the program leading to the D.D.S. degree is payable in installments over the first three years of the program. A fee for expendable laboratory supplies is charged each of the first three years. A $100礴age fee is also levied; the repayment is refundable upon graduation or termination of enrollment.

Financial Assistance

Under the Health Professions Loan Program, it is possible for dental students to borrow a maximum of tuition plus $2,500 each year of their undergraduate professional studies. Eligibility is established by completion of the College Scholarship Service Financial Aid Form, which includes a parents' financial statement. Dental students may also apply for Guaranteed Student Loans through banks and other lending agents; students may borrow a maximum of $25,000 during the professional program. Interest rates on Health Professions Loans and Guaranteed Student Loans are comparatively low and are repayable over an extended period of time after the recipient completes the course of study.

A number of short-term loans are available from the American Dental Association, the Iowa Dental Association, the Kellogg Foundation, the Iowa Dental Achievement Fund, and other sources, to help students in emergency situations. There are available through the financial aid coordinator of the student dental association in the College of Dentistry, the "Financial Aid" section of the Catalog or inquire at the Office of Student Financial Aid for updated information regarding financial assistance available to dental students.

Admission

Applications are accepted beginning June 1 of the year prior to the year for which application is made. The closing date for applications is November 30. The prospective dental student is encouraged to embark on an educational program that will lead to a standard bachelor's degree. This will allow the student to consider a combined program which enables him or her to earn a standard bachelor's degree upon completion of the freshman year in dentistry (see Combined Liberal Arts-Dentistry Course).

General Basis for Admission

Each applicant must submit to the American Association of Dental Schools Application Service a completed application form. The application and all required materials must be available from the University Office of Admission.

Pradental Studies

The basic academic requirement for admission to the College of Dentistry is the completion of at least 84 semester hours of academic study at an accredited college. In exceptional circumstances, candidates with fewer than 84 semester hours of college work will be considered for admission if the applicant's performance and potential for the dental profession are considered outstanding.

The pradental program of study should include:

- Rhetoric
- Satisfactory accomplishment in English composition, rhetoric, and speech communicative with the academic requirements for a bachelor's degree at the college attended.
- Physics
- One year (equivalent to eight semester hours), of which one-fourth must be laboratory work.
- Chemistry
- Two years (equivalent to 16 semester hours) (equivalent to eight semester hours) hours of chemistry, and of which one-fourth must be laboratory work.

Biology
- One year (equivalent to eight semester hours) major in general biology (or principles of biology and botany [not botany alone]).
- Electives
- Suitable course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.

The dental admissions committee may waive or reduce some of the above requirements when the candidate for admission is considered outstanding in other respects.

Combined Liberal Arts-Dentistry Course

The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University makes it
Nondepartmental Courses
112/120 First-Year Continuing Session 0 h.
112/140 Introduction to Dental Anatomy 2 h.
Indicate the entity of training that range from individual to societal, psychological and cultural aspects on health behavior. Reports to medical society on the entity that affect medication. Clinical assessment of the existence that affect treatment and patient management.
112/150 Second-Year Continuing Session 0 h.
112/160 Basic Science Options
Selection from a series of elective mini-courses to emphasize the scientific basis of dental practice.
113/190 Dental Therapeutics
Clinical experiences with caries for aesthetics, health promotion, local anesthesia and postoperative pain control/ instruction/ writing; drug administration in the dental field.
112/170 First-Year Clinical Session 0 h.
112/180 Program Ahead
Opportunities for foreign dental students are regulated with the guidelines of dental colleges abroad.
112/190 Field Visits to Clinics 0 h.
112/210 Second-Year Seminar 1 h.
Requirements for academic specialities in postgraduate training, conducted in a continuing education setting.

112/190 Advanced Clinical Specialties
Basic science courses are offered by departments in cases other than Dentistry, and are a required part of the dental curriculum:
102/120 Human Gross Anatomy for Dental Students 4 h.
112/130 General Pathology for Dental Students 4 h.
112/180 Oral Microscopic Anatomy and Physiology 4 h.
112/190 Dental Microbiology 4 h.
611:020 Introduction to Human Pathology 4 h.
711:010 Pharmacology for Health Sciences/Dental Students 4 h.
712:120 Mammalian Physiology 4 h.
901:120 Biochemistry for Dental Students 4 h.

Clinical Management Concepts
Faculty: professor Thomas V. Gardner assisted by: Associate Professor Stephen D. Schuster, Assistant Professor Richard R. Chabot.
112/118 Group Associate Seminar 2 h.
Weekly seminars of the faculty and student activities arranged to provide educational experiences in product-oriented dental care including comprehensive patient record rammifications.
112/120 Clinical Aspects Seminars
112/130 Advanced Topics in Quality Assurance 2 h.
Diagnosis of the concept of quality assurance from a practicing dentist's point of view, a dental educator's point of view, a dental epidemiologist's point of view, and a general practitioner's point of view. Emphasis on clear student's practice dental practice in clinical quality assurance criteria. Discussion of ethical and moral dilemmas in relation to dental practice.
112/190 Advanced D4U
Clinical opportunities to assess the entire concept of delivering comprehensive dental treatment, utilizing the skills in a complete dental seminar, small group seminars, individual clinical counseling and self
Dental Hygiene

Department Chair: Pauline Bries
Faculty: Professor Joisa, John associate professors: John K. Hartman, Pauline Bries, Elizabeth Nutter, Kay Meador, Nancy Saly Lofthus

Clinical Dental Hygienist: Kathryn D. Freese, Mary Ann Conklin, Catherine Davis, Nancy Melkisetson, Jamie Steier-Maupin

Assistant professor: James E. Oates, Barbara Trautvetter

Degree offered: D.D.S., M.S.

Bachelor of Science

Qualified by education and licensure, the dental hygienist applies knowledge of the basic, social, dental, and clinical sciences in providing patient services for the prevention and control of dental disease.

The Bachelor of Science degree program in dental hygiene comprises two years of general education followed by two years of specialized study. Students who wish to graduate in December rather than in May may enroll in an extended summer semester between the junior and senior years.

The curriculum is accredited by the Commission on Dental Accreditation of the American Dental Association. Program graduates are prepared to take the national and state dental hygiene licensure examinations required for dental hygiene practice.

Included in the general education requirements are courses in the basic and social sciences. These courses provide the student with educational preparation in disciplines relevant to specialized work in medical and dental sciences and in dental hygiene.

Students take the specialized courses during the junior and senior years. In the junior year, they enroll in 602 Human Microscopic Anatomy; 711-100 Intermediate Pharmacology; 80-81 Introduction to Periodontology; 80-81 Operative Dentistry Laboratory III; 80-82 Dental Hygiene; 80-82 Introduction to Oral Pathology; 80-81 Oral Pathology for Dental Hygienists; 80-82 Dental Radiology for Dental Hygienists; 87-81 Anesthesia, Analgesia; and 88-51 Dental Anatomy.

In addition, juniors learn the basic theory and clinical skills required for dental hygiene practice in 88-82 Dental Hygiene Core I and 88-82 Dental Hygiene Core II, which integrate content in dental anatomy with the theory and practice of dental hygiene.

During the senior year, students advance their clinical skills in 88-85 Clinical Dental Hygiene. In 88-80 Advanced Periodontics for Dental Hygiene Students, each student is assigned to work with a graduate student in periodontics performing procedures on adults who have active periodontal disease. This experience not only advances dental hygiene clinical skills, but provides both the hygiene and graduate dental students with a learning experience emphasizing the team approach.

Seniors receive additional clinical experience in 88-86 Clinical Dental Radiology for Dental Hygienists, Weekly lectures and seminars reinforce clinical learning in 88-86 Seminar: Dental Hygiene Concepts and Practice.

Senior students also are enrolled in 88-87 Practicum: Community Dental Health; 88-88 Seminar: Community Dental Health; TW-121 Designing and Developing Instructional Materials; and 221/210 Biostatistics.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and audiovisual media, are integrated into an integrated core. Learning emphasis is on the relationship between the underlying theory and practical application of community dental health. Weekly field experiences enable students to apply knowledge of human behavior, basic principles of communication skills, educational research techniques and to design, implement, and evaluate programs for health care and educational programs.

Admission Requirements

High School Preparation

Although there are specific high school course requirements, college preparatory courses are recommended. These courses should include four years of English; two years of the same foreign language; three years of mathematics; and one year each of biology and chemistry.

College Preparation

Eligibility for admission to the professional program in dental hygiene requires satisfactory completion of 62 semester hours of college course work. In fulfilling this requirement, the student must satisfy general education requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

Five semester hours (eight for transfer students) of zoology or general biology—37-3 Principles of Animal Biology;
Three semester hours of inorganic chemistry—4-5 General Chemistry I;
Four semester hours of organic chemistry, including biochemistry—6-6 General Chemistry II, 4-6 General Chemistry Laboratory.

Dental Hygiene-DENTISTRY

Four semester hours of microbiology—81-164 Microbiology;
Three semester hours of nutrition—71-143 Nutrition;
Three semester hours of psychology—60-1 Elementary Psychology;
Three semester hours of sociology—34-1 Introduction to Sociology Principles;
Four semester hours of anatomy—60-1 Elementary Human Anatomy;
Four semester hours of physiology—72-130 or 72-140Histology and Physiology.

These prerequisites provide the educational basis for the dental hygiene courses of study. In addition, students admitted and the professional program of study must complete basic certification in cardio-pulmonary resuscitation technique (CPR) prior to entrance. Completion of a two-year associate degree program in dental hygiene does not provide an appropriate background for transfer into the baccalaureate program at Iowa.

Students begin the professional program in dental hygiene in the fall only. Students enrolled in The University of Iowa College of Liberal Arts need admit only the dental hygiene application in the fall semester of their sophomore year. Transfer students must submit both College of Liberal Arts and dental hygiene applications. All applicants are interviewed by the dental hygiene admission committee after submitting their dental hygiene applications.

Students must apply for dental hygiene admission by March 1 preceding the fall semester in which they wish to enter the program.

Graduate Program

Although the need for qualified educators in dental hygiene continues, the gradual social sciences trend and the need for preparing graduates to contribute toward the advancement of new knowledge in dental hygiene. Therefore, graduate program goals place emphasis on the acquisition of advanced scientific knowledge in the biological and social sciences and basic knowledge of the medicine and experience in conducting research.

The curriculum design provides one student with major concentration in an advanced dental hygiene specialty. In the biological field, this consists of the histopathology of dental plaque, including plaque microbiology and immunology, and the relationship of plaque to caries and periodontal disease. Students are exposed to dental plaque, emphasizing immunological, and the prevention of dental diseases by immunization and antimicrobial agents.

In the social science area, students consider the implications of applied
Graduate Admission Requirements

Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include an acceptable score on the Graduate Record Examination (GRE) Aptitude Test and a 2.8 minimum undergraduate cumulative grade-point average (GPA). The undergraduate education of the applicant should include courses equivalent to those in the undergraduate dental hygiene major at The University of Iowa. Candidates for admission must submit an official transcript of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Calvin Hall. These materials must be received before the candidate's application can be processed. Application for admission and information on the Graduate Record Examination can be obtained from the Office or Graduate Admissions.

Special Programs

Through an independent study program, students can explore additional career options in dental hygiene or enrich their educational background in a dental hygiene-related field of study. For example, a student interested in clinical research may become involved in a faculty directed research project. Others considering graduate programs in public health or dental hygiene education may, under the guidance of a faculty advisor, undertake projects related to these interest areas.

Facilities

The University of Iowa dental hygiene majors receive their pre-professional training in the University of Iowa School of Dental Science Building. This building is part of The University of Iowa Health Care complex, one of the nation's leading health science teaching, research, and patient care facilities.

Financial Aid

In addition to financial assistance available to University students in general, there are a limited number of loans specifically for dental hygiene students. These loans are based on assessment of the student's academic record as well as financial need.

Courses

For Undergraduates

882.01 Dental Hygiene

Survey of human dental anatomy, physiology, and function. Includes discussion of primary and permanent dentition.

882.01 Dental Hygiene Core 3 s.h.

Introduction to dental hygiene theory, clinical skills, health promotion, health maintenance, and dental disease didactics and clinical experiences are related to comprehensive and dental hygiene practice.

882.01 Dental Hygiene Core 5 s.h.


882.01 Dental Hygiene Core 5 s.h.

Practice of advanced dental hygiene procedures with emphasis on scaling and root planning procedures and other dental hygiene procedures.

882.01 Seminar: Dental Hygiene Concepts and Practices

Review of current research and advances in dental hygiene theory and practice, assessment of dental hygiene practice, and evaluation of ethical, sociocultural, and professional issues within the dental hygiene profession.

882.01 Seminar: Community Dental Health 7 s.h.

Knots of dental health, dental care, educational and research settings are applied in field experiences to design, implement, and evaluate health care and educational programs.

882.01 Seminar: Community Dental Health 7 s.h.

Study of factors influencing health, health care delivery and utilization, dental epidemiology, need and access for dental care, dental care system, and research techniques are emphasized.

882.01 Independent Study 1-9 s.h.

Designed for students who plan to pursue additional study or to explore career interest in dental hygiene education, research, or public health.

For Graduates

882.01 Seminar: Dental Hygiene Literature Review 1 s.h.

Analysis of dental hygiene literature on public, professional, and educational factors influencing trends and current status of knowledge in field of dental hygiene.

882.01 Seminar: Dental Hygiene Research 1 s.h.

Evaluation of educational and clinical research in dental hygiene, the impact of research findings in clinical practice of dental hygiene.

882.01 Seminar: Dental Hygiene Research 1 s.h.

Introduction to research topics, translation of research design to research design for master's thesis.

882.01 Selected Topics in Dental Hygiene Education 1 s.h.

Theory and research applied in specific areas of dental hygiene education in clinical, didactic, or field settings, emphasis on theoretical and methodological aspects of dental hygiene.

882.01 Seminar: Dental Hygiene Research 1 s.h.

Emphasis of current research conducted on culture, educational, and professional issues influencing dental hygiene and patient care.

882.01 Thesis Dental Hygiene 1-5 s.h.

Dissertation of research and preparation of defense.

Endodontics

Department head: Kenneth L. Zuckerman

Faculty: John M. Hany, Scott S. visan, and associate professor Kenneth L. Zuckerman.

Degree offered: M.S.

Predoctoral Program

Course work and clinical experiences in endodontics are of vital importance in the overall education of a dental student.

Predoctoral endodontics is taught during the third year of dental school and includes both didactic and laboratory courses. In clinical endodontics, the student studies.
Fixed Prosthodontics

Department Head: Kenneth A. Turner
Faculty, professors: Laurence Helder, James Frederick, David Fritz, Gary Staton, Robert McColler, Alan Rabson, Louis Kulesza
Graduate program: M.S. or Certificate

Predoctoral Program

The department participates in the D.D.S. program for dental students at all levels. Predoctoral courses at the first and second level prepare the student with a background in materials and techniques used in fixed prosthodontics treatment. Third-year students participate in a threaded clinic program of patient treatment in the area of fixed prosthodontics. The department provides a consultation service to students in the fourth-year level.

Postdoctoral Programs

The department offers Master of Science in Prosthodontics and Certificate programs. The primary purpose of the Master of Science program in fixed prosthodontics is to train and prepare dentists for careers in fixed prosthodontics education and/or research. The certificate program is designed primarily for individuals wishing to further prepare themselves for private practice in fixed prosthodontics. Both programs satisfy the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Master of Science

The program gives major emphasis to fixed prosthodontic theory and treatment, and includes seminar courses in other specialties of dentistry. Curriculum includes a course in research methodology, a course in biostatistics or elementary statistical inference in medicine, and course work in the general area of basic sciences. A research project and thesis is also required for the master's degree. Each student is required to submit a manuscript suitable for publication in a nationally recognized professional journal, based upon the student's research and/or thesis topic.

Certificate Program

The department offers a certificate program which provides more clinical experience than the M.S. program, and does not require a thesis. The certificate also satisfies the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Admission

The minimum requirements for admission into the program correspond to the minimum requirements for admission to the Graduate College. In addition, the student must hold a D.D.S. or D.M.D. degree or its equivalent.

Courses

85120 Prosthodontics, Aesthetic Laboratory 2.5 hrs. The student learns to fabricate and manipulate dental materials through fabrication of prosthodontic restorations.
85121 Dental Materials 2.5 hrs. An introduction to the scientific and mechanical properties of the various materials used in dentistry.
85122 Occlusion I 2.5 hrs. The student learns to fabricate and manipulate dental materials through fabrication of prosthodontic restorations.
85140 Prosthodontic techniques I 2.5 hrs. An introduction to the scientific and mechanical properties of the various materials used in dentistry.
85141 Prosthodontic techniques II 2.5 hrs. An introduction to the scientific and mechanical properties of the various materials used in dentistry.
85180 Prosthodontic Clinical Practice 2.5 hrs. The student learns to fabricate and manipulate dental materials through fabrication of prosthodontic restorations.
85181 Prosthodontic Clinical Practice II 2.5 hrs. The student learns to fabricate and manipulate dental materials through fabrication of prosthodontic restorations.
85160 Prosthodontic Clinical Practice III 2.5 hrs. The student learns to fabricate and manipulate dental materials through fabrication of prosthodontic restorations.
85182 Prosthodontic Clinical Practice IV 2.5 hrs. The student learns to fabricate and manipulate dental materials through fabrication of prosthodontic restorations.
The applicant must be a graduate of an accredited college of dentistry and be licensed to practice dentistry in the United States.

The applicant should be in the upper third of his or her graduating class. Documents required include application for graduate oral surgery; applicant appraisal form applicant's references; transcripts; and letters of recommendation from the dean of the dental college from which the applicant graduated, and from two professional references.

Applications are invited only if application has been completed and all other requirements have been fulfilled. All applications should be made to the University of California by January 1 prior to the July 1 effective date.

The graduate admission office will send an admission form to the applicant to be completed for the Graduate College by approximately March 1.

Facilities

The University Health Center has outstanding dental and clinical science departments which stimulate and support scholarly research and support clinical practice. The facilities of the University Hospitals, the Veterans Administration Medical Center, and the colleges of Dentistry and Medicine provide an appropriate environment for residency training in oral surgery.

Hospital Organizations

Requirements for the Master of Science degree may be completed during residency. The M.S. program comprises a three-year course of integrated didactic and clinical study, and includes a research project and the preparation of a thesis.

Admission

Admission is limited to July 1 of each year for a full three-year program. The application deadline is September 1 for admission July 1 of the next fiscal year.

The Graduate Record Examination (GRE) Aptitude Test is required.
Orthodontics

Department Head: John S. Clarke
Faculty: Professorship and/or cert. in Orthodontics; associate professorship; Shoji Nishida
Degree offered: M.S.

Predoctoral Program

The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, and treat with comprehension simple malocclusions of the teeth.

Lecture courses guide the student in the learning of basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, diagnostic records are taken and evaluated and treatment appliances are fabricated. The department supervises a volunteer program of clinical treatment of selected patients.

Graduate Program

The purpose of the graduate program in orthodontics is to educate specialists capable of diagnosing and treating any malocclusion of the teeth requiring comprehensive care. The specialist should be familiar with and able to critically analyze biologic, biomechanic, diagnostic, and treatment concepts in orthodontics.

Satisfactory completion of a 35-month program is required for the Ph.D. degree. In addition, lecture courses, seminars, clinical instruction, and a research paper, qualify a student for the Certificate of Orthodontics. If a student successfully completes a thesis based on an original research project, he or she will qualify for an M.S. degree in addition to the certificate.

Opportunities are available for research and independent study in the department.

Special facilities for research in biomechanics and craniofacial growth are available.

Interaction with other departments provides learning and research opportunities in surgical orthodontics, cleft lip and palate treatment, speech pathology, animal experimentation, and human growth.

Admission

Admission requires the B.D.S. degree, or its equivalent, and satisfaction of Graduate College requirements.

The application deadline is December 15 for the class starting July 1. Applicants will be required to come to the University for interviews with the faculty of the department.

Courses

59:115 Growth and Development 1.5 h.
59:120 Orthodontic Diagnosis and Its Biological Basis 1.5 h.
59:130 Orthodontic Therapeutics 1.5 h.
59:135 Orthognathic Surgery 1.5 h.
59:140 Orthodontic Practice 1.5 h.
59:160 Orthodontic Orthopedics 1.5 h.

For Graduate Students

59:250 Dental Implant Therapy: Clinical and Biologic Aspects 3 h.
59:260 Orthodontic Education: Principles and Practice 3 h.
59:270 Orthodontic Therapeutics and Treatment Planning 3 h.
59:280 Orthodontic Research 3 h.
59:290 Orthodontic Research 3 h.
59:300 Orthodontic Treatment 3 h.
59:310 Orthodontic Therapeutics and Treatment Planning 3 h.
59:320 Orthodontic Research 3 h.
59:330 Orthodontic Research 3 h.
59:340 Orthodontic Research 3 h.
59:350 Oral Pathology 3 h.
59:360 Orthodontic Therapeutics and Treatment Planning 3 h.
59:370 Orthodontic Research 3 h.
59:380 Orthodontic Research 3 h.
59:390 Orthodontic Research 3 h.
59:400 Orthodontic Research 3 h.
59:410 Orthodontic Research 3 h.
59:420 Orthodontic Research 3 h.
59:430 Orthodontic Research 3 h.
59:440 Orthodontic Research 3 h.
59:450 Orthodontic Research 3 h.
59:460 Orthodontic Research 3 h.
59:470 Orthodontic Research 3 h.
59:480 Orthodontic Research 3 h.
59:490 Orthodontic Research 3 h.
59:500 Orthodontic Research 3 h.
59:510 Orthodontic Research 3 h.
59:520 Orthodontic Research 3 h.
59:530 Orthodontic Research 3 h.
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59:560 Orthodontic Research 3 h.
59:570 Orthodontic Research 3 h.
59:580 Orthodontic Research 3 h.
59:590 Orthodontic Research 3 h.

For Doctoral Students

59:600 Orthodontic Therapeutics and Treatment Planning 3 h.
59:610 Orthodontic Research 3 h.
59:620 Orthodontic Research 3 h.
59:630 Orthodontic Research 3 h.
59:640 Orthodontic Research 3 h.
59:650 Orthodontic Research 3 h.
59:660 Orthodontic Research 3 h.
59:670 Orthodontic Research 3 h.
59:680 Orthodontic Research 3 h.
59:690 Orthodontic Research 3 h.

Pedodontics

Department Head: Stephen H. Wise
Faculty: Professorship and/or cert. in Pedodontics; associate professorship; Shoji Nishida
Degree offered: M.S. (Certificate also offered)

The Department of Pedodontics provides instruction for dental students in the prevention and treatment of pedodontic and childhood dental diseases. It offers instruction in preventive, orthodontic, and surgical treatment procedures. It gives special consideration to reviewing current literature and managing dental problems of handicapped children, and offers educational and treatment through proper utilization of dental auxiliary personnel and record management.

The Graduate Program

Graduate study in pedodontics leads to either certification or a master's degree. The program gives special emphasis to preparation for certification by the American Board of Pedodontics. It is fully accredited by the Commission on Dental Education of the American Dental Association.

Students are trained at all phases of pedodontics, to permit them career
Courses
90:141 Pediatric Dentistry and Juvenile Dentistry 3 h.
90:141B Contemporary Pediatric Dentistry 3 h.
90:150 Behavior Management 3 h.
90:151 Clinical Problems in Pedodontics 3 h.
90:153 Dental Practice 3 h.

Primary for Graduates
90:210 Introduction to Advanced Clinical Pedodontics 3 h.
90:211 Further graduate studies; emphasis on growth and development, child management, and therapy.
90:214 Microscopic Pedodontics Laboratory

Research Opportunities
Research carried out by faculty and graduate students in pedodontics has been selected regularly for national and international publications. Clinical and laboratory research projects are in progress, with financial support from federal agencies and other sources. Significant contributions have been made in the field of forensic dentistry, periodontics, orthodontics, and management of developmentally disabled children.

Quality of Faculty
Faculty members hold numerous national and state offices, committee memberships, consultantships, and honors in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate frequently in continuing education programs for dentists and other health science personnel. Several members are Diplomates of the American Board of Pedodontics.

Financial Aid
Sufficient support is available to qualified students through a grant from the Office of the Maternal Child Health, Bureau of Community Health Services, Department of Health and Human Services.

Admission
Apples to the Graduate College.

Periodontics/DENTISTRY

Periodontics
Department Head: Philip A. Lattouf
Faculty: Professor Phillip A. Lattouf, Luc G. D'Amico, William C. Rubinstein, Charles D. Saffman, and John R. Hunter.

Master of Science Program
The Master of Science program is designed primarily to provide training for teaching, research, and specialization in periodontics. This program meets all eligibility requirements for American Board of Periodontology certification.

Ad Hoc Interdisciplinary Ph.D. Program
Unver Graduate College regulations, independent studies or internships for the independent doctoral programs of study may be developed. The Graduate College grants final approval of such individual programs. The Department of Periodontics will assist in the development of individual doctoral programs designed to train dentists for careers in teaching and research in periodontal disciplines. Such
## Courses

### Predoctoral

#### 8325 Periodontics
- **3.5 unit(s)**
- Fundamentals of periodontology for dental students, presented in a lecture and seminar format supplemented by slide and film series.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>8325</td>
<td>Periodontics</td>
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</tbody>
</table>

#### 8384 Advanced Periodontics/Dental Hygiene
- **3 unit(s)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>8384</td>
<td>Advanced Peri. Dent. Hygiene</td>
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</tbody>
</table>

### Graduate

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>8330</td>
<td>Advanced Periodontology</td>
</tr>
<tr>
<td>8350</td>
<td>General construction and function of the oral environment and clinical procedures in general practice.</td>
</tr>
<tr>
<td>8370</td>
<td>Basic sciences for students with no previous background in periodontics.</td>
</tr>
<tr>
<td>8380</td>
<td>Advanced Oral Microbiology</td>
</tr>
<tr>
<td>8390</td>
<td>Basic and Clinical Research in Periodontology</td>
</tr>
</tbody>
</table>

### Master of Science Program

The Master of Science degree program is designed to prepare students in community dentistry and public health, with emphasis on research, teaching, or administration. The program objective is to help students achieve a higher degree of professional and academic expertise in their respective areas of specialization. Graduates will have met educational requirements necessary to establish them eligibility for the American Board of Dental Public Health. The program requires a minimum of 42 semester hours of coursework. The full-time program requires a minimum of 4 months of course work and 4 months of thesis work.

### Program Faculty

<table>
<thead>
<tr>
<th>Department</th>
<th>Name</th>
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<tbody>
<tr>
<td>Dentistry</td>
<td>Jane S. Smith</td>
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</tbody>
</table>

### Research Facilities

Research facilities include a departmental research laboratory, and collaborating laboratories in histology and histochemistry, microbiology and biochemistry, electron microscopy, and growth and development. These facilities are available in addition to those available by arrangement in the University Hospitals, the Veterans Administration Medical Center, and in the basic science departments.

### Financial Aid

The applicant must be financially prepared to undertake uninterrupted studies. Assistantships are offered, dependent upon available resources.

### Admission

Admission to graduate study in periodontics requires the D.D.S. degree or its equivalent, and installation of Graduate College admission requirements. (See "Graduate College" section of the Catalog). National Dental Board Examination scores, if available, are required. In admissions to the Ph.D. program, the department gives strong preference to applicants with the M.D. degree. Interviews are encouraged but not mandatory.
Complete Denture Seminar I
Review of current research in principles, practices, and concepts of complete denture construction.

Complete Denture Seminar II
Review of case research in principles, practices, and concepts of complete denture construction.

Removable Partial Denture Seminar I
Review of case research in principles, practices, and concepts of removable partial denture construction.

Removable Partial Denture Seminar II
Review of case research in principles, practices, and concepts of removable partial denture construction.

Residence in Removable Prosthodontics
Literature review, drilling preparation, and data collection for selected research project.

Tools Preparation: Removable Prosthodontics
Preparation and delivery of teeth for research project.

Advanced Clinical Removable Prosthodontics
Treatment of patients requiring complete or removable partial dentures.

Techniques in Removable Prosthodontics
Assigned problems involving technical methods in construction of complete and removable partial dentures.

Practice Teaching: Removable Prosthodontics
Clinical and classroom teaching experience assigned by advisor.

Journal Club
Review of current literature in prosthodontics.

Lecture Assignment: Removable Prosthodontics
Discussion of assigned readings that are considered classics in removable prosthodontics literature.
The nation's first university-level professorial chair in education was established at The University of Iowa in 1872. The department became the School of Education in 1907, and the College of Education, structured in the basic pattern which governs it today, was founded in 1913. The growth of the college has corresponded to the growth of the University.

Faculty members have been leaders in a variety of educational fields. Particularly noteworthy are the early developments in educational testing and measurement which helped lay the foundation for the present-day education testing and measurement industry, thus making Iowa City one of the best known centers for this educational specialty.

The college has seven divisions: Foundations, Pre-Secondary and Continuing Education; Educational Administration; Early Childhood and Elementary Education; Psychological and Quantitative Foundations; Secondary Education; Counseling Education; and Special Education.

The University is accredited by the National Council for Accreditation of Teacher Education (NCATE) for the preparation of elementary and secondary teachers and other professional school personnel. With the doctorate the highest degree approved. Teacher preparation programs are also reviewed and approved by the Iowa Department of Public Instruction.

**Teacher Education Programs**

The College of Education offers undergraduate programs in teacher education leading to state of Iowa teacher certification in early childhood and elementary education, secondary school teaching, teaching in special education for emotionally disturbed and physically handicapped children, and health occupations education.

Students admitted to the Teacher Education Program (T.E.P.) are degree candidates in the College of Liberal Arts and must complete the requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies, as explained in the College of Liberal Arts section of the University Catalog. Policies, rules, and regulations of the college apply to students in the T.E.P. Students seeking the B.S. degree should especially note that a minimum of 40 semester hours of credit earned in the College of Education may be applied toward the degree.

**Admission**

Students who are interested in becoming teachers should indicate their proposed teaching majors on the application for admission to The University of Iowa. Students who decide at a later date to enter the Teacher Education Program must declare the appropriate teaching major as their major in the College of Liberal Arts Advisory Office, 118 Shaeffer Hall, and submit an Application for Admission to the Teacher Education Program to the Office of Admissions, 107 Calvin Hall by May 15 preceding the academic year in which the applicant plans to enroll in professional education courses. Applications received after that date will be approved only if faculty and program resources permit.

Although freshmen are admitted to the T.E.P., students are not eligible to enroll in professional education courses before they have completed 28 semester hours. The academic records of all students admitted to the T.E.P. will be reviewed at the end of each semester and students who have not maintained a 2.2 grade-point average on all course work attempted and on all University of Iowa course work will be dropped from the T.E.P. Students who are dropped from the T.E.P. may reapply and may be reenrolled when the required 2.2 grade-point average is achieved. If enrollment limits have not been reached.

Because of the limits of faculty and teaching assistants, it may be necessary to restrict enrollments in early childhood education, elementary education, and special education, and in social studies and English in secondary education. In the event that the number of T.E.P. applicants exceeds the capacity of a program, students will be selected by rank order on the criteria established by the faculty.

To be admitted to foundations courses in education, an undergraduate student must:

- Have been admitted to The University of Iowa as a degree candidate.
- Have completed the American College Test.
- Have attained satisfactory standing (28 semester hours) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses.
- Have achieved a 2.2 grade-point
average on all course work attempted and core course work completed at The University of Iowa; and Have submitted an Application for Admission to the Teacher Education Program (see date above).
Graduate students may have been admitted to the Graduate College; have a cumulative grade-point average of not less than 2.5 (2.7 for M.A.T.) on undergraduate course work; and have been admitted to a specific certification program (e.g., elementary education, special education, or secondary English).

**Student Teaching**
The final phase of the Teacher Education Program is the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of student teachers’ experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with the approval in advance.
To request for student teaching, the student must have:
- Satisfactorily completed 8 semester hours during one academic semester at The University of Iowa; and
- Satisfactorily completed 77:75 Educational Measurement and 77:91 Audiovisual Equipment for Instruction (Elementary), and 7E:100 Introduction: Elementary and Early Childhood Teaching or 7E:100:60 Introduction: Secondary School Teaching, and 7E:91 Prep- Ed III: Pre-Ed Practicum; or
- Satisfactorily completed the appropriate methods courses: Maintained a cumulative grade-point average of 2.2 or higher at The University of Iowa; and
- Filed application for an assignment by March 19, preceding the academic year during which student teaching is desired.

**Waivers**
Students who have completed practicum-type experiences or courses which they feel should be considered in fulfillment of requirements should consult with their advisors concerning waiver procedures.

**CUTE Program**
Students who feel they may better advance their educational interests through student teaching in an inner-city situation, and who are interested in working with the handicapped, may apply for the Cooperative Urban Teacher Education (CUTE) program through the Director of Student Teaching. Iowa is one of several midwest institutions which place selected students in the Philadelphia City Inner-city program. The program is open to qualified students who meet the requirements for student teaching.

**Overseas Student Teaching**
In cooperation with the University of Wisconsin-River Falls, a split student teaching assignment is available (eight weeks in one of our regular centers and eight weeks in a university in a developing country). Students must make their own travel arrangements. Housing will be located for the students by the on-campus coordinator. Students selecting this program must meet the regular requirements for student teaching.

**State Requirements**
Certification to teach in Iowa requires an education component in human relations. This requirement can be met with 7E:170 Human Relations for the Classroom Teacher.
Certification to teach in many states requires a course in U.S. History or in American government. An initial certificate may be obtained in Iowa without meeting this requirement. However, a certified teacher who has not previously met the requirement must complete a minimum of 2 semester hours in U.S. History or American government before he or her certificate can be renewed. Faculty members are therefore encouraged to include such a course in the coursework programs. Any of the following courses will satisfy the requirement:

- 30:1 Introduction to American Politics 3 s.h.
- 31:10 The American Political System 3 s.h.

Up to 4 semester hours may also be used toward the general education requirement in social sciences (as approved by the College of Liberal Arts)
- 18:91 American History 1490-1877 2 s.h.
- 18:92 American History 1877-1937 2 s.h.
- 18:161 The Colonial Period in America 2 s.h.
- 18:162 American Revolution Period 1740-1769 3 s.h.
- 18:163 United States in the Early Republic 2 s.h.
- 18:164 Civil War and Reconstruction 2 s.h.
- 18:167 The New Era and the New Deal 3 s.h.
- 18:168 The Contemporary United States 1940-Present 3 s.h.

**Minors**
All undergraduate minors in education for students in the College of Liberal Arts require a minimum of 18 semester hours of credit, of which at least 12 must be in courses numbered above 90. The student must have a grade-point average of 2.0 or above in courses comprising the minor.

**General Undergraduate Minor**
This minor is designed to encourage students to explore possible professions within the field of education. The student is free to choose a combination of courses provided he or she selects at least one course from each of the following six areas:

**Structure of Education**
- 7F:160 U.S. Educational System and Society 3 s.h.
- 7E:100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
- 7H:110 Introduction to Continuing Education 3 s.h.
- 7H:100 Problems and Policies in Higher Education 3 s.h.
- 7F:100 Introduction: Secondary School Teaching 3 s.h.
- 7S:101 Introduction to Education 3 s.h.

**History, Philosophy, and Sociology of Education**
- 7F:102 History of American Education 2 s.h.
- 7F:111 History of Western Education 2 s.h.
- 7F:300 Sociology of Education 2-3 s.h.
- 7F:190 Educational Sociology 2-3 s.h.
- 7H:17 Foundations of Vocational Education 2 s.h.

**Psychology of Education**
- 7F:75 Educational Psychology and Measurement 3 s.h.
- 7F:105 Child Development 3 s.h.
- 7P:107 Psychological Bases of Instructional Design 3 s.h.
- 7P:108 Socialization of the School-Age Child 2-3 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7U:130 Exceptional Children 3 s.h.

**Curriculum Foundations**
- 7W:120 Introduction to Instructional Development and Technology 3 s.h.
- 7E:166 Curriculum Foundations 3 s.h.
- 7S:116 Curriculum Foundations 3 s.h.

**Cross-cultural Factors**
- 7U:133 The University Dilemma in Educational Settings 3 s.h.
Science

This minor is designed to help individuals acquire a better understanding of the function of science in the modern world. Problems of pollution, energy shortages, depletion of natural resources, world-wide starvation, and many others are examined. Course requirements are as follows:

Any two of the following courses (for a total of 6 semester hours):

7C:103 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h.
7C:105 Societal and Educational Applications of Biological Concepts 3 s.h.
7C:108 Societal and Educational Applications of Selected Concepts of Physics 3 s.h.
7C:108 Societal and Educational Applications of Chemical Concepts 3 s.h.

All of the following:

7C:112 Introduction to Integrating the Teaching of Environmental Science 3 s.h.
7C:139 Teaching of Science 2-3 s.h.
7C:130 Science in Historical Perspective 2-3 s.h.
7C:110 Seminar: Selected Science and Education Topics 3 s.h.
7C:181 New Activities for K-12 Science 2-3 s.h.

Human Relations

This minor course emphasizes human relations education is designed to acquaint participants with several basic techniques and concerns of counselors. It offers individuals an opportunity to acquaint themselves with alternative opportunities within the counseling profession. Course requirements are as follows:

Each of the following:

7C:190 Training Group 3 s.h.
7C:190 Counseling for Related Professions 5 s.h.

At least 12 semester hours from the following:

7C:110 Process of Change and the Counselor 2-3 s.h.
7C:112 Human Sexuality 3 s.h.

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7C:164 Education, Race, and Ethnicity 3 s.h.
7C:165 Psychological Aspects of Black Behavior and Personality 3 s.h.
7C:166 Multicultural Concepts and Educational Systems 3 s.h.

Teaching Methodology

7C:160 Methods: Elementary School Language Arts 3 s.h.
7C:170 Methods: Social Studies 3 s.h.
7W:129 Choosing Classroom Strategies and Methods 3 s.h.
7W:112 Teaching of Adults 3 s.h.

Graduate Programs

Graduate study in the College of Education is guided by the general regulations of the Graduate College, with certain additional requirements imposed by the faculty of the College of Education. Graduate students in education are added to the Graduate College and receive their degrees from that college.

The College of Education offers these advanced degree programs:

Master of Arts

The College of Education offers the Master of Arts degree on both a thesis and non-thesis basis in each of the divisions. The M.A. program usually provides more specialized coursework for those who are pursuing a professional degree. The thesis program is not necessarily a terminal degree, but students who elect to continue their studies on a doctoral program are urged to select the M.A. thesis program, which offers a more specialized experience in research procedures. Students who complete a major M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their adviser or director during the early part of their doctoral program.

Master of Science

Thesis and nonthesis programs are available for students desiring a concentration in science. The degree outlines and courses of the programs are similar to those above for the Master of Arts degree.

Master of Arts in Teaching

The M.A.T. program is a 36-semester-hour (minimum) nonthesis program designed for academically superior liberal arts graduates who hold few or no professional education courses in their undergraduate programs. This program leads to a master's degree and certification as a secondary teacher in such fields as art, business, English, foreign languages, home economics, mathematics, science, and speech and drama. A grade-point average of at least 2.7 on undergraduate coursework is required for admission. At least 10 semester hours of graduate coursework in the student's proposed teaching field must be completed. A sufficient number of semester hours of graduate work in education (but not less than 20) must be taken to satisfy certification requirements.

Specialist in Education

This degree is granted upon the completion of a prescribed two-year, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration, and supervision, and special services. Of the minimum 60 semester hours required for the degree, 28 are prescribed in the area of specialization; the remaining credit may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written thesis, research paper or equivalent and must be suitable for publication in a professional journal. The criteria for acceptance of credit toward the degree are determined by the College of Education, and the College of Education reserves the right to determine the amount of credit that may be accepted toward the program. The program requirements are as follows:

Doctor of Philosophy

The Ph.D. is the highest academic degree and is conferred upon those students who have demonstrated superior scholarship and mastery of research skills in course work as well as in the preparation and defense of a dissertation.

Professional Improvement

Students may be admitted to a professional improvement program for purposes other than limited course work rather than a degree program. This program provides for minimal advisement and is appropriate for persons seeking a variety of credit, who are unfamiliar with career plans, or whose aspirations are too late to require processing for regular admission into degree programs. Faculty review committees may admit students to this program rather than as degree
candidates due to incomplete information, unclear degree objectives and the like, in order to permit registration in the University.

Certification Only
Students who have not been certified as teachers and who do not wish to pursue the M.A.T. or do not meet its admissions requirements may be admitted under the classification, "certification only." With students in this program, the adviser plans the academic major and educational sequence aspects of the program to meet the requirements for certification. Since enrolment is limited in early childhood education, elementary education, special education, and social studies and English in the secondary program, admission of graduate students to this program is to be carefully reviewed as for degree programs. Persons who wish to meet certification requirements for positions other than as a teacher (i.e., counselor, administrator, or curriculum specialist) and who meet basic requirements and need only a few courses to validate or update their certification should apply for professional improvement status. Admission to a certification only program requires a minimum undergraduate grade-point average of 2.5.

Bulletin
Prospective graduate students should write to the College of Education for its bulletin, Advanced Studies in Education, which provides specific information about the various programs, admission procedures and requirements, and rules and regulations.

Support Units and Special Resources
The Center for Educational Experimentation, Research, and Development evolves proposes, conducts studies, analyzes results, and, as monographs, and provides pre- and post-testing services. It also relates to instructional technology, materials and systems design and development, research, demonstration and dissemination of research, and curricular products. It works in collaboration with federal, state, and private agencies, as well as with cooperating school districts to design and conduct cooperative research, development, and evaluative projects.

The Computer Resources Laboratory offers consulting and computer applications and instructional development related to ongoing instruction of the College of Education.

The Curriculum Resources Laboratory provides materials primarily for students and faculty engaged in instruction and curricular projects. It brings into a

convenient central location approximately 20,000 elementary and secondary textbooks, trade books, courses of study, bibliographies, pamphlets, and non-print media such as filmstrips, gamees, records, etc. The laboratory also houses a 17,000-volume youth collection.

The Audivisual Production Laboratory houses a variety of instructional equipment and materials. Its facilities provide opportunities to develop skills in design and production of instructional materials and in the operation of instructional equipment of all types. In addition, laboratory staff members provide service to students and faculty of the College of Education for production of color slides, filmstrips, super-8 film, thermos, transparencies and other materials related to instructional development.

The Video Production Laboratory’s primary components are a large studio and several small studios where students and faculty can produce videotapes and audiotapes. High quality color video programs can be produced with staff assistance. Black-and-white equipment is available for supplemental classroom materials production and for microteaching and self-evaluation assignments.

The Educational Placement Office serves undergraduate teacher education students interested in teaching positions, as well as graduate students seeking other certified school positions. Graduate students interested in college teaching positions in education or in other fields, as well as those interested in administration or positions in higher education, are also served by this office.

The Education Library is located in the Main Library. It provides books, periodicals, reference books, film, ERIC microfiche, texts, and a reserved book room for students to study.

The Iowa Testing Program’s staff develops standardized educational tests, such as the widely-used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research studies in educational measurement and evaluation, publishes brochures, sponsors lectures and symposia, provides consulting services to school and local school systems, and provides training experiences for graduate students in measurement and statistics.

The North Central Association (NCA) of Colleges and Schools is the largest and most active of six regional accrediting associations in the United States; Iowa is one of 18 NCA-member states. The NCA’s primary purpose is to foster improvement in education in the elementary, secondary, and collegiate levels by self-evaluation of educational programs, visitation by evaluation teams and adherence to policies and standards for continued membership.

The University of Northern Iowa supports the office of the chair of the Iowa NCA State Committees.

The James B. Bredt Educational Services Center makes available multidisciplinary services for staff who have questions about the cognitive, affective, educational, or vocational aspects of their lives. In addition, consultation services are being developed for organizations concerned with educational programming, with personnel selection and training, and with improving the work environment. These services are provided by faculty and advanced graduate students in the College of Education. Counselors, psychologists, reading clinicians, special educators, administrators, specialists in measurement, instructional design, and organizational behavior, as well as other specialists, are available at the Stroud Center for conducting interviews and/or participating in assessment, intervention, and consultation.

The School Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University’s Psychiatric Hospital. Children attending this school are residential patients in the child psychiatry unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and psychiatry experience in school psychological services.

Statistical Laboratory contains a variety of calculating equipment. It provides experience in the application of such equipment to the analysis of statistical data, and it provides facilities for the search for new methods. The University of Northern Iowa is a University-affiliated facility and, as such, strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities, personnel, and research projects in program development and effectiveness.

The University Hospital School contains two units, integrated service sections, a residential program for physically handicapped youngsters from throughout Iowa, and a day program for mentally retarded youngsters from surrounding school districts. Placement of children in the facility is worked out cooperatively with parents, appropriate area education agencies, and local school programs. In addition to providing direct services to typical day hospital students, the University Hospital School has two other educational functions—specialized training for workers and trainees in all areas concerned with
handicapped children, and clinical research pertaining to causes and prevention of handicapping conditions.

The basic philosophy of the faculty is to return children to their local community programs within the shortest possible time. This philosophy is reflected in the maintenance of cooperative ties with local community programs either through outreach activities for training, pre-placement and follow-up purposes, or through conferences held at the facility.

Teacher Certification Services

Though the state has its own teacher certification requirements, a majority of state certification agencies have entered into an agreement to issue certificates to applicants who have completed approved teacher education programs in institutions accredited by the National Council for Accreditation of Teacher Education. The University of Iowa teachers education programs have been approved by the council. Students planning to major in special education are advised to be certain they will be eligible for certification if they plan to teach in a state other than Iowa.

Financial Aid

Persons interested in employment opportunities in any of the support units and in the special education programs should contact the director of each facility and indicate their interests, their academic and experience records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and related employment opportunities. Inquiries should be addressed to the chair of the division or to the director of the special program in an area in which the student believes he or she can provide service or achieve an outstanding academic record. If the student has applied for admission, has or her student file is available for review by those responsible for selecting the assistantship(s) for the student's program. Appointments are normally, but not always, renewable for the program area of the assistantship.

Special Graduate Assistantships in Education

The Iowa Teacher Education Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply, provided they are United States or Canadian citizens. The assistantships are for the academic year only; are renewable for a limited number of times, and, at the present, provide stipends similar to those for other assistantships. Holders are assigned to work under the direction of a faculty member in a research capacity, and must be enrolled for not less than 6 nor more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), letters of recommendation, and scores on the Graduate Record Examination (GRE) Aptitude Test. The application must be filed on a special form which may be obtained from the director of the Iowa Testing Program, Lindquist Center, College of Education. The application deadline is January.

Loans and Outside Employment

Information about commercial and federal loans as well as part-time employment in the University and the community may be obtained from the Office of Student Financial Aid.

L. A. Van Dyke Student Loan Fund

This loan fund has been established by former associates, colleagues, and other friends of Associate Dean Emeritus L. A. Van Dyke in recognition of his significant contribution to education in the College and the nation, and is available to degree candidates who wish to study in graduate education with superior performance records as scholars and as teachers or administrators. For further information and application blanks, contact the division chair, Division of Secondary Education, N207 Lindquist Center, The University of Iowa, Iowa City, Iowa 52242; or the University Office of Student Financial Aid.

College of Education Graduate Awards

Awards are presented to outstanding graduate students in the College of Education at the spring semester faculty meeting of the college. The awards include:

- Perry Eugene McClennen Award: To the outstanding candidate for an advanced degree in educational administration;
- Paul C. Pachur Award: To the outstanding candidate for the master's degree in education;
- Harvey H. Davis Award: To an outstanding student in educational administration or higher education, particularly a student interested in the financing of education;
- Howard R. Jonas Achievement Award: To an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or published a significant scholarly article in a reputable professional journal or other substantial printed work;
- John Leonard Davaal Memorial Award: To an outstanding graduate student majoring in educational administration. Specialization is adult and continuing education;
- James and Coretta Stroud Fellowship for Doctoral Study in Educational Psychology, Measurement, or Statistics: To an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering the dissertation phase of study; and
- Pi Lambda Theta Graduate Award—M.A. and Ph.D. levels: To outstanding graduate students of high scholarship, promise in the professional areas of research, teaching or writing, and PKA personal qualities.

Faculty

Ninety-eight percent of the members of the faculty with academic rank hold earned doctorates in their teaching fields, and 85 percent have had teaching or administrative experience in the public schools.

A major strength of the college is its close working relationship with the College of Liberal Arts. With few exceptions, professors on the College of Education faculty hold a baccalaureate or academic rank in the College of Liberal Arts. A majority of professors in each secondary school methods have doctorates in educational administration, as well as preparation in education, and hold academic rank both in their academic departments and in education.

Research and Development

The College has a long and established history of commitment to educational development and research. In addition to independent research by individual faculty members, several studies are being pursued with the support of foundation and federal agencies awarded to divisions and individual staff members. Most members of the faculty are active in professional societies, and several recently have held or now hold key attch us in such organizations at the national level. Systematic research programs are sponsored through the Center for Educational Experimentation, Development, and Evaluation which is described above.

Interdivisional Courses

The Center operates one or two interdisciplinary courses each semester, which focus on current educational problems. Participation in these courses involves a commitment for study and research, with emphasis on case analysis, and a wide variety of presentation methods and use of community resources with operations.
Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor educators, research associate dean or dean of students, or as director of admissions, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling, adult continuing education and external degree programs.

The M.A. and its equivalent is not necessarily for admission to the Ph.D. program, but to take the Ph.D. comprehensive examination, the student must offer an M.A. thesis or equivalent as evidence of ability to do research. Students whose credentials for admission are not entirely satisfactory may be admitted conditionally. Students admitted on a conditional basis usually are required to earn a 3.3 grade-point average to be admitted to regular status.

Counseling Psychology

Doctor of Philosophy

The program, an APA provisionally approved program, provides preparation in general psychology and research methods in order to help students become counseling psychologists who are competent both in the provision of a wide range of human services and in conducting research on a wide variety of psychological problems. The program insures that the candidate will be well trained in counseling psychology, conduct his own research and direct that of their students, supervise counseling clinics, evaluate counseling programs and serve as consultant and expert in private practice.

Rehabilitation Counseling

Master of Arts

The M.A. program accredited by the Council on Rehabilitation Education (CORE) provides preparation for work in state rehabilitation agencies, sheltered workshops, rehabilitation centers,

Early Childhood and Elementary Education

Early Childhood teachers serve in a variety of organizations, including pre-kindergarten and kindergartens in the public school system, Head Start and other publicly funded pre-kindergarten classes or day care centers, and privately funded early childhood centers serving children from infancy to first grade entrance age. Preparation for early childhood teaching includes the study of child development, parent-child relationships and the organization and accreditation of child care centers in addition to appropriate curriculum and methodology for young children. The program requires a minimum of four practica experiences with children of different ages within the early childhood years in public or private early childhood centers or classrooms. This program meets the requirements of the Iowa Endorsement 32 for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level and the kindergartens and elementary level should elect the elementary education major as described in a subsequent section of the Catalog and its early childhood education area of specialization. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 10 (K-6) and 5. Students interested in dual certification as teachers of pre-kindergarten and kindergartens and pre-school handicapped children would refer to the Special Education section of the Catalog. Separate application for admission to this program must be made to the Division of Special Education. A student who successfully completes this combination is eligible for Iowa Endorsements 53 and 9.

In addition to the foundations courses listed above, the following must be completed before student teaching:

17:10 Growth and Development of the Young Child
5:74:106 Child Development
17:124 Nutrition with Children

(See also 7E:103)
of curricular materials suitable for school age children, and of the methodological procedures most appropriate for presenting these materials. Much of the program is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is designed specifically to prepare students to teach kindergarten through sixth grade. Special sequences are also available for students seeking the pre-kindergarten/kindergarten endorsement and for those seeking approval for teaching in middle schools or junior high schools. Students interested in certification for elementary teaching and approval for special education should note the requirements for admission to each of these programs. Students interested in this combination must make a separate application in each program and these applications will be considered independently.

The foundations courses listed earlier in this section are required. Also, to be taken concurrently with 7E:100: Introduction: Elementary and Early Childhood Teaching, is the following:

7E:81 Pre- Education Preiliumn,
Elementary Education

To meet the foundations requirements, graduate students may elect equivalent graduate-level courses with the approval of their advisor.

The student must complete the following elementary education course be eligible for student teaching:

7E:181 Methods: Elementary School Language Arts
3 s.h.

7E:181 Methods: Elementary School Mathematias
3 s.h.

7E:181 Methods: Elementary School Science
3 s.h.

7E:181 Methods: Elementary School Reading
3 s.h.

As area specialization is required in a teaching field. The areas of specialization offered are elementary art, the arts in elementary education and elementary education, bilingual education, early childhood, health education, elementary language arts, elementary mathematics, multicultural education, elementary music, elementary reading, elementary physical education, elementary science, elementary social science, special education, and elementary generalist.

The student should consult his or her advisor concerning courses which will serve to strengthen preparation for teaching in particular area and meet the specific requirements for that area. Copies of the requirements for each area of specialization are available in the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass-nopass if they are offered with the pass-nopass option.

Required is a minimum of 15 semester hours of credit in student teaching. Students should apply to the College of Education by March 15 preceding the academic year during which they plan to do their student teaching.

Students should consult with their advisors concerning the appropriate registration pattern.

Graduate Programs

Master of Arts in Early Childhood Education

The program is designed to prepare persons to administer and/or deliver care and education to children from infancy through the early primary grades in private and public settings, or to serve as early childhood consultants or community college teachers. Admission preference will be given to those persons with undergraduate degrees which focused on the education and/or development of young children, in colleges of education, home economics, social work, or child development.

A core of courses (or their equivalents) is required of all students:

7E:181 Development and Administration of Child Care Centers
3 s.h.

7E:284 Building Foundations for Reading: Primary and Reading: Pre-Primary
3 s.h.

7E:287 Supervision and Curriculum Development in the Early Childhood and Early Childhood
3 s.h.

7E:287 Supervision and Curriculum Development in Pre-Kindergarten Care and Education
3 s.h.

In addition, a course in each of the following areas is required: parent-child relationships, family development, and child development or psychology. The remainder of the required 32 semester hours (30 with thesis) are electives mutually chosen by the student and the academic advisor.

Master of Arts in Elementary Education

This degree program, which may be taken with thesis (30 semester hours minimum) or without thesis (32 semester hours minimum), is designed to prepare master's degree candidates in elementary education to serve as team leaders, grade level or subject area supervisors, or curriculum specialists.

Successful completion of this degree, together with four years of successful teaching experience, qualifies the student for certification as an elementary school supervisor, Iowa Endorsement 19.

Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in either early childhood or elementary education. Each candidate must elect at least one course in each of these areas: social foundations, curriculum, educational psychology and measurement, and supervision. In addition, each candidate must complete an area of specialization and selected course work in advanced methodology.

Graduate students who have not completed an undergraduate program in elementary education may be admitted if they have a "certification only" candidates.

Master of Arts in Developmental Reading

This degree program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1-12. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist, Iowa Endorsement 54. The program is offered with thesis (30 semester hours minimum) and without (32 semester hours minimum). The following are required of all candidates:

7E:171 Reading Clinic: Teaching Techniques
3 s.h.

7E:172 Reading Clinic: Teaching Practices
3 s.h.

7E:284 Building Foundations for Reading: Pre-Primary and Reading: Primary
3 s.h.

7E:286 Supervision of Intermediate Reading
3 s.h.

7E:184 Methods: High School Reading
3 s.h.

7E:284 Seminar: Secondary Reading
3 s.h.

7E:308 Seminar: Research and Current Issues in Secondary Reading
3 s.h.

In addition, candidates must complete one or more courses in each of the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the advisor's approval.

Master of Science in Elementary Science

This degree program is designed to prepare master's degree candidates in elementary science to serve as team or departmental science specialist. The program may be taken with thesis (30 semester hours minimum) or without thesis (32 semester hours minimum).

Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in elementary education.
The following are required of all candidates:

7E:365 Science Education: Issues, History and Rationale 3 s.h.
7E:366 Science Education: The Nature of Science 3 s.h.
7E:257 Science Education: Teaching, Learning and Curriculum Models 3 s.h.
7E:365 Science Education: Reese Models and Conceptual 3 s.h.
7E:362 Advanced Techniques of Teaching and Social Studies 3 s.h.
Science courses to complete the minimum of 90 semester hours are selected by the candidate in consultation with the academic advisor.

Doctor of Philosophy in Elementary Education

The purpose of this program is to prepare students for college and university teaching and research positions in elementary education and for research, curriculum, supervisory, or administrative positions in public school systems and government educational agencies. The program requires a minimum of 90 semester hours, including 9 hours earned for the dissertation. Each student prepares an individual plan of study in consultation with an advisor. The final plan must be approved by the advisor and the division chair. As a general guideline, each student is expected to have a good general background in all facets of elementary education and a very strong area of specialization in at least one facet. Commonly selected specialization areas are elementary school administration, children's literature, early childhood, curriculum, language arts, mathematics, reading, and social studies. Each doctoral student must also complete a cognate or related field of content. The area of specialization may be a professional specialization, such as educational administration and measurement, special education, or general school administration, or it may be a subject field, such as English. In addition, all students must demonstrate competency with respect to appropriate research tools, most commonly statistical analysis and data processing.

Assistantships

A number of teaching assistantships are available for graduate students pursuing advanced degrees in the School of Education and elementary education. Specific assignments vary. Some involve supervising undergraduate majors in practicums, and some involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as one-half time. This classification permits students to register for a maximum of 12 semester hours per semester, or half-time status. Graduate students with assistantships must register for a minimum of 6 semester hours per semester. All assistantships are awarded on a competitive basis. To be considered for an assistantship an applicant must have been admitted on regular status to the Graduate College and must have been accepted in an advanced program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

Courses

7E:11 Growth and Motor Development 3 s.h.
Theoretical background for physical education programs, including growth and motor development. (Offered only on demand. For physical education majors only. Same as PS 2871.)
7E:211 Methods and Materials for Elementary Education 3 s.h.
Practical considerations for teaching and planning programs for prospective teachers of elementary school physical education. For physical education majors only. Same as PS 2872, 2873, 2874, 2875, 2876, or consent of instructor. Same as PS 2872.
7E:212 Physical Education, Elementary 3 s.h.
7E:213 Education for Preschoolers, Early Childhood 1 s.h.
Student spends one half day per week working with children and teachers in a pre-kindergarten setting. Open only to early childhood education majors; assignments to parents are made in TE 101. Courses: 7E:101.
7E:215 Core Pedagogical Practice, Early Childhood 1 s.h.
Student spends two half days per week for eight weeks working with children and teachers in a K-2 classroom setting. Open only to early childhood education majors; assignments to parents are made in TE 101. Courses: TE 101.
7E:101 Introduction to Childhood 1 s.h.
Overview of childhood and early childhood development including history and philosophy and general organizational patterns, personal and social concerns, politics and social issues. Same as PS 101.
7E:102 Introduction to Education 3 s.h.
Basic orientation to the field of education; organization of administrative office, instructional procedures, and curriculum; preparation for employment in educational systems. Same as PS 101. 41 or consent of instructor. Same as PS 174.
7E:103 Methods in Speech and Hearing 3 s.h.
Emphasis on educational goals, usually taken in conjunction with TE 150, which provides approximately 50 hours of supervised clinical experience for graduate students in the speech and hearing therapy program. Prerequisites: consent of instructor.
7E:104 Introduction to Environmental Studies for K-12 Programs 3 s.h.
An introduction to the basic tools and activities available for introducing environmental studies in the K-12 classroom as a core component of the curriculum. Same as PS 104.
7E:105 Introduction to Health Science for K-12 3 s.h.
Introduction to the health science for K-12 classroom; some of the concepts in grades K-8. Required for health education K-8 certification. Same as PS 105.
7E:106 Beginning Guitar 1 s.h.
Guitar for guitar and basic music skills. Prerequisites: consent of instructor. Same as PS 104.
7E:107 Music and Materials for the Classroom Teacher 3 s.h.
Considers the capacities and limitations of musical materials in the elementary school. Course focuses on the use of music materials in the elementary school, the music teacher as a resource for the classroom teacher. Same as PS 107.
7E:109 Literature for Children 3 s.h.
Survey of literature intended for children; discussion of children's interests, capabilities and reading programs, history and sources of books for children. Translations of books and recent trends and issues in literature. Same as PS 119.
7E:120 Methods and Materials for Teaching Children's Literature 3 s.h.
Survey of children's literature in the classroom and it's efficacy for classroom teachers. Same as PS 120.
7E:121 Introduction to Technology-Related Employment 3 s.h.
Introduction to technology and related employment. Focus on how technology-related technology is used and used by students in their everyday lives. Same as PS 121.
7E:122 Physical Education Programs 3 s.h.
Instructional themes, social, and psychosocial concepts. Prerequisite: 7E:101 or consent of instructor. Same as PS 122.
7E:123 Special Education for the Classroom Teacher 3 s.h.
Introduction to the field of special education with particular emphasis on the role of the regular classroom teacher, including the impact of I.P.L, and a survey of special educational categorization, diagnosis and assessment: I.C.P. development; current federal regulations in the teaching program. Same as PS 123.
7E:130 Physical Education for the Elementary School 3 s.h.
Prerequisite: 7E:101. Study of physical activity participation, exercise and health education as related to physical activity for children and adolescents. Same as PS 130.
7E:131 Physical Education for the Elementary School 3 s.h.
Introduction to the importance of physical activity participation, exercise and health education as related to physical activity for children and adolescents. Same as PS 131.
7E:132 Assessment of the English Oral 3 s.h.
Introduction to the theory of language development of the English oral, the English language program, and educational implications of English.
7E:133 Methods in Art 3 s.h.
Application of methods to teaching of art to elementary school children. Prerequisites: 1E:100. 1E:101.
7E:134 Methods in Elementary Education: Elementary School Instrumental Music 3 s.h.
Methods of study and materials for teaching, and batteries instruments in the elementary school. Prerequisites: 7E:104 or 7E:105.
7E:135 Methods and Materials for Elementary School Music 3 s.h.
For choral music majors and music minors studying music. Same as 7E:103. Basic course in choral music majors. Prerequisites: 7E:119 for music minors.
Permanent Professional Teaching Certificate

Have a minimum of four years of successful teaching experience at the elementary or secondary level with holding a valid teaching certificate;

Have earned at least 30 semester hours of graduate credit in a planned program in general school administration at The University of Iowa;

Have a master's degree (60 semester hours for secondary degrees).

In addition, each certificate has these requirements:

Elementary Principal (Endorsement 11) and Secondary Principal (Endorsement 22): Completion of a planned M.A. program at The University of Iowa, including successful completion of the core courses for all principalship certification candidates, the core courses for the appropriate certification level, and courses from the elective list approved by the advisor to a minimum total of 32 semester hours. Persons already holding an M.A. degree must satisfy all core requirements for the appropriate certification level and must complete a minimum of 50 semester hours in a planned program at The University of Iowa. Administrative certification at a level different than that characterizing prior student preparation and experience should be planned with an advisor, Supervisor (Endorsement 61): 50 semester hours of graduate work in a planned program in general school administration.

M.A. in Educational Administration

The purpose of this program is to prepare individuals for appointments as elementary or secondary school principals, central staff, certain positions with state departments of education, or related positions with regional educational agencies. The student may take the program with thesis (30 semester hours minimum) or without thesis (32 semester hours minimum).

Course Requirements

With the aid of an advisor, the student prepares a plan of study including these core requirements:

All Candidates

70:200 Fundamentals of School Administration 3 s.h.
70:205 Computer Applications in Education 2-3 s.h.
70:206 Legal Aspects of School Personnel 2-3 s.h.
70:383 Supervision of Instruction 3 s.h.
70:143 Introduction to Statistical Methods 3 s.h.
6L:151 Employment Rituals 3 s.h.
6L:153 Collective Bargaining 3 s.h.
7S:166 Curriculum Foundations 2-3 s.h.
7P:242 Specialized Applications of Statistical Techniques 3 s.h.
7P:246 Construction and Use of Evaluation Instruments 3 s.h.
RC:270 Issues and Trends in School Guidance 3 s.h.
7D:295 Theory in Administration 3 s.h.
7D:299 Legal Aspects of School Administration 2-3 s.h.

Central Staff Administration

7P:143 Introduction to Statistical Methods 3 s.h.
70:003 Computer Applications in Education 2-3 s.h.
7D:295 Financial Management of Local School Systems 3 s.h.
7D:297 Theory in Administration 3 s.h.
7D:299 Legal Aspects of School Administration 2-3 s.h.

Thesis

A student electing the M.A. program with thesis must take 70:393 M.A. Thesis in Education Administration and a final oral examination on the thesis.

Comprehensive Examinations

The student must take three-hour examinations in areas of emphasis approved by the advisor for his or her advising.

Ed.S. in Educational Administration

This program is designed to enable educational personnel to meet original certification requirements or to upgrade their background and skills to prepare them for positions as principals, superintendents, and other administrative and supervisory positions in educational agencies. A student desiring certification plans a program approved by an advisor to meet State of Iowa certification requirements.

Course Requirements

7P:131 Educational Psychology 3-4 s.h.
7P:177 Philosophies of Education 3 s.h.
7D:291 Fundamentals of School Administration 3 s.h.
7D:297 Theory in Administration 3 s.h.

Program Emphasis

Students must complete the balance of their minimum required hours (minus cognates and electives) in one of the following areas of emphasis. Courses...
Educational Administration

Elementary School Administration

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>7P:160</td>
<td>Introduction to Educational Measurement</td>
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<tr>
<td>7J:281</td>
<td>Elementary School Principal</td>
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<tr>
<td>7J:290</td>
<td>Elementary School Organization Patterns</td>
</tr>
<tr>
<td>7E:300</td>
<td>Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools</td>
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<tr>
<td>7J:307</td>
<td>Seminar: Administration and Coordination of Curriculum</td>
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<td>7J:304</td>
<td>Seminar: Elementary Supervision and Administration</td>
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<tr>
<td>7D:381</td>
<td>Analysis and Appraisal of Curriculum</td>
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<td>7D:303</td>
<td>Supervision of Instruction</td>
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Secondary School Administration

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<tr>
<td>7E:185</td>
<td>Curriculum Foundations</td>
</tr>
<tr>
<td>7P:160</td>
<td>Introduction to Educational Measurement</td>
</tr>
<tr>
<td>7D:203</td>
<td>Computer Applications in Education</td>
</tr>
<tr>
<td>7D:200</td>
<td>Secondary School Principal</td>
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<tr>
<td>7D:290</td>
<td>Improving Instruction in the Secondary School</td>
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<tr>
<td>7J:281</td>
<td>Secondary School Curriculum</td>
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<tr>
<td>7D:270</td>
<td>Issues and Trends in School Administration</td>
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<tr>
<td>7P:143</td>
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General School Administration

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<td>7S:291</td>
<td>Secondary School Supervision</td>
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<td>Financial Management of Local School Systems</td>
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Electives

The student chooses electives completing the 80-quarter-hour requirement for the Ed.S. degree. In the program for general or central staff administration, the student may choose electives for specialization in such fields as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information management.

Research

All candidates for the Ed.S. degree must complete a formal research paper (4 semester hours) dealing with a specific problem in school administration or institution.

Comprehensive Examination

The comprehensive examination for the Ed.S. degree comprises one three-hour examination in educational administration and one three-hour examination in a specialized area either in educational administration or in a related or cognate field.

Ph.D. in Educational Administration

The purpose of this program is to prepare students for positions at all levels of school administration, to do research in the field of educational administration, and to teach educational administration at the college or university level.

Ph.D. in Educational Administration

General School Administration

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Cognates

The student must complete a minimum of six semester hours bearing a cognate relationship to school administration, subject to the advisor's approval.

Cognates

Admission

Applicants must satisfy minimum requirements of the Graduate College. Candidates are selected through a worthy review process. Factors considered include grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and other evidence of academic ability and professional promise.

Courses

Educational Administration
Social Foundations of Education

Social Foundations of Education is an interdisciplinary program within the College of Education, which is designed to enable students to better understand the influence of social, historical, and philosophical forces upon the formal, educational enterprises. Major areas of specialization within the program are comparative/international education, history of philosophy, philosophy of education, and sociology of education.

General requirements for admission are as stated by the Graduate College. A personal interview with one or more members of the social foundations faculty is desirable and may be required. An undergraduate and graduate emphasis in philosophy, the humanities, or the social sciences will two years of teaching experience are strongly recommended. Students must maintain a 3.0 overall grade-point average to remain in the program.

Master of Arts

Students in the M.A. program must take a minimum of 18 semester hours of work in social foundations, which should include at least two courses in each of the three of the four offered areas of specialization. The remainder of their required 30 semester hours of course work will be in an area of concentration appropriate to their career and academic goals. For example, a student interested in philosophy of education would normally take these courses in the Department of Philosophy.

Doctor of Philosophy

The Ph.D. program requires a minimum of 90 semester hours. Students are required to take a minimum of 24 semester hours in social foundations which must include at least 12 semester hours in the major area of specialization and a minimum of 8 semester hours from each of two minor areas. In addition, the student must take at least 12 semester hours in related courses in the College of Education, 9 of which must be in one area of concentration, such as educational administration, educational psychology, measurement and evaluation, post-secondary and continuing education, etc.

Approximately one third to one half (30 to 45 semester hours) of each student's program is devoted to course work in depth from at least one other program in the University, such as history, philosophy, political science, sociology, etc. These areas are individually arranged by the student in consultation with the advisor and suggestions from the appropriate department and/or program.

Two research tools are required and are selected from the following alternatives:

Postsecondary and Continuing Education

Postsecondary and continuing education in the United States represents an extensive and complex set of phenomena. The academic programs in the division encompass that complexity. Degrees are offered at all levels. There is emphasis on both research and practice. Preparation for either teaching or administration is available. The teaching, research, and service activities of the faculty, and the work of the graduates of the several degree programs, illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

Bachelor of Science in Health Occupations

The health occupations education major has been designed to prepare teachers for employment at the community college level in preparatory health occupations education programs. In addition to basic skill and general education requirements, the College of Education and Liberal Arts, students will complete courses in professional education and additional course work in the health occupations education specialty field and/or supporting areas.

Students making application to this program must hold current appropriate certification, licensure, or registry appropriate to the area of health occupations education in which they wish to teach, e.g., dental assisting, medical office assisting, respiratory therapy, and the like. The health occupations education major is designed upon this basis, and provides work in professional education and the liberal arts and sciences appropriate to the major to which the student is applying.

Applicants to this program must satisfy the admission requirements to the College of Education Program (T.E.P.) of the College of Education.

Program requirements:
Course Work in Professional Education
7P/131 Educational Psychology 3-4 s.h.
7P/150 Introduction to Educational Measurement 3 s.h.
Appropriate course work in social foundations
Curriculum and Teaching Procedures
7H/102 Application to Community College and Health Careers 3 s.h.
7H/112 Teaching of Adults 3 s.h.
7H/117 Foundations of Vocational Education 3 s.h.
Additionail Requirements
7H/191 Community College Teaching Internship 1 or 2 s.h.
7H/192 Seminar Health Occupations Education 1-4 s.h.
7X/175 Human Relations for the Classroom Teacher 3 s.h.
Additional specialty course work in health occupations education
Students may avail themselves of special workshops or courses offered by specific health colleges when appropriate prerequisites have been met. In addition, students must meet certification requirements stipulating an American government or U.S. history course.
Course work may also be taken in specific basic sciences supporting health occupations education. In addition to course work in the health specialty and basic sciences, students may also choose electives from the College of Education or other supporting units.
Course work in the health occupations education specialty and supportive fields could be carefully planned in consultation with the advisor.
Graduate Programs
Master of Arts Without Thesis
The purpose of the M.A. program in higher education is to prepare individuals for entry- and middle-level administrative, curriculum and instruction, or continuing education positions in two- and four-year institutions, and is appropriate for positions such as assistant dean, business manager, development officer, or assistant to the president, director of academic affairs, or division or program head in selected areas.
Applicants for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth. Transcripts, GRE scores, and three letters of recommendation are required for consideration for regular admission. An interview is recommended.
Specialist in Education
The Ed.S. program provides advanced graduate education in higher education in the areas of administration, curriculum and instruction, community college administration, and continuing education for students not generally planning to continue for the doctorate. The specialist degree may also be awarded upon completion of a joint program in higher education and an academic field comprising a minimum of 60 semester hours of graduate work or upon completion of a higher education sequence following a master's degree program.
Admission
Applicants for admission must satisfy the general requirements for admission to the Graduate College. Candidates will be selected on the basis of grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth. Transcripts, GRE scores, and three letters of recommendation are required for regular admission. An interview is recommended.
Major in Higher Education
Requirements for the Ed.D. major in higher education are:
At least 18 semester hours in professional education and related fields including a structured internship determined in consultation with the advisor to be appropriate for one of the following four areas: administration, curriculum and instruction, community college administration, and continuing education;
At least 28 semester hours in the area of specialization to be determined in consultation with the advisor;
Ten semester hours of electives to be approved by the advisor;
Research conducted under registration in 7X/395 Educational Specialist Research in Higher Education for four semester hours;
Two three-hour comprehensive examinations:
An examination to cover the field of higher education in general, and
An examination in one of the four concentrations within higher education, perhaps reflecting an area of specialization within the concentration, followed by an oral examination.
Major in Higher Education with Emphasis in College Teaching
Requirements for the Ed.S. major in higher education with emphasis in college teaching are:
At least 18 semester hours in professional education and related fields appropriate for college teaching including a structured internship;
7H/210 Seminar—Seminar in Higher Education 3-4 s.h.
7H/370 College Teaching Internship 9 s.h.
7H/175 Post-High School Staff Development Workshop 1-2 a.h.
7H/395 Equipment for Instruction 1 s.h.
7P/151 Educational Psychology 3 s.h.
At least 28 semester hours in the area of teaching specialization;
Ten semester hours of electives to be approved by the candidate's advisor;
Research conducted under registration in 7X/395 Educational Specialist Research in Higher Education for four semester hours;
Comprehensive Examination:
An examination of the nature of postsecondary institutions and student characteristics, the professional responsibilities of a faculty member, and the candidate's ability to organize the subject matter into select appropriate teaching strategies;
An examination in the candidate's teaching field, written and administered by faculty in that field, and followed by oral examination.
Related Field
Students majoring in another field and desiring to teach in higher education should consult with the higher education advisor early in their studies. Plans of study will be developed individually for each student.
Teaching Assistantship
Program participants teach half-time for a full semester at community colleges under the supervision of an experienced faculty member from the college, with field supervision from The University of Iowa. Interns participate as fully as possible in the academic life of the community college, and yearly gather data for their Ed.D. research project during summer months.
Participants must be willing to travel to a community college and reside there for the one-semester program. Some interns are accommodated at nearby community colleges. Part-time participation will be given to those willing to travel for that exposure.
Doctor of Philosophy
The Ph.D. program continues to attract persons who are likely to serve as administrators of institutions, researchers, and teachers in postsecondary institutions, or related public or private agencies.
The program offers four areas of concentration: general administration, curriculum and instruction (academic administration), community college, and continuing education (adult education).
second, there is some emphasis on both goals in all programs.

Undergraduate Course Work in Educational Psychology, Measurement and Statistical Analysis

The division offers an undergraduate minor in the combined areas of educational psychology, measurement, and statistical analysis. The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division advisor, named by the student and approved by the faculty, will aid in choosing courses totaling 18 or more semester hours, of which 12 semester hours must be in 100-level courses. This minor does not lead to certification as a public school teacher.

One of the general education requirements for graduation from the College of Liberal Arts is successful completion of a course designed to develop skills in quantitative or formal reasoning (see the "College of Liberal Arts" section of the Catalog). PSY 25 Elementary Statistics and Inference may be used to satisfy this requirement. Students who wish to use the course for this purpose should enroll under its cross-listed number, 225:25.

Master of Arts in Educational Psychology

The program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in human development, principles of learning and teaching, educational measurement, and research methods. The degree is designed to prepare the student for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological bases upon which education builds. Students may take this degree with or without thesis. For the degree without thesis, requires a minimum of 32 semester hours of course work. The degree with thesis requires a minimum of 38 semester hours of course work. Both programs require PSY 143 Introduction to Statistical Methods or equivalent. Students plan the remainder of the program in consultation with their advisors, choosing courses from the following four areas: testing and measurement, educational programming, measurement and research, and social foundations of education. Students must take at least one course in each of these areas and a concentration (three courses) in at least two areas. The faculty encourages degree candidates to enroll in at least two courses outside the division. Courses in elementary or secondary curriculum, supervision, special education, counseling, and psychology are commonly used to meet this requirement.

The program culminates in six hours of comprehensive examinations over the student's areas of concentration. The adviser develops the plan for these examinations in consultation with the student and the other members of the student's committee. The admission requirements are the same as those established by the Graduate College. Teaching experience is desirable but not required. The faculty reviews applications as they are received.

Master of Arts in Educational Measurement and Statistics

A master's degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and data analysis. Such positions occur in research centers, testing organizations, large school systems, and state educational agencies. The program is also appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development.

The degree may be taken without thesis (32 semester hours minimum) or with thesis (minimum of 38 semester hours of course work plus 1 to 4 semester hours of thesis credit). All students must complete a core of courses totaling 18 to 20 semester hours, included in the core is a graduate-level survey course in educational psychology, elementary and intermediate courses in classical statistical methods, an introduction to Bayesian statistics, methods, a course in educational research methodology, and courses in the development and use of evaluation instruments.

The elective credits, totaling 10 to 12 semester hours, must include at least one core course in elementary, secondary, or post-secondary education. The remaining elective may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer programming and data processing, mathematics, mathematical statistics, and counseling.

The final comprehensive examinations typically include two hours of examinations in educational measurement and in applied statistics (classical or Bayesian). With the approval of the M.A. committee, the student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute course.

Graduate-point average requirements for admission to the program are the same as those established by the Graduate College. Normally, if the candidate's score for either the quantitative or verbal section of the Graduate Record Examination (GRE) Aptitude Test is less than 500, the applicant will be rejected. However, if there is offsetting evidence of superior ability, the faculty may approve acceptance on a conditional basis. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable. The faculty reviews applications as they are received.

Master of Arts in Reading Disability

This program provides training in the diagnosis of reading disabilities and in the prescriptive teaching of reading. Graduates of the program can qualify for certification as reading clinicians. They typically return to classroom teaching or take positions as reading clinicians, supervisors of reading teachers, or reading consultants.

The thesis program typically requires research toward a significant thesis to be submitted in the field of reading.

The nonthesis program requires a minimum of 32 semester hours including the following core courses:

PSY 143 Introduction to Psychological Testing

PSY 173 Survey of Diagnostic/ Prescriptive Approaches to Reading Instruction

PSY 251 Survey of EducationalMeasurement

PSY 252 Survey of Individual Intelligence Testing

Students must also complete at least 4 semester hours of practicum courses chosen with the advisor's approval from the following:

Reading: 7E:171 Reading Clinic: Teaching Techniques

7E:172 Reading Clinic: Teaching Practicum

7E:272 Advanced Reading Clinic Techniques

7E:277 Advanced Reading Clinic Practicum

7E:290 Reading Clinic: Supervision "off-site"

8P:370 Teaching in a Reading Laboratory

7E:295 Reading Clinic: Teaching Practicum-Specialty Level

All students must complete a minimum of 14 semester hours in elective courses,
Choose with the adviser’s approval from the list of special education and elementary or secondary education.

The thesis program requires a minimum of 30 semester hours including the following core courses or equivalents:

7P:143 Introduction to Statistical Methods 3 s.h.
7P:247 Intermediate Statistical Methods 4 s.h.
7P:270 Advanced Psychology of Reading 4 s.h.
7P:273 Reading Clinic: Diagnostic and Practicum 3 s.h.
122:120 Introduction to Linguistics 3 s.h.
7P:265 M.A. Thesis in Educational Psychology, Measurement or Statistics 2-4 s.h.

Elective courses are chosen from the same fields enumerated for the nonthesis program.

For both the thesis and nonthesis programs, the comprehensive examinations typically include a three-hour examination in reading disability and two 90-minute examinations in related fields. With the adviser’s approval, the nonthesis student may substitute a comprehensive project for one or more of the written examinations.

The project will involve the investigation of a problem comparable to those encountered by a reading clinician or consultant in the field.

The grade-point-average requirement for admission to the program is the same as that established by the Graduate College. With this, the student must have a 3.5 grade-point average in the Graduate Record Examination (GRE) Aptitude Test before seeking admission, and no offsetting evidence of superior ability is available, the application will be rejected or admitted only on a conditional basis. Applicants must have two years of approved teaching experience. The faculty reviews applications as they are received.

Master of Arts in Instructional Design and Technology

The M.A. in Instructional Design and Technology is a 36 semester-hour program designed to provide basic knowledge and skills required to work in settings including schools, businesses and industry, hospitals, government, and private enterprises. It may be taken either with or without a thesis.

Regular admission requires a minimum grade-point average of 3.00 on the previous course work and a Composite GRE (quantitative and verbal) of at least 1000. Students with a grade-point average of less than 2.5 and/or GRE composites of less than 1000 may be admitted conditionally. A student admitted conditionally must attain a grade-point average of at least 3.0 on the first 12 semester hours of approved course work taken after admission.

The degree requires the following course work or approved equivalents:

FW:100 Introduction to Instructional Design and Technology 3 s.h.
FW:103 Beliefs and Uses of Media for Instruction 3 s.h.
FW:105 Design and Production of Media for Instruction 3 s.h.
PW:107 Psychological Bases of Instructional Design 3 s.h.
PW:100 Introduction to Educational Measurement 3 s.h.

If the degree is done with thesis the student is also required to take TP:143 Introduction to Statistical Methods or 7W:281 Research Methods in Instructional Design and Technology. In addition, all students must complete 9 semester hours of prescribed course work in one of the following areas:

- Computer applications
- Health sciences education
- Instructional development
- Media center administration
- Production
- School media
- Training and human resource development
- Visual studies

If a student has not had previous experience in instructional design, he or she should also complete a practicum and all students are required to do a final project.

Completion of the program also requires a six-hour set of comprehensive examinations. These may be divided into either two- or three-hour parts distributed as follows:

- General instructional design 2-3 hours
- Area of emphasis 2-3 hours
- Other 0-3 hours

Educational Specialist in Instructional Design and Technology

The Ed.S. in Instructional Design and Technology is a 60 semester-hour program designed to provide specialized training beyond that provided by the M.A. program. The Ed.S. is ordinarily considered to be a terminal degree.

Admission to the Ed.S. program is the same as to the M.A. except that a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ed.S. program must submit a letter to the division chair at the time of filing completed admission forms with the University Graduate Admissions Office. The letter should describe the applicant’s interests in the field of study and the program at The University of Iowa, area of topics of desired study, tentative future plans, and any additional information which may be helpful in the admissions process.

The following course work or approved equivalent is required for the degree:

M.A. core, without statistics, plus:

7P:143 Introduction to Statistical Methods 3 s.h.
7W:281 Research Methods in Instructional Design and Technology 3 s.h.
7W:288 Survey of Research in Instructional Design and Technology 3 s.h.

Every student must also complete 18 semester hours of prescribed course work in any of the following areas:

- Computer applications
- Health sciences education
- Instructional development
- Media center administration
- Production
- School media
- Training and human resource development
- Visual studies

In addition all students must complete 6 semester hours in one area outside the College of Education.

The Ed.S. also requires a final Ed.S. project. The exact nature of the project will depend on the program, interests, and career plans of the student involved. Comprehensive exams are the same as those for the M.A.

Doctor of Philosophy in Educational Psychology

This doctoral program prepares graduates for a variety of careers that demand knowledge of psychological principles to educational practices. Such careers include professorships at the university and college level, research and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concern is the area of reading disabilities for those preparing for careers as reading consultants, directors of reading clinics, and professors who train diagnosis and prescriptive reading specialists.

The program includes emphases in three substantive areas—teaching and learning, motivation and cognitive processes, and human development. In addition, students take considerable course work in measurement, statistical analysis and research methodology.

All students must meet the following minimum course requirements (or approved equivalents) for the first 24 semester hours following admission to the program:
7P:143 Introduction to Statistics\Methodology 3 a.h.
7P:243 Intermediate Statistical Methods 4 a.h.
7P:280 Educational Research Methodology 3 a.h.

Students must take three courses from the following 12 courses at least one course from each group:

Group A
- 7P:102 Learner Characteristics 3 a.h.
- 7P:106 Child Development 3 a.h.
- 7P:108 Socialisation of the School Age Child 3 a.h.
- 7P:133 The Adolescent and Young Adult 3 a.h.
- 7P:132 Cognitive Development in Children: An Introduction to Piaget 3 a.h.
- 7P:202 Individual Differences and Teaching 3 a.h.
- 7P:206 Advanced Child Development 3 a.h.

Group B
- 7P:111 Understanding and Controlling Human Motivation 1-3 a.h.
- 7P:151 Educational Psychology 3 a.h.
- 7P:161 Introduction to Theories of Learning 3 a.h.
- 7P:251 Adult Teaching and Learning 2-3 a.h.
- 7P:281 Advanced Theories of Learning 3 a.h.
- 7P:280 Cognitive Processes in Classroom Learning 3 a.h.
- 7P:295 Motivation in Education 3 a.h.

Before writing the Ph.D. comprehensive examinations, the candidate must meet two additional requirements. The first is that there be 200-level course in educational or psychological measurement or 270 Design of Experiments or one course in philosophy of science. The second applies to candidates who took the M.A. degree without thesis. Such candidates must undertake a project in lieu of the thesis. This project must be approved by three members of the educational psychology faculty.

The balance of the candidate's program is planned jointly by the student and the advisor. Each candidate must register for a minimum of 72 semester hours credit in Ph.D. level courses.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The disqualification faculty considers course grades, evidence of critical and analytical skills, development during the year, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are dropped from the program. After candidates have completed the major portion of their course work, they must write comprehensive examinations. Typically, these examinations consist of a total of nine hours of written examinations in two or more areas. One of these areas must be chosen from the following: general educational psychology, teaching and learning, developmental processes, or motivation. With the approval of the examining committee, the candidate may undertake a project in lieu of one three-hour examination.

An applicant for admission to the program must hold an M.A. degree in an accredited institution. The graduate grade-point average requirement for admission is the same as that established by the Graduate College. Normally, if the applicant's scores on the verbal and quantitative sections of the Graduate Record Examination (GRE) Aptitude Test total less than 1000, he or she will not be accepted. However, if upon evidence (high grade-point average, strong academic preparation, and highly supportive recommendation) warrants it, the candidate may be admitted conditionally. Applications are reviewed as received.

Doctor of Philosophy in Educational Measurement and/or Statistics

The purpose of this program is to prepare students for senior professional positions in the fields of educational measurement, program evaluation, and statistical methods. Such positions are generally located in educational and psychological measurement and evaluation agencies, testing agencies, and research centers.

Every student must complete the following core courses or their equivalents:
- 7P:131 Educational Psychology 3 a.h.
- 7P:243 Intermediate Statistical Methods 4 a.h.
- 7P:146 Bayesian Statistics I 4 a.h.
- 7P:285 Construction and Use of Evaluation Instruments 4 a.h.
- 7P:287 Educational Measurement and Evaluation 5 a.h.
- 7P:244 Correlation and Regression 3 a.h.
- 7P:246 Design of Experiments 3 a.h.
- 7P:285 Program Evaluation 3 a.h.
- 7P:280 Educational Research Methodology 3 a.h.

The student's advisor will suggest additional course work in areas appropriate to the student's interests and vocational objectives. These courses typically include additional work in educational measurement, applied statistical methods, scaling of measures, and educational psychology.

Students who concentrate in the area of statistics, with the intention of doing their doctoral work at the college level, will be required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curricular, counseling, and higher education. All candidates are advised to develop familiarity with computer programs, techniques, and equipment.

Candidates who enter the program without completing an M.A. in the required subject must complete a subject project approved by three members of the division faculty. The project must be completed before the beginning of the fall in which comprehensive examinations are taken. A minimum of 30 semester hours is required for the degree, including 12 to 16 semester hours of thesis credit.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The disdivision faculty will consider course grades, evidence of critical and analytical skills, development during the year, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied will be dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, these consist of three of these three-hour written examinations over the fields of applied statistics, educational measurement, and educational psychology or an approved substitute area. A substitute area will generally be one in which the candidate has at least classroom experience. In lieu of one written examination, the student's committee may assign an project involving analytical, summative skills, or research creativity. The written examinations area among such courses as an oral examination in which the committee members secure further evidence of the candidate's command of the field of educational measurement and/or statistics, to be considered on all aspects of the comprehensive examination.

Applicants for admission to the program must hold an M.A. degree from an accredited institution. The graduate grade-point average requirement is that the same as that established by the Graduate College. If an applicant's scores on the verbal and quantitative sections of the Graduate Record Examination (GRE) Aptitude Test total less than 1000, and there is no compelling evidence of superior ability, the applicant will be denied admission. The student who expects to concentrate in the area of statistics should have training in college mathematics through differential and integral calculus. The ability to understand abstract concepts is a deficiency which must be made up during the first year of residence. At least one year of professional experience in testing, research, supervision, or evaluation is highly desirable. The faculty reviews all applications as they are received.

Psychological and Quantitative Foundations\EDUCATION 279
Psychological and Quantitative Foundations: EDUCATION

3.3.b. Psychological and Impulsivity analysis of the reading process, implications for teaching methods and materials, factors related to reading performances.

3.4.1. Series of Diagnostic and Prescriptive Approaches to Reading Disabilities in Grades 6-12

3.4.1. Concept of the reading process and techniques to diagnose and correct reading disabilities. Implications for the reading curricula, may be prescribed:

3.4.1. Series of Diagnostic and Prescriptive Approaches to Reading Disabilities in Grades 6-12

3.4.1. Concept of the reading process and techniques to diagnose and correct reading disabilities. Implications for the reading curricula, may be prescribed: P. 230-231.

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Secondary Education

Chair: Matthew J. Zweig
Faculty: professors Robert W. Fitch, Steven E. Maier, Michael H. Levine, John E. Poth, Theodora H. Schneler, Harold L. Schott, Robert F. Yager, Marilyn J. Yescavage. Associate professor Dr. Robert Carone, John M. Maier, Candice J. Lytton, E.E. Madsen, Nate P. Seabrook, Lauren A. Yon Dore
Assistants: John V. Causer, George W. Comer, Brian G. Curzio, Gary F. Hansen, David K. Loehr, John W. McNeely, Debra McDonald, Edward L. Ponzio, Jeannette Smith, Daniel B. Stetler, J. James Broussard, Douglas W. Trout, John W. Wilcox, Gene C. Wilkes, Ph.D.

Teaching Certification

Program Requirements

Undergraduate students seeking secondary school certification are required to complete the requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies degrees described in the "College of Liberal Arts" section of the Catalog. Graduate students may be admitted to a program leading to teacher certification as "certification only" candidates in the Graduate College and are subject to all policies, rules, and regulations of that college. Certification requires a major of at least 30 credits in the student's major course work in a subject area taught in the secondary school. Course requirements for each major are listed in the College of Education's Catalog. Undergraduate students seeking secondary school certification may take approved courses for credit in the College of Education's General Education catalog.

Admission

Prior to taking any additional education courses (courses numbered 78, 79, or 720) undergraduate students must be admitted to the Teacher Education Program (TEP). Students may enroll, however, in 78:100, Introduction to Secondary School Teaching, prior to being admitted to the TEP. Application for admission should be made in the College of Liberal Arts Advising Office, 116 Shaffer Hall, in order to be eligible for admission, students must have completed a minimum of 36 semester hours of course work with a minimum cumulative grade point average of 2.3. Admission decisions will also be based on grade-point average in the major, and other criteria relevant to teaching success. Students should consult the catalog of the College of Education advisor in their subject matter field, or the Division of Secondary Education Office, NEB3 Lindquist Center for additional information on admission criteria. Graduate students who have been admitted to the Graduate College for "certification only" do not have to apply for admission to the Teacher Education Program. All admission to "certification only" automatically implies admission to the TEP.

Upon admission to the TEP, students will be assigned an education advisor.

Graduate Programs

The Division of Secondary Education offers advanced degrees and certificates in the following areas: Art: art education, communication and theatre arts; Communication and Theatre Arts; Economics; English; Foreign Languages; French, German, Russian, and Latin; History; Home Economics; Journalism; Mathematics; Music; Physical Education; Special Education; and Social Studies.

Admission

The master's degree program is administered by the School of Art and Art History with the cooperation of the College of Education. Students make application for admission to the School of Art and Art History. The purpose of the program is to prepare highly qualified teachers of art for elementary and secondary schools and community colleges. The strong academic emphasis of this program is to assist teachers who are themselves trained or interested in teaching art as a major or as an extra-curricular activity.
creative artists to become highly literate in the language and language of art.

Admission

Applicants must have completed the equivalent of the minimum course work in art required for the B.A. or B.F.A. degree in art from The University of Iowa and a certificate in each art. Applications must be accompanied by a representative portfolio of the candidate’s work consisting of eight to ten slide reproductions of art work and one example of written work. The written work may be a paper previously written for a course or it may be an original paper. Deficiencies in undergraduate art or course requirements for teacher certification, if any, will be evaluated following admission to permit students to make up required course work concurrent with work for the degree. Candidates must meet Graduate College requirements for admission.

Degree Requirements

Studio and Art History (18 s.h.)—Either 12 semester hours of studio art or 9 semester hours of art history and 12 semester hours of studio art; Art Education Seminars (8 s.h.)—The course 73:367 Seminar: Current Issues in Art Education; Twelve semester hours to be specified after the student begins the program; Thesis—Either a written or studio thesis; if a studio thesis is elected the student must pass M.A. in the School of Art and Art History; Comprehensive Examinations—A written or oral examination in art education; the student may elect a three-hour examination or a one-week research question.

Doctor of Philosophy

The doctoral degree program is administered by the Graduate College with the cooperation of the School of Art and Art History. Students may make application for admission to the College of Education.

The purpose of the program is to prepare graduate students to become leaders in the field of art in education and supervisory of art in state departments of education and school systems. To provide an opportunity for continuing inquiry and creative work in art in history and in studio.

Admission

Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. degree in art education from The University of Iowa or equivalent degree from an accredited degree college or university. Application to the program is accompanied by a representative portfolio of the candidate’s work, consisting of 12 slide reproductions of art work and two examples of written work. The written work may consist of papers previously written for a course or it may be original papers. These should be submitted to the office of Art Education, 13 North Hall.

In the case of course work deficiencies, the student must complete the missing courses. One year of successful teaching experience in an elementary or secondary school is required prior to admission to the doctoral program.

Degree Requirements

At least 40 semester hours of graduate work beyond the M.A., unless the student has an appropriate at the school of Art and Art History, 20 semester hours in art education seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, early childhood education, psychology, sociology), and 15 semester hours in courses meeting the individual’s needs (to be specified after the student begins the program); 76:305 or 76:306 to Research in Art Education; or 75:367 Seminar: Current Issues in Art Education

Comprehensive examinations, both oral and written—The written examination consists of an in-depth research paper assigned by the examining committee and to be completed within 14 days after which an oral examination on the project is held. The written portion of the examination is not intended to relate directly to the dissertation project. Satisfactory completion of a written dissertation for at least 12 semester hours, which constitutes a contribution to scholarship, the student is expected to prepare a dissertation proposal and defend it before the dissertation committee; oral examination on the dissertation is the Ph.D. final examination.

Communication and Theatre Arts Education

Master of Arts

The purpose of the program is to prepare teachers and supervisors of speech and theatre for secondary schools.

Admission

Candidates must have a grade-point average of 2.5 for conditional admission and 2.75 for regular admission. Candidates without a prior academic background in speech may find it necessary to take additional course work beyond the minimum requirement. Application should be made to the Department of Communication and Theatre Arts, 224 Jessup Hall.

Degree Requirements

At least 30 semester hours of approved graduate courses, at least 24 of them at this institution; A graduate level course in communication education; 36:300 Introduction to Research; A graduate-level seminar in the Department of Communication and Theatre Arts; Six to nine semester hours of graduate courses in education, selected in consultation with the candidate’s departmental advisor; A paper or project involving substantial scholarly investigation and writing, which normally will be done in a seminar and presented to the candidate’s departmental committee in the comprehensive examination; A comprehensive examination consisting of two or more two-hour segments to be defined and limited by the student and an advisor at the time that the plan of study is prepared.

Master of Arts in Teaching

Designed for superior liberal arts graduates who have had few or no professional education courses, this program gives students to enrich their backgrounds by completing graduate courses in the teaching area and graduate education courses which constitute professional preparation leading to secondary teaching certification.

Admission

Applicants must have an accredited bachelor’s degree in Communication and Theatre Arts, a course in the bases of speech (voice and phonetics) or evidence of adequate previous training; a grade-point average of 2.7 or a satisfactory score on the Graduate Record Examination Aptitude Test. Students must maintain a 3.0 grade-point average in graduate work once they are accepted into the program.

Degree Requirements

A minimum of 18 semester hours of graduate course work in Communication and Theatre Arts, including:

36:200 Introduction to Research; 36:300 Introduction to Graduate Education (the course is offered during the student’s period of residence); A graduate seminar in any division of the department; A graduate course in communication education (not the general communication methods course); Electives chosen in consultation with advisor; The culminating sequence in the College of Education.
EDUCATION/Secondary Education

7S:131 Educational Psychology—3 s.h.
7S:117 Philosophy of Education or
7S:107 History of Western Education—3 s.h.
7S:160 Methods: Communication—3 s.h.
7S:161-162 Observation and Lab Practice in the Secondary Schools—12 s.h.
7S:187 Seminar: Curriculum and Student Teaching—3 s.h.
7X:170 Human Relations for the Classroom Teacher—3 s.h.
Student teaching—generally scheduled only after completion of eight or more semester hours of graduate work in Communication and Theatre Arts, plus one course in educational psychology and the methods course—and enrollment for credit in 7S:187 during the student teaching semester.

Comprehensive examinations in Communication and Theatre Arts and Education similar to that required for the M.A. degree.

Curriculum and Supervision

Master of Arts

The purpose of the program is to prepare teachers and administrators for positions as consultants, directors, and coordinators in secondary school curriculum development.

Admission

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

Degree Requirements

Common Core (22-23 s.h.)
7S:186 Curriculum Foundations 2-3 s.h.
7S:143 Philosophy of Education 2 s.h.
7S:257 Educational Measurement and Evaluation 3 s.h.
or
7S:255 Construction and Use of Evaluation Instruments 3 s.h.
7S:281 Junior High School and Middle School Curriculum 2-3 s.h.
7S:291 Secondary School Curriculum 3 s.h.
7E:300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
Research (to be selected in consultation with the advisor); Cognates (4-6 s.h.)—in a subject field such as English; Electives—selected in consultation with the advisor to complete a total of 30-32 s.h.
Thesis—for students electing a thesis program.
7S:393 Master’s Degree Thesis
Two three-hour comprehensive examinations in curriculum and one in a related field in education or in a cognate field or three two-hour examinations.

Doctor of Philosophy

The purpose of the program is to prepare students for leadership positions in the field of curriculum for secondary schools, state departments, intermediate systems, and college teaching.

Admission

Students must meet the general requirements of the Graduate College, hold a valid teaching certificate, and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee.

Degree Requirements

Common Core (22-26 s.h.)
7S:186 Curriculum Foundations 2-3 s.h.
7S:291 Secondary School Curriculum 3 s.h.
7E:300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
7S:281 Problems of Curriculum Planning 3 s.h.
At least two advanced supervision courses in secondary or elementary school subject fields 6 s.h.
7P:267 Educational Measurement and Evaluation 3 s.h.
or
7P:265 Construction and Use of Evaluation Instruments 3 s.h.
7S:290 Problems in Supervision 2 s.h.
7S:130 Educational Sociology 2 s.h.
7P:117 Philosophies of Education 2 s.h.
7P:131 Educational Psychology 3 s.h.
7P:170 Introduction to Psychology of Reading 3 s.h.
7P:242 Selected Applications of Statistical Techniques 3 s.h.
7P:203 Computer Applications in Education 2 s.h.
7S:287 Theory in Administration 3 s.h.
7T:260 Secondary School Principal 3 s.h.
7E:281 Junior High School and Middle School Curriculum 2-3 s.h.
7W:120 Introduction to Instructional Design and Technology 3 s.h.
7U:150 Exceptional Persons 3 s.h.
All doctoral candidates are required to complete at least 8 semester hours of cognate work, preferably in sociology, psychology, or political science.

Disertation and research tools—dealing with a problem approved by the student’s major advisor in the area of curriculum and instruction. Two research tools must be selected with the approval of the students advisor.

Developmental Reading

Master of Arts

The program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1 through 12. Successful completion of the program is accompanied with four years successful teaching experience qualifies the student for certification as a reading specialist.

See Early Childhood and Elementary Education for a complete description of this program.

English Education

Master of Arts in English with Specialization in English Education

The purpose of the program is to provide specialization in subject matter and professional concerns of teaching for secondary school classroom teachers. Applications should be made to the director of graduate studies, Department of English.

Admission

A secondary school teaching certificate is required. A major in English, with a grade point average of 3.0 in English, and GRE Aptitude Test score above the fiftieth percentile on the verbal examination. Students must maintain a 3.0 grade point average while they are in the program.

Degree Requirements

A minimum of 30 semester hours in courses offered by the Department of English, 6 semester hours in professional education courses; and
Regular written comprehensive examinations administered to all M.A. candidates in English.

Master of Arts

The purpose of the program is to prepare supervisors of English, department chairmen, and curriculum specialists for secondary schools, and to prepare teachers of specialized areas. Application should be made to the College of Education.

Admission

Students must meet the general requirements of the Graduate College, hold a secondary school teaching certificate, and have acquired a minimum of 30 semester hours in English. Preferred applicants will have a grade-point average of 3.0 or above and
a verbal score above the illiteracy percentile on the ORE Aptitude Test. Student must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

A student will specialize in English education and choose one or two other areas. The other area(s) may be: a literary field, junior high school teaching, curriculum, reading, composition, speech and drama, language development, visual and auditory literacy, literature for children and adolescents. An advisor and the student will plan the program of study. The student will demonstrate competence in chosen areas by participating in a seminar in each area. Nine semester hours must be taken in courses numbered 200 or above. The student will take a comprehensive examination in English education and in his/her chosen area(s).

Master of Arts in Teaching

The M.A.T. degree program is designed for students with an undergraduate degree in English, but who have had few or no professional education courses. Successful completion of the program enables the student to receive certification as a secondary school teacher of English.

Admission

Applicants must have a bachelor's degree in English and have a minimum undergraduate grade-point average of 3.0. Since this is a certification program candidates cannot have qualified for certification previously. They are expected to have more than 6 hours of coursework in education and admission study courses prior to admission.

Degree Requirements

A minimum total of 45 semester hours; At least 18 semester hours of graduate courses offered by the Department of English, with the advisor's approval the undergraduate major; and select 3 hours from the following professional education courses:

7P:131 Educational Psychology 3 s.h.
7P:107 History of Western Education or
7P:117 Philosophies of Education 3 s.h.
7S:9 Pre-education Practicum 1-2 s.h.
7S:157 Internship for the Classroom Teacher 3 s.h.
7S:194 Methods: High School Reading 3 s.h.
7S:115 Methods: English 3 s.h.
7S:195-196 Observation and Laboratory Practice in the Secondary School 12 s.h.

A two-part comprehensive examination: one part covering methods, materials, and curriculum for high school English and the second part covering one-half of the Department of English's M.A. reading list.

Doctor of Philosophy

The purpose of the program is to prepare teacher education in English, specialists in literature for young people, specialists in reading or secondary and junior college levels, and coordinators/supervisors of English arts programs.

Admission

Students must meet the requirements of the Graduate College for admission to a doctoral program. In addition they must have a secondary school teaching certificate, grade-point average of 3.0 and ORE Aptitude Test score above the fiftieth percentile on verbal test (two norm), and two years successful teaching experience. A student admitted to the program is expected to provide evidence of the successful completion of a substantial research paper for a course included in the first 15 residence hours. Students must maintain a 3.0 grade-point average while they are in the program. Their candidacy is reevaluated annually.

Degree Requirements

Area of Specialization: Teaching of English (0-18 s.h.), including four of the following courses:
7E:290 Supervision of Elementary School Language Arts 3 s.h.
7E:300 Seminar: Research and Current Issues 3 s.h.
7S:215 Seminar: Teaching English in Middle School and Junior High School 3 s.h.
7P:301 M.A. Seminar: English Education 3 s.h.
7S:415 Ph.D. Seminar: English Education 2-4 s.h. (required for two or more registrations)

Cognates and electives (56-83 s.h.) may include reading, school curriculum, literacy for young people, literature of a particular period or genre, educational psychology, special education, educational media, metacognitive composition, linguistics, literary criticism, educational measurement, speech and drama arts. Students and advisor will select two areas of specialization in addition to the teaching of English. Areas of specialization will typically require a minimum of 6 semester hours work in an area.

Facility in a research tool agreed upon by the student and advisor which will help the student achieve professional objectives.

Students will take comprehensive examinations in three areas: the teaching of English, a cognate area, and an elective area. The minimal requirements for eligibility to write comprehensive examinations vary; the general requirement is three courses in an area.

Dissertation (typically 12 s.h.).

Foreign Language Education

Master of Arts in Teaching

The Master of Arts in Teaching program is foreign language education offered in French and German, exclusively. The M.A.T. program is designed for superior liberal arts graduates who have had few or no professional education courses. Successful completion of the program leads to secondary school teacher certification.

Admission

A bachelor's degree with a major in French or German and a 3.0 undergraduate grade-point average is required.

Degree Requirements

At least 18 semester hours of graduate courses in French or German and the following 24 semester hours of professional education courses:
7P:131 Educational Psychology 3 s.h.
7P:107 History of Western Education or
7P:117 Philosophies of Education 3 s.h.
7S:106 Methods of Foreign Language Instruction 3 s.h.
7S:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
7S:187 Seminar in Curriculum and Student Teaching 3 s.h.
7S:170 Issues Relations of the Classroom Teacher 3 s.h.

A four-part comprehensive examination covering the candidate's knowledge of and proficiency in French or German, and knowledge of foreign language education.

Home Economics Education

Master of Arts

The M.A. program is administered by the Department of Home Economics and is described in the "College of Liberal Arts" section of the Catalog.

Master of Arts in Teaching

Admission to the M.A.T. program is through the College of Education, however, the program requirements are given in the "Department of Home Economics" in the "College of Liberal Arts" section of the Catalog.

Mathematics Education

Master of Arts

The purpose of the program is to provide students not intending doctoral study and advanced specialization in mathematics and education as a better foundation for teaching at the secondary level.
Admission
Candidates must meet the admission requirements of the Graduate College and except in unusual cases, hold a professional certificate to teach secondary school mathematics.

Degree Requirements
A minimum of 10 semester hours of course work in mathematics approved by the student's advisor.
A minimum of three courses in mathematics education selected from the following:
75:331 Teaching Computer Programming in Secondary School Mathematics 3 s.h.
75:230 Current Issues, Approaches, and Materials in Secondary School Mathematics Teaching 1-3 s.h.
75:236 The Teaching of Geometry 3 s.h.
75:237 Teaching Mathematics in the Middle School and Junior High School 2-3 s.h.
75:238 Teaching the Low Achiever in Mathematics 2-3 s.h.
75:336 Teaching of Algebra 3 s.h.
75:338 Seminar in Mathematics Education 2 s.h.
Note: Additional courses may be available later.
Two courses minoried from a cognate area in education. Suggested areas are educational psychology, educational statistics and measurement, elementary mathematics education, history or philosophy of education, instructional design and technology, counselor education, secondary school curriculum, secondary school administration, and special education.
Sufficient elective is mathematics and education selected with the approval of the advisor to complete 32 semester hours of credit.
Three two-hour comprehensive examinations in secondary mathematics education, the second in mathematics, and the third in a related area.

Master of Science in Mathematics with Education Option
The purpose of the program is to prepare candidates to teach with advanced specialization in mathematics and mathematics education. This program is especially recommended for students continuing work for the Ph.D. in Mathematics Education. This program is administered by the Department of Mathematics. Application should be made to the Department of Mathematics.
Admission requirements are the same as for the M.A. in Education.

Degree Requirements
Minimum of 24 semester hours in the Division of Mathematical Sciences including a two-semester sequence in analysis and a two-semester sequence in algebra.
Two courses in mathematics education;
Comprehensive examination of six hours covering the required courses in analysis, algebra, and education. The examination will assess the student's knowledge of mathematics and his or her understanding of the relevance of specific concepts relating to the teaching of secondary school mathematics.

Doctor of Philosophy
The program for a Ph.D. in mathematics education is administered by the College of Education. The 75 semester hours include work taken toward the master's degree. (All credit must be repeated if taken more than 10 years previously.) Minimum course requirements are for exceptional students. Typically, a program will involve 80 to 100 semester hours.
The purpose of the program is to prepare supervisors, teacher education personnel, community college personnel, and researchers in mathematics education.
Admission
Applicants must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education or education; a 3.0 grade-point average or above; a current teaching certificate; and a minimum of two years of teaching experience.

Degree Requirements
The mathematics education program has the following degree requirements:
A minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including 18 hours in mathematics (18, 22M:190, and 22M:191). Courses counted in the program will not fulfill this requirement. Students who have completed their mathematics requirement at another institution must complete a minimum of 6 additional semester hours of course work in mathematics at The University of Iowa which are to be chosen with the approval of the adviser.
Competency in two areas of mathematics including statistics and computer science, and algebra or analysis (both may be chosen). This competency will be determined by satisfactory performance on master's degree examinations or their equivalent.
A minimum of 24 semester hours of course work in the College of Education. Courses meeting the requirement are to be selected from mathematics education and from other professional education courses appropriate to the candidate's career plans.
At the completion of the program, the student must:
Have a cumulative grade-point average of 3.0 or above in all graduate work in mathematics;
Have a grade-point average of 3.0 or above in all University of Iowa graduate work in mathematics.
Have a cumulative grade-point average of 3.0 or above in all University of Iowa graduate work.
Three three-hour written comprehensive examinations, one in mathematics education and two examinations selected from other tests of education or mathematics. An oral examination follows the written examinations. It is the student's responsibility to plan a program with faculty members in the cognate areas to select courses which will prepare the student for these examinations.
Competency in one computer language and in educational statistics is required.
A dissertation on a research problem in mathematics education. An oral examination will be conducted in defense of the dissertation. Normally, a student will be expected to earn a minimum of 15 semester hours of dissertation credit.

Music Education
Both the Master of Arts and Doctor of Philosophy degree programs in music education are administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

Master of Arts
The purpose of this program is to provide students with deeper insights into music, the theory and practice of music education, and the role of music in the adult curriculum.
Admission
The student must be a certified music teacher in the process of completing certification requirements. A grade-point average of 3.5, excluding grades in elements, is required for admission to regular status.

Degree Requirements
General requirement:
25:321 Introduction to Graduate Study in Music 2 s.h.
Music theory:
25:145 Counterpoint Forms 3 s.h.
25:147 Tonal Forms 3 s.h.
25:148 Elective Specific hour and course requirements in the theory area are determined by
scores on the advisory examinations.
Music History and Literature:
Music I 3 s.h.
Music II 3 s.h.

MUSIC 25:203-207 Electives
Specific hour and course requirements in the major and literature area are determined by scores on the advisory examinations.

Music Education (0-12 s.h.)
Music Education: Basic Methods and Instrumentation 3 s.h.
Music Education: Special Topics in Music Education 3 s.h.

Electives to be selected from music education is consultation with the advisor. 4-6 s.h.
Two semester hours of ensemble credit. Two to three semester hours of applied music.

The amount of elective credit applicable toward the M.A. degree is dependent upon the scores earned on the music advisory examinations and the amount of credit earned in music education elective courses.
In the semester in which the student

Doctor of Philosophy
The third year of the program is to prepare students for teaching, research, or other effective functions in the following type of positions:
College positions—teachers of music in public schools and colleges; band, choral, and orchestra directors; and administrators of music departments and schools of music; or Public school positions— music supervisors, research and curriculum consultants, and directors of city or district school music programs.

Admission
Application is made to the School of Music. For admission to the Ph.D. program in music education a student must have a 3.0 grade-point average (excluding grades in ensembles), have a score above the fiftieth percentile on the verbal ability section of the GRE Aptitude Test, hold or be qualified for a valid teaching certificate, and have a minimum of two years of successful music teaching experience.

In addition to the specific admission requirements stated above, an appraisal of teaching success, academic potential, and writing ability is made by the music education faculty before qualifications for admission are finally determined.

Degree Requirements
The Ph.D. degree is granted on the basis of achievement (as determined by course grades and evaluations on the comprehensive and final examinations) and on the accumulation of semester hours of credit. The course requirements and semester hours listed below are to be considered minimum requirements for the typical student in preparation for the satisfactory passing of the comprehensive and final examinations.

Music (0-29 s.h.)

Music Education (0-29 s.h.)
MUSIC 25:320 Advanced History and Literature of Music I 3 s.h.
MUSIC 25:320 Advanced History and Literature of Music II 3 s.h.
Elective 25:303-314 3 s.h.
Applied and Ensembles 4 s.h.
Electives 0-2 s.h.

Music Education (29-34 s.h.)
MUSIC 25:320 Supervision and Administration of Music Programs 3 s.h.
MUSIC 25:440 Psychology of Music 2 s.h.
MUSIC 25:340 Social and Psychological Factors in Music Education 3 s.h.
Electives 25:340 Special Topics in Music Education 3 s.h.

Education (8 s.h.)
MUSIC 25:133 Introduction to Statistical Methods 3 s.h.
MUSIC 25:320 Selected Applications of Statistical Techniques 2 s.h.

Elective 2 s.h.

M.A. level requirements
Electives
Selected in consultation with the student's advisor on basis of advisory examination scores with the student's professional needs and goals. Students take courses from applied music, ensemble, theory, history and literature, music education, education, statistics, and psychology to total 10 to 25 semester hours.

Dissertation
Students earn a minimum of 12 semester hours for work on a dissertation.

Comprehensive Examinations
The comprehensive examination is an inclusive evaluation of the student's knowledge of selected fields of study. Candidates must demonstrate maturity and scholarship in the areas of theory and practice of music education, research design and technique, specialization in music performance, history and literature of music, and music theory and analysis.

The examination typically is divided as follows: music education theory and practice and research techniques, music theory and analysis, music history and literature, and specialized music performance area.

Physical Education and Dance
Master of Arts
Requirements for this program are described in the "College of Liberal Arts" section of the Catalog. There is "Department of Physical Education and Dance—Mabel Gym.

Doctor of Philosophy
This program is also described in the "College of Liberal Arts" section of the Catalog.

Field House Program in Physical Education
Master of Arts
See "Physical Education—Field House" in the "College of Liberal Arts" section of the Catalog.

Doctor of Philosophy
The Ph.D. program in Physical Education—Field House program is also described in the "College of Liberal Arts" section of the Catalog.

Science Education
The following advanced degrees are offered in Science Education:
Master of Arts in Teaching
Master of Science (with or without thesis)
Educational Specialist
Doctor of Philosophy
All programs are described in the "College of Liberal Arts" section of the Catalog under "Science Education."

Social Studies Education
Master of Arts
The purpose of the program is to provide an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competency in the social sciences and greater proficiency in teaching and supervision.

Admission
Applicants must have a minimum of 20 semester hours of undergraduate credit in the areas of history, social science, and the social sciences from an accredited institution, a cumulative grade-point average of 3.0,
3.0 grade-point average in history and social science courses, preferred GRE Aptitude Test score of 1000 composite of verbal and quantitative.

Degree Requirements

Thiry-eight semester hours distributed among history, social sciences, or related areas, with a minimum of 10 semester hours in each of the fields chosen.

Thirty-eight semester hours distributed among electives listed above and education.

Nine semester hours of the total 38 semester hours must consist of graduate courses numbered 200 or above, distributed in the five fields selected for concentration. A minimum of 2 to 3 semester hours of 98:201, 98:202, or 75:203 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed.

Thesis (if this option is selected) — A research or investigational problem in history, the social sciences, or related areas in which case the thesis director will be a member of the appropriate department; or an investigative problem in social studies education, in which case the thesis director will be a member of the College of Education;

Comprehensive Examinations — A two hour written examination in each of the five fields of concentration. The oral examination will be conducted by the candidate’s committee as a whole.

Doctor of Philosophy

The purpose of the program is to prepare secondary school supervisors, curriculum directors, teacher education personnel, and college instructors in the social sciences and pedagogy.

Admission

Applicants must have a bachelor’s degree in history or the social sciences, or education. They must satisfactorily pass the Graduate Education Admission Test or an acceptable alternative. Seminar papers or field research are required as evidence of competence and are to be submitted as part of the M.A. An interview is required prior to regular admission.

Degree Requirements

A minimum of 90 semester hours of course work and dissertation credit beyond the bachelor's degree and not including requirements.

The 90 semester hours are to be distributed among history, social sciences or related areas, and education. Work in the disciplines chosen will constitute between 80 and 75 percent of the total: 90 semester hours; work in education will constitute between 25 and 40 percent of the total.

Seminars and courses numbered 200 or above are required in each of the three fields constituting the major. A minimum of 2 to 3 semester hours of 98:201, 98:202, or 75:203 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed.

The requirements are tailored to the individual's program and may consist of two foreign languages or the language and another discipline. Three of the statistics plus research techniques in one or more of the fields chosen or a language is required.

Comprehensive Examinations:

The examination consists of a one hour written examination in each of the five fields of concentration.

A two hour oral examination will be conducted by the candidate's committee as a whole.

A dissertation proposal or prospectus must be submitted at the time of the oral examination following the written comprehensive examination.

Doctoral students may be referred to the Ph.D. program and must be enrolled by the Graduate College.

A dissertation proposal or prospectus must be submitted at the time of the oral examination following the written comprehensive examination.

Alternatives to the traditional written comprehensive examination will be considered by the candidate’s committee.

A dissertation on a research problem in history, the social sciences, or related areas in which the dissertation director will be a faculty member of the appropriate department or in the social studies education, in which case the dissertation director will be a faculty member of the College of Education.

Continuing requirements for maintaining candidacy: grade-point average of 3.0 plus annual evaluation.

Assistantships

A limited number of half-time assistantships is available for students pursuing Ph.D. degrees in secondary education. Holders of assistantships may register for no more than 12 hours per semester, and except with special permission, must register for at least 6 hours per semester. Assistant’s assignments vary; some involve teaching undergraduates courses or supervision of practicum experiences and others primarily involve research activities. Assistantships in some Liberal Arts departments may also be available to Secondary Education graduate students. Candidates with appropriate credentials should apply directly to the department in question or consult the College of Education advisor directing the program in their field.

Courses

79:01 Pre-Education Practicum 1-2 hr.

Involves observing and assisting students and teachers in performing daily tasks in schools. Cannot be repeated for credit. Serves as course work with fieldwork. Prerequisite: consent of instructor.

79:15 Introduction to Secondary School Teaching 2 hr.

Survey of current educational secondary education instructional, including needs and characteristics of students and teachers, nature of the role in schools; pedagogical and psychological factors in classroom teaching, Pre-requisite: 79:11.

79:15 Introduction to Education 2 hr.

Basic tenets in the 79:15 in education; consideration of administrative organization, institutional procedures, and contemporary premises in both elementary and secondary areas. Same as 76:150.

79:20 Helping Problem Students 2 hr.

Planning, resolving, and evaluating instructional programs for the secondary level covers the nature of learning to be taught in the social sciences and the techniques of teaching. Pre-requisite: 79:15.

79:20 Advanced Methods - (a) 3 hr.

Theories and methods of teaching at elementary and secondary levels, art and lesson planning, evaluation, motivation and classroom management. Observational techniques.

79:35 Introduction to Environmental Studies for K-12 3 hr.

Programs and activities available for introducing environmental studies in the K-12 curriculum as a coordinated and systematic approach to existing curricula. Same as 76:150.

79:35 Special Problems for Teachers of Students with Disabilities for K-12 3 hr.

Programs and activities in the areas of environmental studies; concerns for classroom implementation of activities.

79:35 Implications of Environmental Studies for K-12 3 hr.

Programs and activities of an interdisciplinary nature. Concerns for classroom implementation of activities.

79:35 Implications of Environmental Studies for K-12 3 hr.

Programs and activities of an interdisciplinary nature. Concerns for classroom implementation of activities.

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79:35 Implications of Environmental Studies for K-12 3 hr.

Programs and activities of an interdisciplinary nature. Concerns for classroom implementation of activities.
Special Education/EDUCATION

75-434 Seminar Special Topics in Music Education 3 sh. Synthesis of research on topics pertaining to music teaching and learning. Placement of all doctoral students in music education: available to other graduate students with permission of instructor.

75-437 Basic Music Workshop 1 sh. Methods and innovative instructional procedures for teaching music in public schools and other schools. Offered summer semester and irregularly during the academic year. May be repeated.

75-438 Special Workshops in Music 1 sh. Topics of current interest in the teaching and learning of music. Placement of doctoral students in music education: available to other graduate students with permission of instructor.

75-438 Public School Curriculum in Physical Education 3 sh. Treatment of major social, psychological, and biological factors influencing curricula and curriculum development. In physical education: emphasis on content transfer; cognitive, affective, and motor competencies required. Same as 277/327, 327.

75-320 Seminar Science Education 0–4 sh. Discretion of credit: limitedly faculty and departmental candidates. Research, national issues, program implementation.

75-321 Sources of Science and Its Application to Science Teaching 2 sh. Analysis of a research problem in cooperation with a master's degree preparation of the dissertation for the degree of M.A. in science education. Same as 321.

75-325 Science Education Issues, History, and National Interests 3 sh. Same as 321.

75-325 Science Education Nature of Science: Interests 3 sh.

75-327 Science Education Teaching, Learning and Curriculum Development 3 sh.

75-328 Science Education Research Models and Conceptual Science Constructs 3 sh.

75-329 Seminar Current Issues in Secondary Education 3–5 sh. Analysis of current issues in education and related experience with a seminar in methodology of research and an introduction to candidate's work in education. May be repeated.

75-350 Undergraduate Programs 3 sh. Admission to the Special Education Education

75-410 Ph.D. Seminar: English Education 3 sh. Discussion and evaluation of recent research and theory in education as it relates to English in the secondary school. May be repeated. Prerequisite: consent of instructor. Same as 410.

75-410 Basic Education: Advanced Observation and Lab Projects 2 sh. Graduate students opportunities in planning and teaching units in special education classes and the implementation of inclusive practices. May be repeated.

75-415 Social and Psychological Factors in Basic Education 3 sh. Integration of social and psychological factors in curriculum and instructional procedures in special education classes and to special education classes and inclusive education classes. Available to other graduate students with permission of the instructor.

75-425 Seminar: Research in Secondary Education 2 sh. Identification of problems for research and development of plans for conducting and reporting results of research activities. May be repeated.

75-435 Ph.D. Thesis 0–9 sh. Prerequisite: consent of instructor.

Special Education


Undergraduate Programs

The Division of Special Education expects its graduates will continue to find opportunities as teachers of special classes in the public schools or in resource persons for classroom work with handicapped children in regular classrooms. Opportunities in the latter area reflect the trend in special education toward the accommodation of handicapped children in regular classrooms with supplemental help rather than the segregation of handicapped children in special classes. The University of Iowa program in special education aims to train the B.A. or B.S. student a knowledge of the characteristics of exceptional children, education programs currently provided for exceptional children, methods of teaching exceptional children, and practical experience with exceptional children.

A student majoring in special education may qualify to teach the mentally retarded at the elementary level (State of Iowa Approval 81), to teach the mentally retarded at the secondary level (State of Iowa Approval 81), (endorsement 203), or to teach the physically handicapped at the elementary level (State of Iowa Approval 81).

Both the elementary-level programs require that the student also complete the requirements for certification in elementary education (State of Iowa Endorsement 103). At the secondary level the student must complete the regular secondary education foundations program and complete the major in special education, including student teaching with the menthy retarded at the secondary level. Two areas of concentration are also offered. Students interested in teaching preschool handicapped must complete a major in early childhood education. Students interested in teaching severely/profoundly handicapped must also complete a major in elementary or secondary mental retardation.

Program Requirements

Elementary Mental Retardation First Year

75-30 Introduction to Assessment in Special Education 2 sh.

75-130 Exceptional Persons 3 sh.

75-130 Mental Retardation 3 sh.

Second Year

75-51 Teaching Mentally Mentally Retarded: Elementary 3 sh.

75-33 Practicum with Physically Handicapped 2 sh.

75-130 Teaching Mentally Moderately Retarded 2 sh.

75-34 Practicum with Physically Handicapped 2 sh.

Third Year

75-132 Supervised Teaching with Physically Handicapped 2 sh.

Students completing this program will be recommended for State of Iowa Approval 81 (Mental Disabilities K-9).

Elementary Physically Handicapped

First Year

75-30 Introduction to Assessment in Special Education 2 sh.

75-130 Exceptional Persons 3 sh.

75-130 Orientation to Rehabilitation of Physically Handicapped Child 3 sh.

3:11 Introduction to Speech and Hearing Disorders 3 sh.

Second Year

75-130 Methods of Teaching Physically Handicapped 3 sh.

75-34 Practicum with Physically Handicapped 2 sh.

Third Year

75-191 Supervised Teaching with Physically Handicapped 7 sh.

Students completing this program are recommended for State of Iowa Approval 84 (Physically Disabled K-9). Shadowing and foregoing in the physically handicapped program are eligible to apply for the Julius Z. and Roberta Elder Memorial Tuition Award which will be awarded to that student during the junior or senior year. The recipient of this one-semester stipend is chosen on the basis of
financial need, demonstrated scholastic ability, judgment, and promise of success in a professional teaching career in special education.

Secondary Mental Retardation

First Year
7U:30 Introduction to Assessment in Special Education 2 e.h.
7U:130 Exceptional Persons 3 e.h.
7U:135 Mental Retardation 3 e.h.
7U:150 Introduction: Secondary School Teaching 2 e.h.
7U:81 Pre-service Practicum 2 e.h.
(continued)
7P:75 Educational Psychology and Measurement 3 e.h.
7W:51 Audiolingual Equipment for Instruction 1 e.h.
34:1 Introduction to Sociology: Principles 4 e.h.
34:2 Introduction to Sociology: Problems 4 e.h.

Second Year
7U:32 Teaching Mildly Mentally Retarded: Secondary 3 e.h.
7U:33 Practicum with Mildly Handicapped 2 e.h.
7U:136 Teaching Moderately Mentally Retarded 2 e.h.
7U:34 Practicum with Moderately Handicapped 2 e.h.
7U:133 The Culturally Different in Education Settings 3 e.h.
7U:103 Facilitating Career Development 4 e.h.
7P:70 Introduction to Psychology of Reading 3 e.h.
7W:103 Selection and Use of Media for Instruction 3 e.h.
34:11 Juvenile Delinquency 3 e.h.
34:14 Criminology 3 e.h.

Third Year
7U:192 Supervised Teaching with Mentally Retarded 15 e.h.

Preschool Handicapped

First Year
7U:130 Exceptional Persons 3 e.h.
7U:135 Mental Retardation 3 e.h.
7U:139 Orientation to Rehabilitation of Physically Handicapped Child 3 e.h.
34:13 Introduction to Speech and Hearing Processes and Disorders 3 e.h.

Second Year
7U:150 Methods of Teaching Preschool Handicapped 3 e.h.
7U:137 Teaching Moderately Mentally Retarded 2 e.h.

Third Year
7U:192 Supervised Teaching with Preschool Handicapped 15 e.h.

Students completing this program will be recommended for State of Iowa Endorsement in Preschool Handicapped, pending program approval by Iowa Department of Public Instruction.

Severely/Profoundly Handicapped

First Year
7U:134 Teaching Severely/Profoundly Handicapped 3 e.h.
7U:35 Practicum with Severely/Profoundly Handicapped 2 e.h.

Second Year
7U:194 Supervised Teaching with Severely/Profoundly Handicapped 7 e.h.

Students completing this program will be recommended for State of Iowa Endorsement in Severely/Profoundly Handicapped, pending program approval by Iowa Department of Public Instruction.

Undergraduate Admission

Sixty-five students who have completed at least one year of college course work are admitted to special education each year. Admission decisions are based on cumulative college grade-point average and experience with the handicapped. Examples of acceptable volunteer or paid experience with handicapped persons are: counseling in a summer camp program for the handicapped, work with the handicapped sponsored by community or religious organizations, extensive child-sitting experiences with handicapped children, and teacher aid experiences in classrooms for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 15.

Graduate Programs

The purpose of the graduate programs in special education is to train new personnel and to retain existing staff so that both groups can better provide appropriate levels of service to handicapped children. Most applicants to the graduate program have undergraduate preparation as teachers either in regular or special education. Applications from students without valid teaching certificates will be reviewed by the division admissions committee.

Graduate programs are offered for certification only, and at the M.A., Ed.D., and Ph.D. degree levels. Initial certifications or additions to present certificates are available at the graduate level in elementary and secondary learning or emotional disabilities, school psychology, work-study coordination, administration of special education and teacher education.

Master of Arts

Most students admitted to the M.A. program in special education are seeking to add an endorsement to teach either the emotionally disturbed or the learning disabled.

The M.A. program prepares students to function as teachers in resource, integrated, and self-contained classrooms; and a program requires a minimum total of 38 semester hours. A list of required courses is available from the division office.

To be admitted to the M.A. program, students pursuing certification in special education must already be eligible for certification in either elementary or secondary education. Candidates with prior successful teaching experience are given preference.

Some students who do not wish to seek certification may be selectively admitted to the M.A. program in special education. Numbers admitted depend on the resources available.

Educational Specialist in Special Education

The M.A. program in special education prepares students to provide advanced graduate training for professionals in the field of special education. This may include individuals in consultation, supervisory work, and work-study coordination in special education. The program requires a minimum total of 24 semester hours. In addition to the general graduate admission requirements listed below, requirements for admission to this program include a master's degree in special education or equivalent; preparation and certification in special education; and a minimum of three years full-time teaching experience before admission to the program.

Educational Specialist in Special Education Administration

The primary objective of the program is to provide sufficient training and experience to enable graduates to obtain entry-level positions in administration. The career focus of the program is on middle management positions, such as supervisors and assistant directors. Successful completion of the program qualifies the person for certification in Iowa to serve as a director of special education (State of Iowa Endorsement 48) and also qualifies the person for (State of Iowa Endorsement 81) certification in general school administration. Graduates are
certifiable and employable as administrators of special education generally throughout the Midwest and the nation. The program requires a minimum total of 60 semester hours of credit.

Admission to the program is limited on the basis of resources available. From five to eight new students are admitted each year. In addition to the general requirements listed below, admission requirements include a master's degree and certification in some area of teaching exceptional children, and classroom experience as a teacher.

Educational Specialist in School Psychology

The purpose of this program is to provide course work and internship training in the areas of education and psychology which will enable graduates to be competent school psychologists. Successful completion of the program qualifies the person for certification to serve as a school psychologist (State of Iowa lows Certificate 40). The program requires a minimum total of 60 semester hours.

The deadline for receipt of applications for admission to the school psychology program is February 15. Approximately ten students are admitted each year. It is preferred that the applicant have at least a 3.0 grade-point average on the last two years of undergraduate work.

Doctor of Philosophy

The purpose of the Ph.D. program in special education is to prepare students as competent, practicing school psychologists. It is also designed to meet the requirements permitting students to study and practice professional education and psychology. In addition, the program provides interest in special education. The program requires a minimum total of 90 semester hours.

In addition to the general admission requirements listed below, requirements for admission to the Ph.D. program include a master's degree or equivalent; a minimum of one year of full-time teaching experience; and prior teaching experience with children except the school psychology program. The admissions committee gives preference to applicants with several years of experience.

Facilities

Special facilities available to students in special education include the University Hospital School (for mentally and physically disabled) with a staff of pediatricians, psychiatrists, and psychologists; and the Special Education Program (for children and youth with behavior disorders).

Financial Aid

A limited number of teaching and research assistantships are available to full-time students in M.A., Ed.S., and Ph.D. programs. The Janet Zeber Memorial Tuition Stipend is awarded to an undergraduate student in the training program for teachers of the physically handicapped.

General Admission Requirements

Graduate admission requirements of the Division of Special Education conform to those used generally by the College of Education, with the following additions:

Completion of the Graduate Record Examination (GRE) Aptitude Test before being admitted to the program (combined scores of 1000 or above are preferred); and

Documentation of having worked successfully with children and youth.

Courses

3036 Introduction to Assessment in Special Education 3 sh.

Students develop assessment skills in research, program evaluation, program planning, and student progress evaluation. Introduction to behavior modification. Introduction to IQ development. Prerequisites: undergraduate special education program.

7011 Teaching mildly Handicapped 3 sh.

Methods of assessing and teaching skills in such language arts, reading, social studies, math, and science; behavior management; integration into regular education. Prerequisites: Passage 7030, 7035, and 7040.

7012 Teaching mildly Handicapped 3 sh.

Methods of assessing and teaching skills in physical education, recreation, social adjustment, classroom discipline; transition from secondary school to the work. Prerequisites: Passage 7030, 7035, and 7040.

7023 Procedures with mildly Handicap 3 sh.

Examinations with mildly handicapped for approximately 70 hours. Prerequisites or concurrent 7024 or 7035.

7024 Procedures with Moderately Handicap 3 sh.

Examinations with moderately handicapped for approximately 70 hours. Prerequisites or concurrent 7023 or 7035.

7025 Procedures with Severe/Profound 3 sh.

Examinations with severely/profoundly handicapped or community 70 hours. Prerequisites or concurrent 7045.

7030 Integrating mildly Handicap into Regular 3 sh.

Designed to give educators involved with mildly handicapped children broader knowledge of current research and the skills to identify and manage many learning issues.

7016 Internship 1-12 sh.

Introduction to autism including diagnosis, assessment, and research information. Development of intervention strategies for autistic persons. Prerequisite: consent of instructor. Prerequisites: 7021 or 7045.

7018 Internship 1-12 sh.

Students and group in progress for autistic students. Prerequisite: consent of instructor.
Section 1: Introduction to School Psychology

1.1 Understanding the Role of School Psychologists

1.2 Legal and Ethical Standards

1.3 Psychosocial Developmental Theories

Section 2: Intellectual Assessment

2.1 Neuropsychological Assessment

2.2 Academic and Achievement Testing

Section 3: Emotional and Behavioral Assessment

3.1 Social and Emotional Development

3.2 Behavioral Assessment Techniques

Section 4: Intervention and Support Services

4.1 Individualized Education Programs

4.2 School-based Interventions

Section 5: Research in School Psychology

5.1 Research Methodology

5.2 Evidence-based Practices

Section 6: Professional Development and Leadership

6.1 Professional Development Opportunities

6.2 Leadership Roles in School Psychology

Section 7: Conclusion

7.1 Future Directions in School Psychology

7.2 Implications for Practice

Appendix: Additional Resources

References

Back Matter
College of Engineering

Engineering is the profession in which a knowledge of the mathematical and natural sciences is applied to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. The major aim of engineering is the creation of a new process, product, material, or system that is useful to our society. This activity demands a high degree of creativity coupled with a total understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares young men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, and consulting. Engineers are employed in industrial organizations, governmental agencies, and in private practice.

The College of Engineering has two major responsibilities. The first responsibility is to provide high quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling. The second responsibility is to provide graduate programs in modern areas of engineering that lead to the Master of Science and Doctor of Philosophy degrees. Graduate education involves intensive study and research activities of a creative nature which are expected to result in original contributions to the literature at the graduate level.

Programs Offered

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S.E.) degree in the major fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering, as well as a program leading to the B.S.E. degree without designation of a major. Programs leading to the Master of Science and Doctor of Philosophy degrees are offered in the fields of chemical and materials engineering, civil and environmental engineering, electrical and computer engineering, industrial and management engineering, and mechanical engineering.

Any of the undergraduate programs offered by the College of Engineering may be combined with a program leading to a bachelor's degree in the College of Liberal Arts and a bachelor's degree in the College of Engineering.

The combined degree program may be normally completed in eight or nine years. In addition, a minor in the College of Business Administration or a minor or minor in any degree-granting department or program in the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

The undergraduate programs in chemical, civil, electrical, industrial, and mechanical engineering are accredited by the Accreditation Board for Engineering and Technology (ABET) of the American Association of Engineering Societies (AAES)—formerly the Engineers' Council for Professional Development (ECPD).

Undergraduate Programs

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 128 semester hours of credit including satisfactory completion of the specific requirements of the major program as described in the following sections. The candidate for the B.S.E. degree must be enrolled in the College of Engineering for at least the last 30 semester hours, or all of the last 60 semester hours, or a total of 90 semester hours and must have a minimum grade-point average of 2.00 on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa. In addition, the candidate must have completed 22M/254 Engineering Calculus I and 22M/38 Engineering Calculus II, or their equivalents, with a grade of C, or better, in each course.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an applicant must have:

Completed the American College Tests with a composite standard score of 24 or above and a standard score of 24 or above in mathematics; Successfully completed at least one and one-half units of algebra, one unit of plane geometry, and one-half unit of trigonometry; and

Ranks in the upper one-half of his or her high school graduating class.
High school physics and chemistry are recommended for all applicants. Transfer applicants must submit a formal application and an official transcript from the college or universities attended at other institutions. Each applicant should have:

- Completed at least one semester of calculus or its equivalent; and
- Maintain a cumulative pre-point average of at least 2.25, based on a 4-point marking system.

A maximum of 64 semester hours credit (or the equivalent) from a community college will be accepted toward a baccalaureate degree.

Eligibility of the minimum requirements for admission does not ensure admission to the College of Engineering. From the applicants, the College of Engineering selects those who appear to be best qualified for the study and practice of engineering.

### Undergraduate Curriculum

The undergraduate curricula in engineering are designed to ensure an adequate foundation in mathematics, basic and engineering sciences, the humanities and the social sciences, and engineering design. Added to this base is a preparation in an engineering specialty appropriate to the challenge presented by today's complex and difficult technological problems. The overall objective of the curricular programs is to provide an integrated educational experience and understanding of the development of the ability to apply pertinent knowledge and skill to the analysis and solution of practical problems in each of the designated areas of engineering specialization. The specific objectives of the curriculum is to prepare students for the practice of engineering.

- "The curriculum is structured into four parallel streams extending through the entire four years of undergraduate study. The areas are basic sciences, engineering sciences, humanities and social sciences, and engineering design and analysis. The mathematics, basic sciences, and engineering sciences courses provide the background required for engineering. The practice of engineering involves the ability to utilize this education to determine practical solutions to real problems." This ability is developed in the analysis and design stream. The courses in this stream begin with 501:3. Introduction to Engineering in the first semester of the freshman year and terminate with senior-level design courses during the senior year.

- "Approximately one-half of the courses in the senior-level courses are required of all the programs. This group of common courses is called the engineering core and consists of courses in mathematics, chemistry, physics, rhetoric, and engineering science and design. Most of the core courses are scheduled in the first two years. This feature permits the first semester of the freshman year to be entirely common and the first three semesters to be arranged so that a student may follow an engineering major, transfer between majors when eligible, or not declare a major during this period, with only minor adjustments in scheduling. This gives students time to become familiar with the various major areas before choosing a specific engineering program."

- "In addition to the core program and the humanities and social sciences sequence, which is also common to each program, each degree program specifies a required group of courses which provide a common depth and breadth of topics to every student in each of the curricular programs. These courses provide the common background by which the faculty expect of every graduate in each of the respective programs. The remaining courses are technical electives chosen by the student in consultation with his or her academic advisor. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken in the senior level."

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<th>The curriculum for the freshman year is:</th>
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<td>23M:36 Engineering Calculus II</td>
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<td>580:3 Chemistry Lab I</td>
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<td>4:18 Principles of Chemistry Lab I</td>
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A maximum of four semester hours is allocated for satisfaction of the rhetoric requirement. Students who qualify for 10:3 are able to satisfy the requirement with this single course, while those required to complete the eight-semester-hour sequence of 10:1-2 may apply only four semester hours toward their engineering program.

The courses listed above are required of all students in engineering; 4:14 Principles of Chemistry II is recommended during the second semester for students who are biomedical or chemical engineering majors. Biomedical engineering majors should register for 580:15 Materials Science I if placed in the humanities or social science elective listed for the second semester.

### Humanities and Social Sciences Requirements

The goal of the humanities and social sciences stem is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. The course of study includes a minimum of 16 semester hours of humanities and social science electives, which is to include at least six semester hours of courses work in the humanities and at least seven semester hours in the social sciences. Because the social science courses are to be taken in the industrial engineering or specified and are open to the same student at the beginning of the sophomore year, the student in consultation with his or her academic advisor. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken in the senior level."

The humanities electives may be selected from those approved to satisfy the humanities, historical perspectives, and the foreign civilization and culture requirements of the College of Liberal Arts general education requirements and/or appropriate courses from any of the following departments and schools: American studies; art and art history; classics; Asian languages and literatures; communication and theatre arts; English; history; literature, science, and the arts; mathematics, philosophy, linguistics; or other departments approved by the College of Engineering faculty. Students may select courses from departments not included above only after the approval of the assistant to the dean. Students shall select three of the following. Students shall select three of the following two-hour courses of advanced (100-level) work in the humanities area to secure sufficient depth of knowledge in an elected subject of study. This advanced course is generally completed elementary course. Language courses may count for any of the humanities requirements unless the courses are at or beyond the second-year level. Studio courses in art and music will not fulfill the requirement.

The social science electives may be selected from those approved to satisfy the social sciences requirement of the College of Liberal Arts general education requirements and/or appropriate course from the following departments: anthropology, economics, geography, political science, psychology, sociology, journalism and mass communications, social work, or other departments approved by the College of Engineering faculty. Students may select courses from departments not included above with the approval of the assistant to the dean. To assure an adequate depth of knowledge in a chosen area of study, students shall...
Combined College of Engineering-College of Liberal Arts Program

Students may earn two University of Texas baccalaureate degrees in a combined curriculum program in the colleges of Engineering and Liberal Arts. To enter this program, a student must be eligible for admission to the College of Engineering but may begin the program in either the College of Liberal Arts or the College of Engineering. Students who enter this program will be advised by the assistant to the dean of the College of Engineering and by an associate dean of the College of Liberal Arts. Students interested in the combined degree program should declare their interest by contacting a representative of the Dean's Office in either the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisor from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program. The student in the combined program can normally meet the baccalaureate degree requirements in both degrees in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major areas of study selected in liberal arts and engineering. Students selecting this program will be required to complete the general education requirements and the requirements of the residence requirement in the College of Liberal Arts. The specific engineering courses taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the socio-humanities are required for both degrees by both colleges, the student is, in many cases, satisfying the requirements for two colleges in the taking of a particular course.

Two Bachelor's Degrees in the College of Engineering

Recent College of Engineering graduates and current students may earn two bachelor's degrees in engineering. The requirements for the second degree are to complete at least 30 additional credit hours of residence course work beyond the requirements of 128 semester hours for the first degree program with a minimum of a grade-point average of 2.00. The additional credit hours must include courses selected by the program selected for the second degree, including the senior level design course sequence of the second degree program as well as any specific socio-humanities elective requirements. The technical electives selected for the second degree program must be of such a variety and level that the student will meet at least at the junior level of competency normally expected of graduates of that program. A student must file an application for admission to the second degree program approved by the faculty of that program and submitted to the Office of the Dean prior to the time the student initiates the course work in the second degree program. The proposed academic plan should be submitted to the chair of the second program. The plan will include a list of the courses to be taken in the second program along with a list of the courses completed and to be completed for the first engineering degree program. The approved plan will be submitted to the Office of the Dean before the student begins course work in the second program and will be placed in the student's permanent file. Any changes in the plan must be approved by the student's faculty advisor in the second program and by the program chair (the current petition form may be used for this purpose) and submitted to the Office of the Dean for inclusion in the student's permanent file.

Minors

Students graduating from the College of Engineering may earn a minor in the College of Business Administration or a minor in any degree-granting department on a nominal program in the College of Liberal Arts. Students interested in a chemistry, physics, or mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas. A notation of the minor will be entered on the student's permanent record. Students must inform the Registrar's Office of their intention to satisfy the minor requirements at the time of applying for a degree to assure that the minor designation is included on the graduate's transcript.

Minor in the College of Business Administration

Requirements for this minor are: two economics courses, two accounting courses, a marketing course, a management course, a finance course, and a legal environment course. In addition to these required courses, a student normally would also complete a calculus course, a computer course, and a probability and statistics course. Engineering majors satisfy the mathematics, statistics, and computer science requirements with courses 22M:35, 580:4, and 580:39. A 2.5 grade-point average in the courses applicable to the minor is required. Students who wish to complete a Master of Business Administration degree later should select courses which will satisfy M.B.A. requirements.

Minor in the College of Liberal Arts

Requirements for a minor are: a minimum of 24 semester hours, at least 12 of which are in advanced courses acceptable to that academic unit (students should confer with the minor department to identify acceptable courses). The student must achieve a 2.0 grade-point average in the courses applicable to the minor. Courses to be counted toward the minor may not be taken on a pass-no-pass basis. Students interested in physics, chemistry, or a mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas.

Cooperative Education Program

Cooperative education involves the integration of academic work with practical experience in an organized program. Participating students spend alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry, or government. While the student can earn a substantial portion of college expenses during the work periods, the success of the program depends on the work experience having significant educational value as well. This is assured by careful monitoring of the work experience provided by participating employers by matching student interest and ability to the work situations. The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study periods and in increased job performance improvement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased job effectiveness of the many non-technical considerations involved in any engineering project. The co-op phase ordinarily begins during or immediately following the sophomore year and continues until the beginning of the senior year. The total time for the degree program under this option is normally five years and includes the equivalent of at least one full year of work experience. The program is an option available to qualified students on a competitive basis.

University Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center advises all those who have not selected a program of study. Included in this group are students who may be
considering engineering, among other fields of study, but who are not yet ready to declare a specialized major. For help in choosing a program, students are assigned an adviser from the center rather than from a specific department. These students meet frequently and regularly with their assigned adviser for help with various academic matters. These may range from building a schedule of courses for the next semester to receiving counseling on choosing a career. For the convenience of students, the offices of the advisers are located in the residence halls. For more information, contact the Director, Undergraduate Academic Advising Center, Sieve Hall, The University of Iowa.

Academic Standards

Semester Load Limit

A normal academic load is about 16 semester hours of coursework for a semester, 8 for a summer session. A student may register for more than 18 semester hours in one semester, or 9 in a summer session, without the permission of the assistant to the dean.

Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit earned and applicable to a bachelor's degree in engineering, according to the following table:

| Freshman—fewer than 28 semester hours | Sophomore—28 to 55 semester hours | Junior—56 to 89 semester hours | Senior—90 or more semester hours |

Grading System

The college uses the point-grade system. In which grade points are awarded, the letter grade and the quality point are equal. A grade of A+ is awarded on a scale from A- to A+, for a full description see the "General Information" section of the Catalog.

Academic Probation and Good Standing

A student enrolled in the College of Engineering who fails to attain the following minimum semester and cumulative grade-point averages based on all work taken at The University of Iowa shall be placed on or continued on academic probation:

| Freshman—1.70 | Sophomore—1.80 | Junior—1.85 | Senior—1.90 |

A student whose semester and cumulative grade-point averages equal or fall below the figures listed above or his classification is considered to be in good standing.

A student will be removed from, or placed on, academic probation only at the end of a semester. A student will not be permitted to reenroll without specific approval from the dean of the college for poor scholarship. A student who has not made satisfactory improvement in scholarship may be dismissed from the college. A student dismissed from the college for poor scholarship may petition the assistant to the dean for permission to re-enroll after an interval of two regular semesters.

Cancellation of Registration

A student in good academic standing who cancels his or her registration during the first four weeks of a regular semester, or during the final three or two weeks of a twelve- or eight-week summer session, respectively, will not be permitted to enroll for the semester immediately following without specific approval from the assistant to the dean. A student on academic probation who cancels his or her registration at any time without good cause will be considered as having been dismissed for poor scholarship.

Cancellation for students enrolled in the college will be signed by the assistant to the dean only after recommendation of the student's adviser and program chair.

Credit by Examination

Students who have acquired knowledge in subject matter areas from sources other than course requirements may be granted the opportunity to obtain credit by examination.

Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to exercise this opportunity should apply to the assistant to the dean.

Advanced Placement

Under the Advanced Placement Program of the College Entrance Examination Board, a high school student may take comprehensive achievement examinations in various fields and, if passing, receive college credit and advanced placement of students who achieve satisfactory standards in these examinations. For information, write to the College Entrance Examination Board, 200 Seventh Avenue, New York, N.Y. 10009.

Pass-NoPass Option

A maximum of two courses taken in the college of Liberal Arts or Business Administration on a pass-no-pass basis may be applied toward satisfaction of the humanities and social sciences requirements. Students wishing to take such courses in liberal arts or business administration on a pass-no-pass basis must meet the conditions and follow the procedures specified by those colleges. The pass-no-pass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass-no-pass basis under the following conditions:

The signatures of the adviser and instructor must be obtained on the proper form and the completed form submitted to the registrar by the student within the time period established by university policy; The mark of P (pass) will be awarded where the final course grade earned was a C-, B, or C. The mark of N (nonpass) will be given for grades of D or F. Marks of P and N will not be used in computing the grade-point average and the mark of N will not count as earned hours; No courses work taken in the College of Engineering under a pass-no-pass option may be used to satisfy requirements for an engineering degree.

Second-Grade-Only Option

A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. This option can only be elected prior to the time of completing one semester for which the repeated courses is a prerequisite, the option may be applied to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option on a pro-rated basis. For example, a student with a B grade in a course of 4 credits and a C grade in a course of 3 credits may apply the option for no more than two courses, and a student with a B grade in a course of 6 credits and a C grade in a course of 4 credits may apply the option for no more than four courses. The maximum of 18 semester hours of applicable engineering course work may use this option for a maximum of three courses, while a student with 42 and 89 semester hours of credit in engineering courses may apply the option for 12 semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant to the dean.

Satisfactory-Fail Courses

The noncredit professional seminar courses, which are required in each of the professional programs, as well as the noncredit graduate seminar classes with course number 591 or 191 are offered only on a satisfactory-fail basis. No other engineering courses are offered on this basis. An F (failure) grade earned for such a class will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades

A mark of I (incomplete) or O (no report) which is not entered on a final grade prior to the announced deadline within the college to receive regular semester of registration will be replaced by a final grade of F (failure), except that students with incompleted from the spring semester are exempt from
committing the course during the 
ucceeding summer session.

Recognition for Academic Achievement
The college awards degrees "with high distinction" to students in the highest two percent of the graduating class, "with high distinction" to students in the next highest three percent, and "with distinction" to students in the next highest five percent. Ranking is based on the student's grade-point averages for all college-level study undertaken to their final registration.

To be eligible for this form of recognition, the student must take his or her final 60 semester hours of study in residence at the college, and must have completed at least 45 semester hours of study in the college before his or her final registration. Students in the combined engineering/literary arts program are eligible for this recognition regardless of the college in which they complete their residency requirements.

Dean's List
Engineering students achieving grade-point averages of 3.5 or above during a given semester on 12 or more semester hours of graded work with no 'I's or 'F's still standing on the current or past semester's record, are recognized by inclusion on the dean's list for that semester.

Student Organizations and Activities
The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a framework for planning and carrying out activities involving the entire student body and faculty. It sponsors faculty picnics held each fall and spring, the homecoming corn roast, MECCA Week, and sponsoring of a nationally prominent speaker during National Engineers' Week. The organization also acts on college-wide decisions of the students. Engineering students publish their own student-run newspaper, The Engineer. All positions are staffed by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the American Institute of Civil Engineers, the American Society of Mechanical Engineers, and the Institute of Electrical and Electronics Engineers are active at The University of Iowa.

The UI chapter of Tau Beta Pi, an honorary national society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. Senior and graduate engineering students who have special ability are research are eligible for election to Sigma Xi, Phi Lambda Upsilon, honorary chemistry and chemical engineering society; Chi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical engineering society; Alpha Pi Mu, honorary industrial engineering society, and Pi Tau Sigma, honorary mechanical engineering society. The college recognizes the work of outstanding students in their respective fields.

Student organizations dedicated to providing support and assistance in the development of more equitable enrollments of women and minorities in the college are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Theta Tau, a national professional engineering fraternity, is active in engineering college and draws its membership from students throughout the college.

Professional Registration
Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience.

In Iowa the agency that controls and monitors the licensing procedure is the Iowa Board of Engineering Examiners. The first step in the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given at the university near the end of the academic term. (Graduates from unaccredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals exam.) Following graduation and the successful completion of the engineering fundamentals exam, the graduate receives an Engineer-in-Training (E.I.T.) certificate. The final step in the procedure is to pass the advanced exam in a specialty area following a minimum of four years of approved professional work. At this point the graduate engineer is a registered "Professional Engineer."

Graduate Programs
The general rules and regulations for the graduate programs are established by the Graduate College. However, the specific admission and degree requirements for each graduate engineering program are included in the sections devoted to the individual programs. Also included in these sections is a description of the financial aid available in each program and also a description of the principal areas of study and research.

College Facilities
Engineering Library
The Engineering Library is a center of college activity. Its collection includes 55,000 books and 100 periodicals, is equipped with microfilm and microfiche readers, and provides study spaces for 150 library users.

Computer-Aided Instructional Laboratory
This college facility is used for teaching computer-aided engineering. The laboratory contains interactive computer graphics terminals connected to a superminicomputer, graphics printer/plotter, digitizing tablets, a line printer and a projection system. It also contains several stand-alone microcomputers which are connected to a university-wide microfiling system. It has been widely used for teaching undergraduate and graduate level courses. Software is available for graphics, applications, optimal design, finite element analysis, structural analysis and design, and dynamic analysis of mechanical and structural systems.

Computer-Based Education (CBE) Laboratory
The Computer-Based Education Laboratory provides the University with a high-speed local area network and a number of high-powered workstations and terminals. The laboratory also contains the resource library for students and faculty for printed output as well as video equipment for instructional demonstrations.

Computer Services
Services of the Web Computing Center are used extensively by students and faculty of the college under the auspices of the college computer center. The computing center hosts the campus email system and remote print services for access to the University computer systems in the CBE Laboratory. In addition, a number of IBM computers and microcomputers are available within the campus for a specialized use by students and faculty.

Employment Placement Services
The placement services of the Engineering College are available to both current undergraduates and alumni. The services include on-campus interviews for pre-engineering and co-op employment, written and audio-visual company literature for more than 300 business同志们, directories, open position
Engineering

Organization of the College

Extraordinary demands have been imposed on the engineering profession in general and on engineering education in particular by the broadening spectrum of activities in which the engineer practices and by the increasing complexities of technology. The college has responded to these demands by departing from the traditional pattern of organizational structure of engineering colleges. It has organized its faculty and facilities into different types of college sub-units—academic programs, divisions, an institute, and two centers.

Academic Programs

The academic program units are the degree-granting units, while the divisions are the administrative units that allocate the resources of the college. Each faculty member is a member of at least one academic program, but only one division.

The academic program units are biomedical engineering, chemical and materials engineering, civil and environmental engineering, electrical and computer engineering, engineering, industrial and management engineering, and mechanical engineering. The faculty in each program unit is responsible for the curricula at all degree levels offered by the program. In addition, the faculty teach courses, advise, and counsel students, and provide general support services for the students in each of the programs. The chief administrative officer of a program is the program chair.

Divisions

The divisions are identified as energy engineering, information engineering, materials engineering, and systems engineering. These units are the basic operating units of the college and consist of faculty and facilities organized according to broad functional areas of modern engineering endeavor. Each division is responsible for the development and operation of all laboratories at all levels of activity and for all purposes; for the content, teaching, and scheduling of all academic courses; and for the conduct of all research programs. The chief administrative officer of a division is the division chair.

This grouping of resources combined with strong formal curricular programs provides for the student a clear insight of the interdisciplinary nature of modern engineering while he or she is engaged in formal academic studies. Additionally, this functional arrangement broadens the educational scope of the college and encourages interdisciplinary and innovative programs.

Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IHR) is widely acknowledged to be one of the world’s leading organizations in the areas of basic and applied fluids research. The institute conducts programs of fundamental research and advanced design and analysis in the areas of environmental pollution, bioengineering, naval hydrodynamics, river mechanics, ice hydrodynamics, river mechanics, ice hydraulics, water resources, hydraulic structures, fluid mechanics, and advanced instrumentation and data handling techniques for fluids research.

Direct student participation in all research and consulting activities is one of the hallmarks of the institute’s operation.

Center of Materials Research

The Center of Materials Research was founded on the philosophy that technologies of the future require the integration of a variety of disciplines in order to transcend traditional methods of research and development. The center is at present strongly focused on programs of fundamental and applied research in biomedical engineering with particular emphasis on biomaterials. Sponsored projects include: traumatic head and spinal injuries, hemodynamics, cardiovascular mechanics, prosthetic heart valves, bone and ligament biomechanics, bone cement, and biomedical image analysis and processing.

Student participation in interdisciplinary research and development is encouraged and supported by the center. The faculty members of the center also engage in numerous consulting activities for industry, government, and other universities.

Center for Computer Aided Design

The Center for Computer Aided Design was founded for the purpose of enhancing research and development of design methods utilizing modern computer technology. The research program of the center is focused on mechanical system dynamic analysis and design, control system analysis, structural optimization and dynamic computer-aided design. A research facility consisting of a PRIME 750 super mini-computer, a dynamic graphics system, and other related computer equipment supports the facility, staff, and students associated with the center.

Faculty, staff, and students participating in the center are developing and distributing computer software to government and industrial agencies for use in a broad spectrum of mechanical and structural design activities.

Course Numbering System

The rules for course offerings by the College of Engineering are preceded by a 2-digit prefix and a 2-digit suffix separated by a colon. The first digit of the prefix is 5, which identifies the courses as being offered by the College of Engineering. The second digit of the prefix identifies the division of the college that offers the course, as follows:

2—Energy engineering
4—Information engineering
6—Materials engineering
8—Systems engineering

The third digit of the prefix identifies the engineering core courses or the courses offered by the divisions for a specific curricular program, with the correspondence between the third digit and the curricular programs as shown below:

0—Engineering core
1—Biomedical engineering
2—Civil and materials engineering
3—Civil and environmental engineering
6—Electrical and computer engineering
8—Industrial and management engineering
7—Chemistry specialty programs
6—Mechanical engineering

The three-digit suffix of a course number identifies the level and type of course. Generally, suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates. The table below provides further means of conveying information on the level and type of courses:

001-009—Freshman core courses
100-109—Sophomore core courses
020-029—Junior core courses
030-039—Required courses in undergraduate programs
040-049—Graduate professional program seminars
050-097—Contemporary topics courses for undergraduates
098—Individual investigation courses
for undergraduates
101-106—Courses to which little or no mathematics background is required
115-119—Undergraduate elective or lower-division lower-division lower-division
200—Residence courses for non-
engineering majors
184-194—Seminars for
undergraduates and graduates
195-197—Upper level courses for undergraduates and graduates
198—Individual investigations for
undergraduates
199—M.S. thesis research
210-219—Upper level graduate
courses
294—294—Seminars for graduates
296-297—Contemporary topics
courses for graduates
299—Ph.D. thesis research
The courses offered by each division are listed within each division's section by disciplinary area, starting with the lowest level course and proceeding to the highest level course.
Most courses have prerequisites stated in terms of courses at this university. Equivalent academic background may have been obtained by a student through previous course work at other colleges and universities. The student should consult with the course instructor or, if enrollment is not possible, the academic advisor for the academic background needed for a particular course, and the student should obtain the consent of the instructor to register in the course. A student may enroll in any course in the College in Engineering if the student receives the consent of the instructor. Consent of the instructor will be obtained on a case-basis, as well as on an engineering, mathematics, and engineering background of the student and that considered necessary to satisfactorily undertake the course work.

### Biomedical Engineering

Program chair: Ken Flie
Faculty: professors: Cope N. Berry, Ding-Lee Chen, Edward L. Delp, Jennifer M. Linn, David B. Mohiuddin, Ken Flie
Instructor: professors: Richard W. Aberle; Associates: Paul E. Anderson

The past two decades have seen a tremendous increase in biomedical activity in biology and medicine. As engineers have become increasingly involved with projects in the life and health sciences, there has been increased need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the life sciences and engineering—the biomedical engineering profession. The undergraduate biomedical engineering program is a curricular option offered within the Bachelor of Science program in engineering.

Students who complete this program may pursue career opportunities in industry (the design and development of medical instrumentation, diagnostic tools, life support systems, prosthetic and orthotic devices, man-machine systems, etc.), in government (Veteran Administration, Environmental Protection Agency, Food and Drug Administration, etc.), or they may elect to continue their formal education in the engineering, medical, or legal professions.

Many engineering college faculty members have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Courses which have been designed primarily for the biomedical engineering program are identified by the digit '1' in the third position of the course number prefix. Course descriptions are provided in this Catalog. A description of the additional emphasis devoted to the Division of Information and Materials Engineering.

The curriculum described below is built on the foundation provided by the College of Engineering core curriculum, and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been carefully designed to enable the student to satisfy the requirements for the Bachelor of Science degree in the College of Engineering and the College of Medicine, Dentistry, etc.

### Curriculum

#### Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>29M37 Engineering Calculus III</th>
<th>5 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>37T3 Principles of Animal Biology</td>
<td>5 s.h.</td>
<td></td>
</tr>
<tr>
<td>540-11 Introduction to Electrical Science</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>3060 Dynamics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16 s.h.</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>29M36 Differential Equations for Engineers</th>
<th>4 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>520-10 Thermo dynamics</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>540-12 Linear Systems Analysis</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>561-81 Physiology for Biomedical Engineers</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

| Total | 17 s.h. |

<table>
<thead>
<tr>
<th>Junior Year</th>
<th>29-31 Intermediate Engineering Physics I</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>17 s.h.</td>
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<table>
<thead>
<tr>
<th>First Semester</th>
<th>580-38 Probability and Statistics for Engineers</th>
<th>3 s.h.</th>
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<tbody>
<tr>
<td>580-21 Principles of Design I</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>540-18 Principles of Electronic Instrumentation</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>292-32 Intermediate Engineering Physics II</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>520-30 Mechanics of Fluids and Turbomachinery Processes</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>561-91 Professional Seminar</td>
<td>0 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17 s.h.</td>
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<thead>
<tr>
<th>Second Semester</th>
<th>580-19 Mechanics of Deformable Bodies</th>
<th>3 s.h.</th>
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</thead>
<tbody>
<tr>
<td>4-121 Organic Chemistry I</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>540-22 Principles of Design II</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>29-32 Technical electives</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>561-91 Professional Seminar</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16 s.h.</td>
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<table>
<thead>
<tr>
<th>Senior Year</th>
<th>561-83 Biomedical Engineering Design I</th>
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</thead>
<tbody>
<tr>
<td>29-32 Technical electives</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>561-91 Professional Seminar</td>
<td>0 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15 s.h.</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>58-58 Biomedical Engineering Design II</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-32 Technical electives</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>561-91 Professional Seminar</td>
<td>0 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15 s.h.</td>
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<tr>
<th>First summer course</th>
<th>561-148 Biotransport Processes</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>540-81 Biomedical Systems Analysis</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>541-98 Biomedical</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>561-148 Biomedical</td>
<td>3 s.h.</td>
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<tr>
<td>561-148 Biomedical</td>
<td>3 s.h.</td>
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<tr>
<td>561-148 Biomedical</td>
<td>3 s.h.</td>
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<tr>
<td>561-148 Biomedical</td>
<td>3 s.h.</td>
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</tbody>
</table>
Chemical and Materials Engineering

Program Offered: San-Tak Haney, James C. Dobson.

Chemical and materials engineering is the art and science of engineering applied to industrial processes in which raw materials are changed or separated into useful products. Chemical and materials engineers develop, design, and engineer the complete process as well as the equipment used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically. They are employed by basic industries such as heavy chemicals, petroleum, coal, and solvents as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and synthetic fibers. They are engaged in research, process and product development, process and plant design, product production operation, and sales. Many experienced engineers become managers or administrators.

Courses which have been designated primarily for the chemical and materials engineering program are identified by the digit 2 in the third position of the course number prefix. Course descriptions are provided in this catalog primarily within the section devoted to the Division of Materials Engineering.

Undergraduate Program

The Bachelor of Science in engineering degree is designed for the student for work in design, development, or sales. The curriculum includes extensive training in chemistry on the same foundation.

A sequence of mathematics courses together with the common engineering core courses provides a strong foundation. Undergraduate students have the opportunity to work with faculty members and graduate students on current research topics.

Curriculum

Sophomore Year

First Semester

Chemical Engineering Calculus III
4 s.h.

Mechanical Engineering Calculus II
3 s.h.

Introduction to Electrical Science
3 s.h.

Materials Science I
3 s.h.

Humaneities or Social Science elective
3 s.h.

Total
16 s.h.

Second Semester

Chemical and Materials Engineering
4 s.h.

Physics I
3 s.h.

Mathematical Principles of Design I
3 s.h.

Chemical and Materials Engineering Thermodynamics
3 s.h.

Chemical and Materials Engineering Design
3 s.h.

Total
17 s.h.

Junior Year

First Semester

Chemical and Materials Engineering
4 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering
4 s.h.

Chemical and Materials Engineering Seminar
0 s.h.

Total
17 s.h.

Second Semester

Chemical and Materials Engineering
4 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering Seminar
0 s.h.

Total
18 s.h.

Senior Year

First Semester

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering Seminar
0 s.h.

Chemical and Materials Engineering Seminar
0 s.h.

Total
14 s.h.

Second Semester

Chemical and Materials Engineering
3 s.h.

Chemical and Materials Engineering Seminar
3 s.h.

Chemical and Materials Engineering Seminar
3 s.h.

Chemical and Materials Engineering Seminar
0 s.h.

Chemical and Materials Engineering Seminar
0 s.h.

Total
17 s.h.

Graduate Program

The Graduate Program offers curricula leading to the Master of Science degree and the Doctor of Philosophy degrees. Through coursework and research, students gain an understanding of the principles of engineering science and then apply these principles to contemporary problems in such areas as energy, environment, and materials. The emphasis is on research since most of the opportunities for graduates are in industry. The goals and development. About one-third of the program is devoted to a research project, and a thesis is required for each of the graduate students.

All candidates in advanced degree programs are required to assist faculty members in teaching or research as part of the graduate training.

Research is currently being carried out in air pollution, chemical mechanisms, diffusion, flow through porous media, membrane separations, fine particles, reaction kinetics, and transport phenomena. Many research projects are funded by external agencies such as National Science Foundation, NASA, and private industries. Some funded projects are described briefly below.

Air Pollution

The study of transport phenomena of atmospheric particulates including the analysis and numerical modeling of chemically reactive flows and combined mass and heat transfer is being pursued. This research may help assess regional pollution control and energy utilization strategies.

Fine Particles

A group of professors and graduate students is engaged in research on materials in finely divided form such as dust, powders, and aerosols. The focus of this group is to describe the behavior of the particles and shape and then to relate these to the origin of the particles and their behavior. Potential applications include atmospheric pollution phenomena, chemical reactions, charging and grounding, crystallization, grain dust explosions, storage and flow of granular solids, and the catalysis of machine wear.

Flow Through Porous Media

Knudsen flow and surface diffusion through various microporous media are being studied. Practical applications are in gas separations, catalysis, and solidification. Currently a solar energy application is being investigated.

Reaction Kinetics and Catalysis

Hybrid particle catalysts are being investigated which combine the advantages of homogeneous and heterogeneous catalysts. Other topics of current interest include fluid-solid
membrane separations. New methods for processing these materials have also been developed in chemical and materials engineering laboratories. This group is now actively investigating various aspects of these new techniques, such as optimization and design, as well as working on the development of an oxygen generator and pervaporation processes. A number of industrial gases as well as natural gases can be purified by these processes. These membrane processes can also be applied to separate industrial mixtures such as alcohol and water.

Mechanical Behavior of Cast Steel
Quantitative, optical, and scanning electron microphotographs and metallographic analysis are being used to relate the characteristic features of the fracture surface and the microstructure to experimentally measured bulk mechanical properties such as the fracture toughness, fatigue crack growth rate, etc.

Master of Science
A thesis and a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours comprised of courses acceptable at the University of Iowa. Work completed in Saturday sessions as residence credit will not be counted toward full-time residence required for the MS degree.

Graduate Admission Requirements
Full admission to graduate study in this program is granted to students having a B.S. degree in chemical engineering with satisfactory grades from a recognized American college or university. Graduates from foreign universities are also accepted, depending on an evaluation of their records. For the M.S. program, a grade-point average of at least 3.0 based on a maximum of 4.0 is required; for the Ph.D. program, the minimum grade-point average is 3.7 based on completed graduate work.

Doctor of Philosophy
The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, the candidate is normally expected to have completed three academic years of residence, or two years if he or she already holds a recognized master's degree. In any case, the candidate is required to have completed at least 72 semester hours of graduate credit.

Financial Aid
A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.
and graduate handbooks describing program policies and requirements in detail are available upon request.

Undergraduate Program

Civil engineering courses build on the College of Engineering core curriculum and are designed to give the student the broad educational background essential to modern civil engineering practice. Courses in the senior year permit greater breadth or additional concentration in such areas as: specialization as structural and foundation engineering, environmental engineering, hydraulic engineering, and transportation engineering.

Curriculum

Sophomore Year

First Semester
22M:27 Engineering Calculus III 4 s.h.
590:10 Dynamics 3 s.h.
540:11 Introduction to Electrical Science 3 s.h.
590:15 Materials Science 3 s.h.
520:16 Thermodynamics I 4 s.h.
Total 17 s.h.

Second Semester
22M:38 Differential Equations for Engineers 4 s.h.
540:12 Linear Systems Analysis 3 s.h.
580:19 Mechanics of Deformable Bodies 3 s.h.
520:20 Mechanics of Fluids and Transverse Processes 4 s.h.
28:91 Intermediate Engineering Physics I 3 s.h.
Total 13 s.h.

Junior Year

First Semester
28:92 Intermediate Engineering Physics II 3 s.h.
590:21 Principles of Design I 3 s.h.
580:29 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
583:31 Structural Analysis I 4 s.h.
583:38 Soil Mechanics 3 s.h.
583:91 Professional Seminar 0 s.h.
Total 16 s.h.

Second Semester
540:16 Principles of Electronic Instrumentation 4 s.h.
582:22 Principles of Design II 3 s.h.
583:35 Design of Steel Structures 2 s.h.
523:80 Principles of Hydraulics 4 s.h.
583:88 Elements of Surveying 1 s.h.
583:91 Professional Seminar 0 s.h.
Humanities and social science elective 3 s.h.
Total 16 s.h.

Senior Year

First Semester
562:38 Reinforced Concrete Structures 3 s.h.
562:73 Transportation Engineering 3 s.h.
523:84 Hydraulic Design 3 s.h.
563:31 Professional Seminar 0 s.h.
563:100 Principles of Environmental Engineering 3 s.h.
Humanities and social science elective 3 s.h.
Total 16 s.h.

Second Semester
563:74 Transportation Systems Design 3 s.h.
563:91 Professional Seminar 0 s.h.
Technical electives 6 s.h.
Humanities and social science electives 6 s.h.
Total 16 s.h.

The humanities and social science electives must be selected to satisfy the humanities and social sciences requirements of the College of Engineering.

Graduate Programs

The graduate program in civil and environmental engineering offers curricula preparing students for professional careers and further study in environmental engineering, environmental science, hydrology, structural mechanics and materials, structural and geotechnical engineering, transportation, and water resources.

Hydraulics and Water Resources

The hydraulics and water resources curricula are associated with the Iowa Institute of Hydraulic Research, whose laboratory is world-renowned. The many staff members of the institute and professors in the program devote about half-time to teaching. The institute offers unique opportunities for students to participate actively in the research, analysis, and design aspects of real world problems. Considerable attention is given to the use of digital computers in mathematical modeling and in the acquisition and processing of data. The water resources curriculum also has ties to the Institute of Economic Research, the Institute of Urban and Regional Research, and the College of Business, Law, and Liberal Arts. Courses in hydraulics and water resources are described in this catalog within the section devoted to the Division of Energy Engineering.

Environmental Engineering and Science

The environmental engineering curriculum has two basic streams, one engineering and the other the applied sciences. This curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Institute of Hydraulic Research, the Institute of Agricultural and Environmental Health, the Institute of Urban and Regional Planning, and the colleges of Business, Law, and Liberal Arts. Course work and research permit a general program of study or specialization in one of three areas: water quality management, air quality management, and waste. Environmental engineering and science courses are described in the "Division of Environmental Engineering" section of the Catalog.

Structures, Mechanics and Materials

The structures, mechanics and materials curricula may be directed towards design, analysis, research, or a combination of these. Special strengths exist in the areas of time-dependent behavior of reinforced and prestressed concrete structures, optimal design of structural systems, computer aided design, soil behavior, and constitutive equations for metals and geotechnical materials. Course work and research in structural analysis, structural design, soil mechanics and foundations, opalescence, and mechanics of composite are available. Courses in these areas are described in the "Division of Materials Engineering" section of the Catalog.

Transportation

The transportation curriculum includes work in planning, design, construction, and operation of transportation systems and facilities. A cooperative relationship exists with the graduate program in urban transportation offered by the Center for Urban Transportation (see "Urban Transportation"). Transportation courses are described in the "Division of Systems Engineering" section of the Catalog.

Facilities

Laboratory and other facilities available in the civil and environmental engineering program are described in the "Division of Energy Engineering" and "Division of Materials Engineering" sections of the Catalog.

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or areas of the student's choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and proposed demand for M.S. graduates is anticipated.

To gain admission, the student, with or without the M.S. degree, must have a minimum of 50 semester hours of credit, with not more than 6 semester hours of credit unique for the thesis. An additional 8 s.h.
semester hours are required in the nonthesis environmental engineering concentration.

Each student, with the approval of his or her adviser, develops a plan of study which satisfies special requirements of the curriculum chosen by the student. All candidates for the Ph.D. are expected to have a minimum grade-point average near 3.0 and are required to pass written and oral examinations.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements as to semester hours of course work vary somewhat among the various areas of specialty. The candidate will normally need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation which contributes to knowledge in the field. In some specialty areas, a qualifying examination is required during the second semester for students who have not earned an M.S. in one of the University of Iowa graduate programs in engineering. All doctoral students are required to pass a written and oral comprehensive examination prior to formal admission to candidacy for the degree. This examination is normally taken when substantiality all of the student's course work has been completed. The program culminates in a final examination with thesis which must successfully defend his or her dissertation.

Doctoral candidates are expected to maintain a grade-point average of 3.2 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences (see the "Division of Mathematical Sciences" section in "Liberal Arts").

Admission

Each curriculum of the program is quite flexible, and students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

An applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of at least 2.5, usually 3.0 or better. For admission to candidacy for the doctorate, the minimum grade-point average is 3.2 based on previous academic work. Applicants whose grade-point average are slightly lower than this level will be considered regarding admission possibility.

All applicants must meet the general admission requirements of the Graduate College (see "Graduate College").

Financial Aid

A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships and fellowships. Selection of recipients usually is based on scholastic achievement and research interest.

Electrical and Computer Engineering

Program chair: Sudhakar M. Reddy


Graduate assistant professor Steven M. Colfle, Howard E. Laret.

Graduate assistant professor Nathan K. B. Allen.

Graduate assistant professors differ E. W. Jenkins, Jan D. Kraft, Donald J. Porter, Randall Vogel, Dale H. Young.

Electrical engineering is concerned with the generation, measurement, transmission, processing, and control of electrical energy and information in the form of electrical signals. The important role of the digital computer in these activities is emphasized by the program title, electrical and computer engineering.

Graduates of the program are employed in semiconductors, aerospace, telecommunications, radio, television, computer, and defense industries. With the B.S.E. degree, the electrical engineer is prepared to do engineering work in design, development, manufacturing, sales, market analysis, consulting, field service, and management. The employment outlook for the foreseeable future is quite favorable.

Courses which have been designed primarily for the electrical and computer engineering program are identified by the digit 5 in the third position of the course number prefix. Course descriptions are provided in this catalog within the section devoted to the Division of Information Engineering.

Undergraduate Program

The undergraduate program leads to a Bachelor of Science in Engineering degree, with a strong emphasis on computer engineering. The curriculum deals with electronics, instrumentation, control and communication systems, and computers.

To prepare the student for the electrical engineering profession, the curriculum provides a strong background in circuits, computers, control systems, electromagnetics, communication theory, electronics, and design. In addition to the basic engineering core of mathematics, engineering design, engineering science, and humanities. Technical electives and advanced programs are offered in biosystemic engineering, computer systems, control systems, signal processing, digital and control systems, and semiconductor devices, and solid state devices.

Curriculum

Sophomore Year

First Semester

582:10 Dynamics 3 s.h.
252:37 Engineering Calculus III 4 s.h.
580:16 Thermodynamics I 4 s.h.
580:15 Materials Science I 3 s.h.
540:11 Introduction to Electrical Engineering 3 s.h.

Total 17 s.h.

Second Semester

26:81 Intermediate Engineering Physics I 3 s.h.
224:38 Differential Equations for Engineers 4 s.h.
540:12 Linear Systems Analysis 4 s.h.
540:10 Principles of Electronic Instrumentation 4 s.h.
540:22 Introduction to Computers in Electrical Engineering 3 s.h.

Total 17 s.h.

Junior Year

First Semester

26:82 Intermediate Engineering Physics II 3 s.h.
580:50 Utilility and Statistics for Engineering and Physical Sciences 3 s.h.
540:33 Introduction to Digital Design 3 s.h.
540:40 Electronic Circuits 3 s.h.
540:50 Control Systems 3 s.h.
*540:91 Professional Seminar 0 s.h.

Total 15 s.h.

Second Semester

24:88 Modern Physics 3 s.h.
540:33 Introduction to Software Design 3 s.h.
540:50 Communication Systems 3 s.h.
540:72 Electromagnetic Theory 3 s.h.
540:84 Principles of Electrical Engineering Design 3 s.h.
*540:91 Professional Seminar 0 s.h.
Humanities or social science elective 3 s.h.

Total 18 s.h.

Senior Year

First Semester

540:76 Advanced Engineering Materials and Devices 3 s.h.
540:55 Principles of Electrical Engineering Design II 3 s.h.
*540:91 Professional Seminar 0 s.h.
**Technical electives 3 s.h.

Total 12 s.h.
Graduate Program

The electrical and computer engineering program offers the M.S. degree and Doctor of Philosophy. Thesis and nonthesis M.S. programs are available, and either may precede Ph.D. studies. Excellence in scholarship and research is stimulated through close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs. Each graduate student is regarded as an important member of the program, whose contributions are highly valued. Each student selects an advisor, and, with the advisor, plans an individual program, with freedom of choice bounded only by a few broad guidelines imposed by the Graduate College and by the program. Foreign languages and research tools, for example, are not required by the Graduate College or by the program, but are introduced into the program by the student and advisor to the extent that they are appropriate in light of the student’s goals.

The basic program, which is fundamental to electrical and computer engineering, has wide application, and has resulted in interdisciplinary research in areas such as biomedical engineering, computer systems, and applied mathematics. Graduate students are encouraged to take courses in several interdisciplinary areas.

Opportunities are available for the graduate student to choose his or her own interests and participate in a creative effort. Well-structured and funded research laboratories exist in the following areas.

Waves and Materials

Plasma physics, electro-optics, and acoustics investigations utilize specialized laboratories in both the Engineering Building and in the physics research building. Typical projects involve nonlinear wave interaction, plasma instabilities, laser optics, acoustic wave behavior, and ultrasonics.

Engineering in Biology and Medicine

Ultrasound imaging, imaging processing and speech processing are currently active areas. Research facilities in the Computer Engineering Laboratory, and in the Cardiovascular Image Processing, Ultrasound Imaging, and Microprocessor Laboratories are used in these projects.

Controls and Systems

Mathematical theory of optimal control, time delay system, adaptive control, applications of modern control theory to robotics and real-time digital computer implementation of control schemes are under investigation. Mini- and micro-computers are utilized in the controls laboratory to investigate real-time digital control, nonlinear system theory, and digital estimation. Other topics include application of automatic control processes to problems in control and communication systems. Current investigations emphasize estimation, identification, and control for stochastic dynamical systems having parameters modeled as jump processes.

Computer Systems

Each coherent subsystem and reliable system configurations, fault diagnosis, data security, data communications, networks, distributed systems, and self-checking systems are typical project areas.

In cooperation with industry, the program also offers off-campus courses in electrical and computer engineering.

Master of Science

Thesis and nonthesis programs are available. The degree requires at least 30 semester hours of credit in an approved program acceptable to the advisor and the graduate committee. The master’s thesis involves at least 12 semester hours of course work in electrical and computer engineering, not including courses required for electrical engineering undergraduates. With thesis, up to 12 semester hours of the 30 semester hours may be research credit.

Without thesis, at least three semester hours of 547:198 Individual Investigations are required in addition to the 12 semester hours in electrical and computer engineering. This independent study is to be a special project completed under the supervision of the electrical engineering advisor.

The candidate for the master’s degree in electrical and computer engineering must also successfully complete a final examination which is conducted by a committee of at least three faculty members, of which the advisor is chair. One part of the final examination must consist of an oral defense of the thesis, for thesis candidates, or of the material in 547:198 individual investigations, for nonthesis candidates. At the date of graduation, the candidate for the master’s degree must have acquired a cumulative grade-point average of 3.00 or higher.

Doctor of Philosophy

Requirements are:

1. Selection of a program advisor and filling of a tentative plan of study with the program during the first year;
2. At least 72 semester hours of credit in a program acceptable to the advisor and approved by the graduate committee, with at least 48 semester hours of credit earned in formal courses, including 30 semester hours in courses numbered 547;
3. Successful completion of the Ph.D. qualifying examination;
4. Successful completion of the Ph.D. comprehensive examination;
5. Successful completion of a research program;
6. Successful completion of a final oral defense of the thesis and a cumulative grade-point average of 3.25 or higher.

Graduate Admission

The normal requirement for admission to the graduate program is at least a 2.7 grade-point average in courses in electrical and computer engineering, mathematics, and physics for M.S. students, 3.0 for Ph.D. students. An M.S. student with a grade-point average less than 2.7 but better than 2.5 in courses in electrical and computer engineering, mathematics, and physics may be admitted on probation.

Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted. In such cases, additional course work without graduate credit may be required.

Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the normal standards.
Financial Aid
A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Engineering
Program chair: George M. Lukas
Faculty members: San-Tien Yang, Aristides Kogias, George Lucas, Howard W. McClure, James A. Johnson, W. B. Chandler
Degree offered: S.B. without designation of a major

The increasing emphasis on interdisciplinary and nontraditional career objectives in engineering emphasizes the desirability of having available a degree program which combines a strong background in engineering fundamentals with the flexibility of choosing a major elective sequence to achieve specific educational goals of individual students. The primary objective of the engineering program is to provide such an option for students whose goals cannot be achieved within the framework of the designated degree programs.

The objective of the engineering program is to provide the opportunity for each student to develop an individually-tailored course of study. However, a proper balance between breadth and depth must be maintained in order to result in a well-balanced education. To accomplish this, the curriculum contains core courses of sufficient breadth and depth to guarantee an excellent background in engineering fundamentals. The remainder of the program consists of a guided elective sequence.

The major portion of the elective program is scheduled for the final three semesters, so that a student may acquire the engineering core courses. In consultation with an adviser, the student's elective sequence is planned to achieve a coordinated program which satisfies the specific objectives of the student. The sequence is selected not later than the fifth semester of study and must be approved by a program review committee.

Industrial and Management Engineering
Program chair: J. R. Boss
Faculty members: J. W. Zahn, W. W. Job, R. R. Young, W. B. Chandler
Degree offered: S.B.E., M.S., Ph.D.

The industrial and management engineering program has many opportunities for employment and service in industrial, government, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. The industrial and management engineer may hold a staff position as adviser to management, or be in a line unit participating directly in management decisions. Representative job titles include industrial engineer, systems analyst or engineer, operations research analyst, internal consultant, human factors engineer, supervisor, or manager. The industrial and management engineer may be employed by a manufacturing firm, a government agency, or be in a service organization such as at airline, bank, hospital, or university.

In general, the industrial and management engineer is concerned with the analysis, design, and implementation of systems involving the optimal use of resources—human, material, energy, informational, and financial. The systems involved may range from small systems to extremely large systems. In order to accomplish these varying activities, the industrial and management engineer is skilled in mathematics, physical sciences, business, and human relations, as well as in computer systems, economics, optimization, human behavior, and systems analysis. Both these areas for undergraduate program in industrial engineering and the graduate program in industrial engineering and management engineering are designed to provide courses in these areas, while offering the student an opportunity to specialize in an area of choice.

Courses which have been designated primarily for students in industrial engineering are indicated by an asterisk (*). Industrial and management engineering are identified by the symbol I in the division of the course number prefix. Most such courses are described in the catalog in the section devoted to the Division of Engineering (556 numbers). While a number of courses pertaining to materials science or processing may be found in the section pertaining to the Division of Materials Engineering (556 numbers).
Undergraduate Program

The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering, science, mathematics, design, social sciences, and humanities. Advanced courses include specialty courses in management science, production, operations research, quality control, human factors engineering, and information systems.

Curriculum

Sophomore Year
First Semester
580:10 Dynamics 3 s.h.
540:11 Introduction to Electrical Science 3 s.h.
580:15 Materials Science I 3 s.h.
580:27 Engineering Management Science 3 s.h.
224:37 Engineering Calculus I 4 s.h.
Total 16 s.h.

Second Semester
540:12 Linear Systems Analysis 3 s.h.
520:16 Thermodynamics I 4 s.h.
224:38 Differential Equations for Engineers 4 s.h.
580:16 Materials Science II 3 s.h.
580:17 Economics electives 3 s.h.
Total 17 s.h.

Junior Year
First Semester
31:1:1 Elementary Psychology 4 s.h.
28:3 Intermediate Engineering/Physics 3 s.h.
580:21 Principles of design I 3 s.h.
580:39 Probability & Statistics for Engineering and Physical Science 3 s.h.
580:71 Materials Process I 3 s.h.
580:91 Professional Seminar 3 s.h.
Total 16 s.h.

Second Semester
580:22 Principles of design II 3 s.h.
29:32 Intermediate Engineering Physics II 3 s.h.
580:11 Advanced Seminar I 3 s.h.
580:121 Design of Work Methods 3 s.h.
580:140 Research Operations I 3 s.h.
580:159 Human Energy 3 s.h.
540:18 Principles of Electron Instrumentation 4 s.h.
Total 16 s.h.

Senior Year
First Semester
580:91 Professional Seminar 0 s.h.
580:123 Information Systems Design 3 s.h.
1:1:105 Psychology in Management 3 s.h.
***Technical electives 3 s.h.
Total 16 s.h.

Second Semester
580:91 Professional Seminar 1 s.h.
580:124 Operations Systems Design 3 s.h.
580:135 Quality Control, Reliability, and Engineering Statistics 3 s.h.
***Humanities elective 3 s.h.
Science elective 3 s.h.
***Technical elective 3 s.h.
Total 16 s.h.

The economics elective may be selected from:
6E:100 Price, Employment, and Production Theory 3 s.h.
6E:103 Microeconomics 3 s.h.
6E:111 Labor Economics 3 s.h.
6E:123 Managerial Economics 3 s.h.
The science elective may be selected from:
580:16 Mechanics of Deformable Bodies 3 s.h.
580:20 Mechanics of Fluids and Transfer Processes 4 s.h.
29:33 Modern Physics 3 s.h.
A biological science course 3 s.h.

**Strongly recommended: total science electives.
***The humanities and social science electives must be selected to satisfy the humasites and social sciences requirements of the College of Engineering.

**Technical electives. At least 9 of 12 hours are to be selected from the following list. The least 2 courses (3 semester hours) is to be chosen with the approval of the academic advisor.
580:56 Operations Research I 3 s.h.
580:141 Operations Research II 3 s.h.
580:143 Qualitative Investment Analysis 3 s.h.
580:144 Engineering Economic Decisions 3 s.h.
580:145 Simulation I 3 s.h.
580:155 Advanced Human Engineering 3 s.h.
687:99 Individual Investigations 4 h.
687:99 Individual Investigations 4 h.

Graduate Program

Graduate programs in industrial and management engineering are tailored to meet the needs of the individual. Each student's program of study will be based on his or her background, career objectives, and social academic practice. The curriculum is highly flexible, and the student is responsible for academic excellence.

There are three areas of academic focus: operations research and applied statistics; production management, and human factors ergonomics. Many M.S. graduate students wish to concentrate on 3-4 areas; whereas others wish to take a more general program with only a minor specialization. Ph.D. students are expected to have a breadth of background as well as a strong research specialization. Graduate students who elect the thesis option may also participate in a program which is jointly administered with the Program in Urban Transportation.

Master of Science

Two M.S. programs are available: a thesis and a nonthesis option. Students considering eventual admission to a Ph.D. program are strongly advised to select the thesis option. The M.S. thesis option requires a minimum of 30 semester credits from course work of 100 or 200 level courses, including at least 8 elective credits at either the 200 or 100 level with the designation "advanced" in the course title. A tentative plan of study for each student is determined through consultation with his or her advisor; the final plan of study is reviewed by the student's examining committee, approved by the industrial and management engineering department chair and by the Graduate College dean.

Entering students in all programs will be given course placement, programming, probability, statistics and mathematical engineering economics until preparation. Completing course work may be required for students with nonengineering backgrounds.
The student is required to maintain a minimum grade point average of 3.0 on all graduate course work (both 100 and 200 level course) at the University of Iowa to be eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee. It may be comprised of both written and oral parts. The examination will further explore the student's course preparation and/or an appropriate individual investigation.

Doctor of Philosophy

Typically, Ph.D. programs is industrial and management engineering and contain at least 72 hours of study involving specialization. Completely part-time Ph.D. study is discouraged. There is no foreign language requirement or special requirements on research tools.
Financial Aid

A number of quarter-time and half-time graduate student teaching and research assistantships are available. Awards are based on the student’s academic record and upon an assessment of the student’s potential contribution to the research and teaching goals of the program. Advanced graduate students may also qualify for higher stipend instructor positions. Students should write to the chair of the industrial and management engineering program for further information.

Mechanical Engineering

Program at Ching-Jen Chen
associate professors: James G. Andrews, K.B. Chacko, David L. Fawley
adjunct assistant professors: Ray C. Givens
adjunct associate professor: Arthur J. Papadopoulos
Research Advisor: B.S.M.E., M.S., Ph.D.

Mechanical engineering is broadly concerned with energy, including its transformation from one form to another, as well as its distribution, and operation of a wide variety of devices, machines, and systems—including complex machinery systems for energy conversion, environmental control, materials processing, transportation, materials handling, and other purposes. They are engaged in all the engineering functions including applied research, creative design, development, testing, production, operations and maintenance, marketing and sales, and management, and are employed throughout all industries.

Courses designed primarily for the mechanical engineering program are identified by the digit 6 in the third position of the course number prefix. Course descriptions are provided in this Catalog with the sections devoted to the Divisions of Energy and Materials Engineering.

Undergraduate Program

The undergraduate program prepares the student for a career in engineering, with an emphasis on the technical areas of thermal energy systems and the conversion of thermal energy to mechanical and electrical energy, mechanical systems and machines, and design and control of these systems. The undergraduate curriculum provides a substantial number of electives in both the technical and the humanities and social science areas. Technical electives are selected to provide in-depth knowledge, as at least one of the major disciplines of mechanical engineering. All upperclass students undertake a design project. A handbook describing the curriculum and program requirements is available in the program office.

Curriculum

Sophomore Year

First Semester
224.37 Engineering Calculus III 4.0
560.10 Dynamics 3.0
540.11 Introduction to Mechanical Engineering 3.0
550.15 Materials Science 3.0
550.16 Thermodynamics 4.0
Total 17.0
Second Semester
224.36 Differential Equations for Engineers 4.0
540.19 Linear Systems Analysis 3.0
540.18 Principles of Electronic Instrumentation 4.0
550.19 Mechanics of Deformable Bodies 3.0
29.81 Intermediate Engineering Physics I 3.0
Total 17.0
Junior Year
First Semester
560.39 Probability and Statistics for Engineers 3.0
25.30 Engineering Statics 3.0
29.82 Intermediate Engineering Physics II 3.0
560.21 Principles of Design I 3.0
520.20 Mechanics of Fluids and Transfer Processes 4.0
528.91 Professional Seminar Humanities or social science elective 3.0
Total 16.0
Second Semester
26.83 Modern Physics 3.0
580.22 Principles of Design II 3.0
528.92 Experimental Engineering 4.0
525.40 Thermodynamics 3.0
528.91 Professional Seminar Humanities or social science elective 3.0
Total 15.0
Senior Year
First Semester
528.45 Heat Transfer 3.0
580.32 Mechanical Systems Design I 4.0
528.91 Professional Seminar Technical electives 3.0
Graduate Program

The mechanical engineering graduate program at both the M.S. and Ph.D. levels is designed to educate students to utilize contemporary methods at an advanced level during a professional career in engineering design, development, and research. Each student's course of study is based on his or her background, career objectives, and sound academic practice.

Student programs emphasizing fluid mechanics, heat transfer and energy conversion, biomechanics, or mechanical systems may be developed from courses offered by the mechanical engineering program faculty. M.S. students choosing a more general program may combine these emphases, whereas those desiring special assignments may accommodate these preferences through the combination of program courses.

Appropriate electives from other programs and departments of the College of Engineering and the University shall be selected in consultation with the student.

A graduate handbook describing the program policies and requirements in greater detail is available upon request.

Master of Science

Students who have earned a baccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences may be admitted to the M.S. degree program.

The M.S. program requires a minimum of 30 semester hours of coursework and research. Students may choose either a thesis or nonthesis program, but the latter must include a minimum of 20 hours of 200-level courses. To earn the M.S. degree, the student is required to obtain a minimum grade-point average of 3.00 on a minimum of 30 semester hours of coursework.

Doctor of Philosophy

The requirements for the Ph.D. degree are as follows:

1. An acceptable master's degree in engineering.
2. The satisfactory completion of the Graduate Record Examination (GRE).
3. The Graduate Record Examination (GRE) admission test.
4. A passing grade in the Graduate Record Examination (GRE) general test.
5. A satisfactory performance in a master's degree program.

Admission as a Ph.D. student is conditional until the student has successfully completed a qualifying examination that is administered by the student's committee during the second semester of studies. The qualifying examination may be taken in the final semester of the master's degree program.

Examination shall be conducted within 24 months from the date of starting coursework for the Ph.D. degree. During this written and oral examination, the student will be examined in all elementary, intermediate, and advanced courses relevant to his or her degree program. The committee will evaluate the general academic standard attained by the student and his or her ability in engineering research. The comprehensive examination will also include the presentation of a dissertation proposal by the student, so the committee can evaluate the student's academic preparation for the proposed research.

Habilitation is required for the examination, and the student normally has only one opportunity to complete and defend the dissertation.

Requirements for the Ph.D. degree can generally be completed in two to three years beyond the master's degree.

Financial Aid

Financial aid is available to M.S. and Ph.D. students, primarily through research and teaching assistantships from the Division of Energy Engineering, the Division of Materials Engineering, the Iowa Institute of Hydraulic Research, the Center for Materials Research, the Center for Computer Aided Design, and the College of Engineering. Awards and reappointments are competitive and are based on the student's potential contribution to the student's research and teaching goals of the program. Students who fulfill their assistantship responsibilities adequately and continue to make satisfactory progress toward their degree objectives will receive the opportunity in the awarding of new assistantships. Advanced doctoral students may also qualify for higher-stipend instructor positions. All applications for financial support should be sent directly to the mechanical engineering program chair.
The responsibilities of the Division of Energy Engineering include the development and teaching of courses at all levels, development and maintenance of teaching and research laboratories, and conduct of basic and applied research in the disciplinary fields of fluid, thermal, and environmental engineering. The division's goal is to maintain excellence in teaching and scholarly activities, while remaining responsive to the changing engineering needs of society and its demands upon the engineering profession. The applications of the fundamental principles of biology, chemistry, fluid, and thermal sciences to the design of engineering components and projects; to the production, distribution, and utilization of water, energy, and materials; to the protection of the environment, and to the ever-increasing interaction between engineering and health sciences are conveyed to the undergraduate student through a series of core courses and electives. In addition to serving students in all engineering curriculums through the core program, the division offers specialized concentrations in biomedical, chemical, civil, and mechanical engineering. The undergraduate program offers a number of specializations and electives in the above-discussed areas. The division offers courses in fluid sciences, environmental engineering, field mechanics, hydraulic engineering, and water resources for students pursuing advanced degrees in the civil and environmental engineering and mechanical engineering programs.

Special Laboratories and Facilities

Undergraduate Instruction

The approach for undergraduate instruction in fluid and thermal sciences is located in the Engineering Building and contains an indoor and outdoor laboratory complex. The facilities are equipped with instruments for testing and analysis, and include a number of special laboratories designed to provide students with hands-on experience in the engineering sciences. The facilities are staffed by experienced faculty members and graduate students who provide guidance and support to undergraduate students.
Division of Information Engineering

Chair: Suhardjito R. Addie
Professor: Kang-Kuen Ng; Chuan-Chen, James C. Shih; Michael J. Raper; Ade O. Obada; David T. S. Horne; Dennis L. H. Tong; Janet T. H. Y. Yuen

The Division of Information Engineering coordinates laboratories in the electrical and computer engineering program with the core courses in electrical science, linear system, and instrumentation. The division is responsible for the teaching of the core courses and the courses in the electrical and computer engineering program.

Research is encouraged in the appropriate programs as well as interdisciplinary areas of current interest. Well established and funded research laboratories exist in the following special areas:

Waves and Materials

- Plasma physics, electro-optics, and acoustics

- Specialized laboratories in the fields of wave propagation, dielectric, and microwave materials

- Ultrasonic, optical, and infrared wave behavior

- Electromagnetic and optical materials

- Laser physics and applications

- Acousto-optic and electro-optic devices

Engineering in Biology and Medicine

- Ultrasonic imaging, image processing, and speech processing are currently active areas.

- Research facilities in the Computer Engineering Laboratory and the Electronics and Computer Engineering Laboratories are used in these projects.

Control and Systems

- Mathematical theory of control, time delay systems, adaptive control, and applications of modern control theory to robotics, and real-time digital computer implementation of variable control schemes are under investigation. In the control laboratory, investigation of real-time digital control, nonlinear system theory, and digital estimation utilize mini-

- Microcomputers. Other topics include applications of stochastic processes to problems in control and communication systems. Current investigations emphasize estimation, identification, and control for stochastic dynamical systems having parameters modeled as jump processes.

Computer Systems

- Fault-tolerant subsystem design and reliable-system configuration are typical project areas. Other topics include computer security, data communications networks, and self-checking systems.

Facilities

- The Computer Engineering Laboratory supports undergraduate and graduate teaching and research in the area of real-time computer applications. This laboratory is built around PDP 11/23 microcomputers with magnetic tapes, disk storage, multiple terminals, a line printer, and a graphics terminal. Other peripherals include A/D converters, D/A converters, real-time clocks, and digital input/output interfaces. This laboratory also supports research and teaching in image processing and includes a video camera for digitizing images, a Flomax Image processing system with a high resolution color monitor, and a digitizing graphics tablet. This laboratory is connected to the campus computer communications network.

- The Microcomputer Laboratory supports teaching and research activities in microprocessors and their applications. This laboratory has a broad range of commercially available microprocessor systems. These include both complete development systems and simple board processors. This laboratory supports breadboarding, application development, and testing.

- The Electro-optics Laboratory is utilized for demonstrations and graduate research in coherent optics. Typical projects include the applications of lasers to communications, metrology, signal processing, and electronics. The laboratory is equipped with laser, electro-optical, and ultrasonic wave. The laboratory is equipped with lasers, electro-optical, and ultrasonic wave equipment.

- The Plasma Physics Laboratory operates in conjunction with the Department of Electrical Engineering. Experiments are performed in several laboratories, including plasma, device, and assembly facilities. These laboratories are equipped with ion sources, double chambers, and power wave and wave equipment.
540-181 Statistical Communication Theory
3 h.
Introduction to signal processing and random processes; elementary detection and estimation theory; communication of digital signals over radar channels; coding for efficient digital transmission; noise modulation; estimation of frequency; the phase-locked loop. Prerequisite: 540-180.

540-193 Introduction to Information and Coding Theory
3 h.
Qualitative measure of information; discrete and continuous source and channel coding; error detecting codes; discrete and continuous channel coding, transform coding, quantization, information theory, the Shannon bounds, the phase-locked loop. Prerequisite: 540-180.

540-232 Information Theory
3 h.
Quantitative measure of information; discrete and continuous source and channel coding; error detecting codes; transform coding; quantization, information theory, the Shannon bounds. Prerequisite: 540-180.

540-236 Coding Theory
3 h.
Deterministic methods to improve reliability and security of channel-communication and preposition systems, error correcting codes, linear and sequential decoding, encryption, symmetric ciphers. Prerequisite: 540-180.

Controls
540-00 Control Systems
1 h.
Introduction to linear feedback control system, transfer functions, block diagrams, and stability problems. Analysis of transfer functions and stability problems. Prerequisites: 540-00, 540-07, 540-10, and 540-18.

540-182 Control Theory
3 h.
Feedback controls; synthesis and compensation; computer simulation; modern control; control components. Prerequisites: 540-00, 540-07, and 540-10.

540-183 Linear Systems
3 h.
State variable formulations; multiple input, multiple output systems; stability; controllability and observability; state space feedback. Prerequisites: 540-180.

540-185 Advanced Control Theory
3 h.
Introduction to linear feedback control systems; trajectory optimization; cannibalization methods; optimal control; adaptive control. Prerequisites: 540-183 or 540-180.

540-237 Control Systems Design
3 h.
Introduction to discrete and digital control systems; principles of analysis and design of computer control systems, programming for real-time digital control; examples of optimal and adaptive control strategies; complexity and computational requirements; design of control system. Prerequisites: 540-00 and 540-10. Corequisite: 540-180.

540-182 Electromechanical Systems
3 h.
Electromechanical energy; conversion principles; electromechanical energy systems; basic electrical circuits; theory and applications; electromechanical current-carrying lines; theory and applications. Prerequisites: 540-10 and 540-37.

540-185 Power Systems Fundamentals
1 h.
Power systems fundamentals; electrical power systems; power system representation; power flow analysis; basic electrical components; power engineering; the IEEE standard for load flow analysis with total power. Prerequisites: 540-180.

540-184 Crystallographic Methods
3 h.
Theory of x-ray crystallography; use of optical microscopes; methods for the determination of crystal structure; x-ray diffraction methods. Prerequisites: 540-183, 540-193, and 540-199.

540-186 Electrical Communication Systems
1 h.
Introduction to signal processing and random processes; control systems with internetwork state measurement; digital signal processing; computer simulation of estimation and control; digital signal processing, computer simulation of estimation and control, experimental, computers, control systems with internetwork state measurement.
Biomechanical Engineering Laboratories

The Bioengineering Laboratory is equipped for research in cardiovascular fluid dynamics. Equipment includes a Laser Doppler Anemometer System for fluid velocity and turbulence measurements, a mock circulatory system, a Bioreactor, a scissors for accurately measuring instruments.

Chemical Engineering Laboratory

Located in the Chemistry-Botany Building, the laboratory includes a pilot-plant equipment for the study of industrial evaporation, distillation, drying, fluid flow, and heat transfer. In addition, there is a subatomic nucleus reactor and facilities for bio-materials research and investigation of plastics and other materials. Facilities for physical research by graduate students include chromatography, mass spectrometry, and other instrumentation. A small shop is available for students to use under the supervision of technicians.

Electron Microscope Laboratory

This laboratory for research and teaching is equipped with an RAC EMU-3F electron microscope and the necessary specimen preparation equipment to permit examination of specimens in the thin film and replica microscopy and selected area diffraction. The equipment represents the adjacent facility involving the mechanical behavior of materials. Such phenomena as the following may be studied by use of this tool: the behavior and distribution of dislocations as a result of plastic deformation, lattice fault energy, grain boundary formation, fracture damage, Electron fractography and the study of surfaces may be done by use of the replica technique. The phase transition may be studied by use of selected area diffraction.

Materials Processing Laboratories

This facility consists of metal casting and welding, metal cutting, and heat treatment and metallographic laboratories. Equipment includes all equipment and research involving primarily the liquid and plastic deformation of materials. The laboratories are equipped with such items as melting and welding furnaces, a variety of welding equipment, foundry and testing and molding equipment, pyrometers, non-destructive testers, machine tools and tool force dynamometers, metal forming equipment, metallographic specimen-mounting presses and polishers, a variety of metallographic microscopes, and a darkroom.

Materials Testing Laboratories

These laboratories include specialized laboratories in the areas of biomechanics and in fatigue and fracture. They are equipped for the determination of physical and mechanical properties of materials of engineering interest, such as metals, polymers, and biomaterials. The Plasticity Research Lab is equipped with a universal testing machine and a SABRE creep machine with a thermally controlled chamber for conduction of experiments at high temperatures. A recent addition to the laboratory is a 5-ton axial/vertical MTS test system, which is equipped with a temperature chamber and is fatigue rated. The system is operated by a DEC PDP 11/04 microcomputer with two channels of hardware segment generators to control load waveform for multi-load testing. The fatigue and fracture laboratory includes an axial MTS machine for the investigation of the fatigue properties of metals. The machine is also used for the study of fracture through the use of a random function generator.

Mechanical Engineering Laboratories

The mechanical engineering laboratories are equipped to give students a wide variety of experience in using modern methods of measurement and analysis, including computers, a variety of strain measuring devices, a photomechanical laboratory, and other conventional instrumentation. Special areas include study of material behavior with emphasis on the mechanics of dynamic systems and mechanisms of failure under both static and cyclic loading.

Powders and Particles Laboratory

This laboratory is equipped with sampling devices, x-ray for mineral characterization, properties of powders, various mixers, grinders, and sieving equipment; optical microscopes; scanning electron microscopy, and both static and cyclic tests. In addition, there is access to a scanning electron microscope, a vacuum system, a centrifuge, and an advanced instrumentation and chemistry library facilities and laboratories.

Structural Testing Laboratory

This laboratory is equipped for the determination of physical properties of materials in engineering structures, such as soils, aggregates, concrete, asphalt, and various other materials. It includes a laboratory testing machine, a universal testing machine, and an axial fatigue testing machine, along with mechanical and electronic instrumentation for the accurate measurement of deformations under load. The laboratory also contains a prestressessing bed and frames, permitting construction of prestressed concrete structural members. A soils laboratory contains container and friction testing equipment.

Courses

Engineering Core

1. Introduction to Engineering
2. Survey of current literature in engineering
3. Environmental engineering
4. Engineering Graphics
5. Data processing computer systems in laboratory engineering

Mechanical Engineering

1. General mechanical engineering
2. Mechanical and electrical engineering
3. Mechanical physics
4. Mechanical properties of materials

Materials Science

1. Properties of materials
2. Materials science
3. Mechanical properties of materials
4. Materials science

Powder Technology

1. Principles of powder technology
2. Powder technology

Special Program Courses

1. Cooperative Education Training Assignment
2. Cooperative Education Training Program

Biomedical Engineering

1. Biomedical engineering
2. Biomedical engineering
3. Biomedical engineering

Division of Materials Engineering/ENGINEERING 317
Division of Systems Engineering

Chair: J. R. Borch

Faculty: professors J. R. Borch, J. M. Litchfield, R. J. Shon;
professors emeriti M. L. Ballenger, J. W. Design associate professor D. L. Bickel, J. W. Design assistant professor emeriti J. D. Undergraduate assistant professor R. B. Adams, T. P. Ras

The Division of Systems Engineering is an administrative division of the College of Engineering which develops, coordinates, and administers teaching, laboratories, and research in areas associated with large-scale system analysis and design. Faculty of the division develop and provide courses primarily in support of the undergraduate program in industrial engineering, graduate program in industrial and management engineering, the transportation portion of the civil engineering degree program, and part of the college graduate core curriculum.

Instruction and Research

Teaching and research interests of the faculty are centered in areas associated with production and quality management, human factors/engineering, health care, operations research, decision analysis, computer science, management and Decision Systems, industrial psychology, transportation, and computer science.

Facilities

The Division of Systems Engineering is responsible for development and operation of the College of Engineering's Computer-Based Education (CBE) Laboratory.

Procedures and analysis required in areas such as simulation, data analysis, and management of computer and network systems, and for information management and engineering and management of computer and network systems, and for information management and engineering and management of computer and network systems.

Production Management and Industrial Systems Design

The Computer-Based Education (CBE) Laboratory is also the College of Engineering's Computer-Based Education (CBE) Laboratory.

This laboratory provides on-line interaction with the University's computer systems via video display and hard copy terminals. The laboratory also contains other computer hardware and software, and computer hardware and software, and computer software, and computer software. The laboratory also contains other computer hardware and software, and computer hardware and software.
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, nearly one-fourth of its enrollment is in the Graduate College. This unusually high ratio reflects the breadth of the University’s graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through the administration of scholarship, fellowship, and research funds, the Graduate College encourages research and strengthening of departments. It offers extensive assistance to individual faculty members in finding the resources necessary for research projects. The Graduate College works with the other colleges of the University and with departments in the formulation of policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College comprises all University faculty members in the ranks of assistant professor, associate professor, and professor. A 12-member Graduate Council elected from and by the graduate faculty and the Graduate Student Senate is the executive committee of the graduate faculty and is advisory to the dean of the Graduate College.

Degree Programs

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Business Administration (M.B.A.), Master of Fine Arts (M.F.A.), Educational Specialist (Ed.S.), Master of School Work (M.S.W.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following major fields:

- Accounting—M.A.
- Also-American Studies—M.A.
- American Studies—M.A., Ph.D.
- Anatomy—M.S., Ph.D.
- Anthropology—M.A., Ph.D.
- Applied Mathematical Science—Ph.D.
- Art—M.A., M.F.A.
- Art History—M.A.*, Ph.D.
- Asian Civilization—M.A.
- Astronomy—M.S.
- Biochemistry—M.S., Ph.D.
- Biology—M.S.*
- Botany—M.S., Ph.D.
- Business Administration—M.A., M.B.A.*, Ph.D.
- Business Education—M.A.*, Ph.D.
- Chemistry—M.S.*, Ph.D.
- Civil and Environmental Engineering—M.S., Ph.D.
- Classics—M.A.*, Ph.D.
- Communication—M.A.*, Ph.D.
- Communication and Theatre Arts—M.A., Ph.D.
- Comparative Law—M.L., Ph.D.
- Comparative Literature—M.A.*, Ph.D.
- Computer Science—M.S.*, Ph.D.
- Criminal Justice and Corrections—M.A.*
- Dental Hygiene—M.S.
- Economics—M.A.*, Ph.D.
- Education—M.A.*, M.A.T.*, Ed.S.*, Ph.D.
- Electrical and Computer Engineering—M.S.*, Ph.D.
- Endodontics—M.S.
- English—M.A., M.F.A., Ph.D.
- Fixed Prosthodontics—M.S.
- French—M.A.*, Ph.D.
- Genetics—Ph.D.
- Geography—M.A.*, Ph.D.
- Geology—M.S.*, Ph.D.
- German—M.A.*, Ph.D.
- Greek—M.A.*
- History—M.A., Ph.D.
- Home Economics—M.A.*, M.S.
- Hospital and health Administration—M.S.
- Industrial and Management Engineering—M.S., Ph.D.
- Journalism—M.A.*
- Latin—M.A.*
- Library Science—M.A.*
- Linguistics—M.A.*, Ph.D.
- Mass Communications—Ph.D.
- Mathematics—M.S.*, Ph.D.
- Mechanical Engineering—M.S., Ph.D.
- Mechanics and Hydraulics—M.S.*
cooperative program with the University of the Andes in Merida, Venezuela.

Indoor facilities permit a wide range of studies, with varied equipment for observation, therapy, and socialization, including video recorders, movie makers, and walk-in environmental chambers. Computer terminals, a 3D-MVS, and a 12-PDP-12 computer. There is ample space for housing a variety of organisms, including mites, mica, dung bugs, millipedes, orthoptera, insects, leaf-cutter ants, marine and freshwater invertebrates, tadpoles, and fish in a freshwater stream. The botany greenhouse contains not only experimental plants, but also a large collection of desert, jungle, and tropical flowers. The botany herbarium contains more than 100,000 specimens, including the Conrad herbarium of bromeliads and the Martin collection of fungi and slime molds. The Museum of Natural History, a joint venture with the University of Texas, contains a large collection of vertebrates, birds, and mammals particularly well represented among the butterflies. The atmosphere at la Isla is friendly and cooperative and the approach interdisciplinary.

Students may design their graduate programs to take advantage of collaboration, consultation, coursework, and co-operation opportunities with members of the Department of Genetics; the Laboratories of Botany, Microbiology, and Zoology; the Evjue graduate program, the University, and the National Institutes of Health. Students may also participate in the departmental seminar, which provides an opportunity for interaction among graduate students, faculty members, and visiting scientists.

Financial Support

All graduate students receive financial support. Teaching assistantships, research assistantships, tuition scholarships, and postdoctoral fellowships are available. In addition, each year two outstanding incoming graduate students are selected to receive a Frisby Award, a teaching/research fellowship. The Bodine Fund assists students to travel for study.

The program is administered by the Department of Genetics, and the Graduate Committee in Genetics.

Graduate students interested in pursuing graduate studies in Genetics should contact the graduate program in Genetics, Department of Genetics, University of Wisconsin-Madison, 1402 Engineering Hall, Madison, WI 53706-1396. Inquiries should be addressed to:

John A. Harvey, Program Chair, 608-262-5370

Neurology and Behavioral Sciences

Program Chair: John A. Harvey

Professor: John A. Harvey (Chair), Robert J. Saper (Antoni), Robert L. H. Quinn (Northrup), David J. Smotherman (Smotherman), Robert A. Saper (Saper), Elizabeth M. Fagan (Fagan), and Robert L. H. Quinn (Quinn). The program is supported by the National Institute of Health (NIH) and the National Institute of Mental Health (NIMH).

The Neuron and Behavioral Sciences Program offers graduate research opportunities in the areas of neurobiology, behavioral neuroscience, and behavioral neuroendocrinology. The program is designed to provide a broad understanding of the neural basis of behavior and the role of the nervous system in regulating physiological processes.

The program is administered by the Department of Neurology and Behavior, University of Wisconsin-Madison, 1402 Engineering Hall, Madison, WI 53706-1396. Inquiries should be addressed to:

John A. Harvey, Program Chair, 608-262-5370
research intentions during their postdoctoral work at Iowa. Application deadlines for predoctoral and postdoctoral admission are October 15 and April 1 for admission during the spring and fall (or summer), respectively.

Financial Aid Successful predoctoral applicants receive stipends from either state allocations or a National Institute of Mental Health training grant. Successful postdoctoral applicants receive stipends from a National Institute of Mental Health training grant.

Facilities Training takes place primarily in the laboratory and teaching facilities of the departments of Anatomy, Pharmacology, Physiology and Biophysics, Psychology, and Zoology. Facilities available through these departmental units include electron microscopic and histochemical fluorescence laboratories, unit recording and intracellular stabilizing facilities, immunofluorescence laboratories, cellular and subcellular fractionation facilities, tissue culture and tissue explant facilities, autoradiography laboratories, open- and classical conditioning facilities, and behavioral genetics laboratories. The University of Iowa Computing Center and Libraries are among important additional facilities.

Application Procedures Predoctoral students should write to the Admissions Office for application materials to the chosen department. After gaining admission and a research sponsor, students work with that sponsor to prepare an application for the Natural and Behavioral Sciences Program. Postdoctoral students should contact a faculty member in their area of interest and arrange sponsorship of their application. The sponsor will provide forms for letters of recommendation and work with students in assembling the full application.

Urban and Regional Planning The graduate program in urban and regional planning is a professional master's program that prepares students for urban and regional planning positions in government and the private sector. The program has a strong policy orientation that enables its graduates to understand the factors affecting a particular urban or regional problem and to develop workable solutions. Students may choose to specialize in transportation, environmental quality, land use housing, and several other areas. For further details, see "Urban and Regional Planning" in the "College of Liberal Arts" section of the Catalog.

Urban Transportation This is an interdisciplinary, nondoctorate graduate program dealing with the interactions of society and the various modes of passenger and freight transportation. Students participate in the program in conjunction with work toward a graduate degree in any one of a number of departments. When the graduate degree is awarded, an entry is also made on the student's transcript certifying completion of the Urban Transportation program. For further details, see "Urban Transportation" in the "College of Liberal Arts" section of the Catalog.

Research Resources The many and diverse research activities of the University are centrally administered by the Office of the Vice President for Educational Development and Research, which has an interworking relationship with the Graduate College. For further information, see "Research Activities."

Financial Assistance Approximately half of the University's graduate students receive some form of University-administered financial assistance. Eligibility requirements and application procedures are set forth in "Section VII. Graduate Appointments in "Rules and Regulations of the Graduate College."

The primary sources of assistance are:

Teaching and Research Assistantships Available in most departments: stipends typically range between $6,000 and $7,000 per year. Assistantships are also eligible for tuition scholarships. Nonresident assistantships (one-quarter time or more) and fees are reduced to resident rates.

University Teaching Research Fellowships For first-year graduate students entering doctoral programs; typical stipends are $7,700 a year on a year-round basis, with all tuition paid, for as many as four years; recipients have teaching and research assignments, but may carry full course loads at the same time; one year out of four and all summers, recipients have full time to pursue studies, research, or writing.

Scholarships Up to full tuition and fees.

Graduate Fellowships $8,000 for the academic year.
E. Candidacy

Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See "Section X. Master's Degrees," "Section XI. Two-Year Degrees," and "Section XII. Doctor's Degrees").

F. Declaration of Major and Degree

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of applicants registered as "special students." (See definition of "special student" in next paragraph.) Changes in the major or degree status may be made in the course of a student's graduate study with the approval of the department to which the transfer is proposed. To effect such an action the student must file a change of major or degree status in the Office of Admissions.

G. Status upon Admission

All students upon admission fall into one of the following categories:

1. Regular—Students who have met the minimum requirements for admission and who have been accepted by a department, or International graduate degree program, for work leading to a graduate degree or certificate (professional or personal) improvement.

2. Conditional—Students who are interested in working toward a graduate degree or certificate but who are required by a department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. To be admitted on a conditional basis, the student must be recommended by a department, which assumes responsibility for advising him or her. (See minimum grade-point requirements, "Section IA"). The student must meet a minimum grade and conditional status must achieve regular status within two years of registration in the Graduate College by passing a grade-point average of at least 2.5 (0.0 for doctoral students) and be advised by the major department, or be dismissed.

3. Special—Students with a valid bachelor's degree and at least a 2.3 grade-point average who wish to register for no more than two courses and who are not planning to become candidates for a graduate degree or certificate. These students, relatively few in number, must obtain special permission to register from the director of admissions. Special graduate students are not eligible for a graduate degree or for a certificate in a certificate program.

4. Summer Session—Students with a valid bachelor's degree and at least a 2.3 grade-point average may register for no more than two courses without being accepted by a department or program. (See "Section IV" below.) The deadline for application for admission to the summer session is May 1. An applicant for admission may apply for admission to any subsequent session, including another summer session, the student must file an application and be admitted to regular or conditional status.

H. Minimum Requirements for Admission

Graduates of any college or university accredited by regional accrediting associations may be admitted to the Graduate College if their academic records meet the required standards. For nondiscontinued students, a minimum grade-point average of 2.5 is required for admission to conditional status. A minimum of 2.5 is required for admission to regular status. The grade-point average is computed only on graduate work if the student has completed at least 12 graduate hours. If the student has not completed 12 graduate hours, the grade-point average is computed only on the undergraduate and graduate work completed. In cases in which a student applying for admission has a grade-point average below the minimum required, but has a Graduate Record Examination score above a minimum designated by the Graduate College, his or her papers shall be forwarded to the admissions committee for examination and decision.

Students applying for admission to a doctoral program with 12 or more semester hours of graduate work must meet a minimum grade-point average of 3.0 on the graduate work. For students with less than 12 semester hours of graduate work, a minimum of 2.7 is required. The entire record of college work is examined.

Departments, or committees in charge of interdisciplinary degree programs, may, and often do, set higher minimum admission requirements for these programs. It is advisable to check with the department concerned. For State Board of Regents' formal action on these requirements, see "Appendix of the Catalog.

I. Admission of Faculty Members to Graduate Study

Persons who hold faculty rank of assistant professor (including clinical assistant professor) or above at The University of Iowa may be admitted as special students. (See "Section G" above.) A person holding faculty rank as
specified above may petition the Graduate College dean for permission to enter a program for advanced graduate study leading to an advanced degree, certificate, or professional program, except in the department of theics or in a closely related discipline. Such petitions must have prior approval of the department of appointment, dean of the college of appointment, and the department in which study is to be pursued, etc. the Graduate Council.

J. Readmission

Students who are admitted to and enroll in the Graduate College, but who then fail to register for a period of 18 months or more, must apply for readmission. Their acceptance is dependent upon departmental approval for the session in which readmission is desired. Consideration of the application for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of reapplication.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses, in a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one hour of graduate credit. Students may register for one semester hours of credit for 3 to 5 academic units, or more, but not for more than 18 semester hours. This equivalency applies to the professional program in economics load only. Graduate credit is not given for courses numbered under 200. The maximum for the eight-week summer session is eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included. The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportional to that stated above with the approval of the Graduate College dean. Nine semester hours in the same semester constitute full-time registration. Students are required to carry at least nine semester hours during a semester as a condition of their appointments. One-quarter-time and one-third-time appointments are permitted to register for the maximum 15 semester hours per semester and eight semester hours during the eight-week summer session.

B. Courses Not Included in Total Registration

In addition to a full schedule, a graduate student may register for courses printed in the Schedule of Courses but not carrying zero semester hours credit.

C. Changes in Announced Credit

Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointments

1. One-half-time appointees may register for not more than 12 semester hours during the eight-week summer session.
2. Five-eighths-time appointees may register for not more than 10 semester hours during a semester or five semester hours during the eight-week summer session.
3. Two-thirds and three-quarter-time appointees may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.
4. Seven-eighths-time appointees may register for no more than seven semester hours during a semester or four semester hours during the eight-week summer session.
5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retroactive Registration

A form of retroactive registration is permitted.

F. Registration for Part of a Session

A graduate student may register at any time during the session for the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed the 15 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session registration after the last day of the third week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean.

G. Extramural Registration

After admission to a departmental program in the Graduate College, registration for work done off campus is accepted for residence credit under the following circumstances:
1. Traveling Scholar Program of the Committee on Contingent Cooperation (See "Section III").
2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.

3. Field work as part of a regularly scheduled course or research program.
4. Courses taught off campus by members of the graduate faculty (see "Section X.D.6" and "Section X.C.7" for minimum semester hours required on campus for the master's and doctor's degrees).
5. Residence graduate credit from another Iowa Regents' university (see "Section X.9.").
6. As many as nine semester hours of graduate work taken at the Quad Cities Graduate Center from faculty other than faculty of the Iowa Regents' universities, provided the work is acceptable to the student's major department for the specified degree.

Extramural registration does not count toward residence credit in the following circumstances:
1. Course won transferred from another institution; and
2. Correspondence courses.

H. Extramural Fees and Privileges

Extramural courses work may be counted as residence credit only if the student has been admitted to a departmental program in the Graduate College (see "Section I.C") and pays established fees. (See "Section III.K" for special fees applicable to postcomprehensive registration, which should not be confused with the annual registration for residence credit.)

I. Correspondence Courses

Correspondence study credits do not count as residence credit if the student has been admitted to a departmental program in the Graduate College. The student's plan of study must be approved by the student's instructor and the Graduate College dean. In some instances, graduate-level correspondence study credits earned after a student has received a bachelor's degree but before enrolling in the Graduate College may be counted toward an advanced degree with the consent of the Graduate College dean upon recommendation of the major department. A graduate student may not register for correspondence courses without the prior approval of the executive of his or her major department and of the Graduate College dean.

J. System of Course Numbers

Courses primarily for graduate students are numbered 600 and above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 199. Courses below 100 are not applicable for graduate credit. Graduate credit may not be earned for taking courses numbered below 100 by registering in such courses as readings,
special projects, or independent study having course numbers of 100 or above.

K. Auditing of Courses

Upon the request of the instructor and the advisor, the dean of the Graduate College may grant permission to graduate students to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

L. Dropping of Courses

All graduate students who drop courses after the deadline date established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of F unless the entire registration is canceled. This registration may be waived only by the Graduate College dean on the recommendation of the student Health director or the Student Counseling Service. If a student cancels her or his registration, or the registration is canceled by the Registrar, after the deadline date, the student must obtain permission from the dean of the Graduate College before being permitted to rereregister.

Section III. Traveling Scholar Program

A. Purpose

The program, under the auspices of the Committee on Publications/Cooperation representing 11 universities in the Midwest, enables a doctoral student to take advantage of special resources available at one or more of these institutions. The program provides unique opportunities, unique laboratories, and library collections.

B. Procedure

1. A CIC Traveling Scholar first must be recommended by his or her own graduate advisor, who will approach an appropriate faculty member at the host university and make appropriate arrangements regarding the visiting arrangement.

2. After agreement by the student's advisor and the host faculty member, the host institution, graduate dean at both institutions will be fully informed by the advisor and have the power to approve or disapprove the recommendation.

3. A CIC Traveling Scholar will be registered at the home university, and fees will be charged at the host university.

4. Credit for the work taken will be recorded at the home university.

5. Those desiring additional information should inquire at the office of the Graduate College.

C. Conditions

CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to exempt or reject any applicant who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal

A. Nondoctoral Students

A student, except one on conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, his or her cumulative grade-point average on graduate work done at The University of Iowa falls below 2.5. If, after completing eight more semester hours of graduate work at the University, his or her grade-point average remains below 2.5, he or she shall be denied permission to rereregister; otherwise, the student shall be restored to good standing.

B. Doctoral Students

A doctoral student on regular status shall be placed on probation if, after completing eight hours of graduate work, the student's cumulative grade-point average on graduate work done at The University of Iowa falls below 3.0. If, after completing eight more semester hours of graduate work at the University, the student's cumulative grade-point average remains below the required level, the student shall be dropped from the program and denied permission to rereregister unless he or she applies and is accepted for a nondegree or certificate program. If, after the second eight semester hours, the cumulative grade-point average is at least 3.0, the student is restored to good standing.

C. Restriction on Students on Probation

A student on probation shall not be permitted to take comprehensive or final examinations leading to a degree or certificate, nor may the student receive any graduate degree or certificate.

D. Departmental Regulations and Dissemination of Information

In addition to the university-wide requirements, departments may establish further requirements which determine the individual student's standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the Graduate College dean. Copies are to be available for students in the departmental office, and departments shall make reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated by the department to each student and the Graduate College dean. Whenever departments revise standards for a given program, the new regulations will not apply retroactively to the disadvantaged of those already in the program. In addition to notifying students that they are subject to the new policy of the Graduate College as set forth in the Manual of Rules and Regulations, any department may inform students in the department of their new standards. Information shall be provided with the required courses applicable to the various departmental programs of study, examination procedures and other formal evaluations, departmental policies with regard to awarding and renewing assistantships, time limits on programs of study, departmental registration policies, departmental grade-point requirements, requirements for changing from one degree program to another within the department, especially from the master's to the Ph.D., departmental probation and dismissal policies and procedures (see "E" following), and other matters as appropriate.

The nature of the departmental advisory system shall be explained to the incoming students.

E. Academic Progress, Departmental Probation, and Dismissal Procedures

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The warning notice will be written in what way(s) the student is failing to meet departmental standards and will provide a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as courses below a satisfactory or probation are imposed, the department shall inform the student in writing of the reasons for the action and within what time the student is expected to raise the student's standing to the required levels.

A student's name will not be permitted to reappear for failure to meet standards without a written notice of this fact in writing with reasons for the action provided. Such dismissal may follow failure to meet conditions of admission, conditions of probation, pre-enrollment departmental grade-point requirements or other standards, or failure of a regular or reduced grade-point standard. If a student may not be required to pass a formal evaluation. If a student judge the dismissal decision improper, the student has a right to a review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean, and shall afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above (see "Section IV.D.").
Questions involving judgment of performance will not be reviewed beyond the department level. If, however, the student feels there has been unfairness or some procedural irregularity concerning dismissal, the student may request a review by the Graduate College. Such a review may be conducted by the Graduate College dean alone, or the dean may appoint a committee consisting of both student and faculty members to conduct the review and recommend to the dean possible courses of action. The review by the Graduate College is final.

Section V. Credits

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student's permanent record by the registrar and a report of the action will be sent to the student, his or her major department, and the dean of the Graduate College. Credit for these courses toward an advanced degree at Iowa must have the approval of the major department and the dean of the Graduate College.

B. Residence Transfer Credit

After admission to a departmental program in the Graduate College, residence graduate credit from another Iowa State University may be counted as residence credit at this institution, provided such credit is acceptable to the student’s major department or the basis of the department’s determination of its applicability toward the degree. (See “Section IV. A.”) A maximum of 30 semester hours required on campus for the major and doctoral degree.)

C. Reduction in Credit

For courses or seminars in independent study and for military service one half of the student's requirement may be credited toward the major department's requirements for a degree. In no case will this reduction exceed 30 semester hours.

D. Graduate Credit for Veterans

Credit may be granted for studies pursued under military and other educational agencies under such regulations as may be formulated by the national educational agencies and under such adaptation of standing rules as the Graduate Council may authorize. Time to time, credit may be granted for prior learning. The value of each credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

F. Cancellation of Registration and Proportional Credit for Students Entering Military Service

1. Students who leave within the first six weeks of the semester receive no credit.

2. Students who leave within the period of seven to nine weeks receive one-half credit.

3. Students who leave within the period of 10 to 12 weeks receive two-thirds credit.

4. Grades reported for the one-half and two-thirds credit periods: (a) instructors report grades only as satisfactory or unsatisfactory; (b) credit is to be assigned on the basis of total registration minus thesis and seminar; (c) course is to be counted toward specific degree requirements only after the student returns and then only with the approval of the student's advisor.

5. Students who complete the twelfth week receive full credit.

6. Grades reported for the full credit period: (a) grades are to be reported only at the end of the semester; (b) credit is to be reported in specific courses.

7. In each instance the instructor reports the student's credit, grade, and date of cancellation. No credit is granted mines the student's work is satisfactory at the time of leaving.

8. The amount of credit in thesis and research registration is to be reported to the registrar by individual instructors on the above basis except that less or zero credit may be assigned.

Section VI. Marking System

A. Marks Carrying Advanced Degree Credit

These are A, B, C, and S, and are marked at the discretion of the instructor.

B. Marks Carrying No Credit for Advanced Degrees

These are D, F, I, and W. Credit may be granted for I or W if the instructor's requirements for a degree are met, but not if a course is dropped or withdrawal from the course is a part of the degree program.

C. Audit

A grade of A is assigned when a student registered for any credit course or seminar as an auditor in the preceding semester; if the student fails to meet the instructor’s requirements for a degree or in the case of an independent study, if the student fails to meet the material in the degree program, W will be assigned.

D. Incomplete

The grade of I is to be used only when a student's work during a semester cannot be completed because of illness, accident, or other circumstances beyond the student's control. In registration for thesis, research, or independent study, the S/U grade may be assigned. (See next paragraph, “E.”) Students who receive the grade of I must remove that mark within the first session of registration prior to the closing date of the session for which it is given, or else the grade becomes F, except that students with a grade of I from the spring semester are exempt from completing the course during the succeeding summer session.

Specific deadlines for the submission of student work to the faculty for the faculty's report on I grades to the registrar will be set by the Graduate College. A copy of each session and printed in the academic calendar.

Courses may not be repeated to remove incompletes; removal of an I is accomplished only through completion of the specific work for which the mark is given.


Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student receives credit for the work; U—unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, all courses may be graded by the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. In general, these grades may be granted for no more than one semester and must be reviewed by the Graduate Council before being granted for longer periods. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

F. Graduates as S and U

S and U may be used for courses taken by a graduate student outside the major department or for minor or doctoral degree. The instructor must be instructed that the student may not have the grade of S or U in courses that he or she is required to take toward the major degree program. The instructor information, the student's major department must provide the instructor with the student's major department advisor to approve the registration. Arrangements for S/U grading in these courses are accomplished by filing a card with appropriate signatures in the Registrar's Office at the time of registration, or no later than the last day of the third week of the semester or the third day of the second week of the summer session. The changes from letter grades to S/U grades and vice versa will be allowed after these dates.

G. Computed Grade-Point Average

This is based only upon graduate work graded A, B, C, D, or F. (A=4, B=3, C=2, D=1, F=0)
Section VII. Graduate Appointments

A. Scholarships

Scholarships are competitive and are awarded on merit.

1. Eligibility for graduate scholarships and fellowships will include: (a) registration in the Graduate College; (b) cumulative grade-point average of at least 3.0; (c) a GRE score or a GMAT score above a point to be designated by the Graduate College; and (d) satisfactory rate of progress in completing the program for the degree.

2. Preference will be given to candidates for the doctoral degree.

3. Recommendations for graduate scholarships may be made to the Graduate College by the appropriate department executive, director, or dean.

A graduate scholarship may be awarded whether or not a student has an assistantship.

The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fees assessed.

B. Graduate College Fellowships

Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellowships must be registered as full-time students. The primary purpose of the awardees is to permit an advanced student to complete his or her dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College in consultation with the Graduate Council.

C. Faculty Research Assistantships

Faculty research assistantships are awarded to qualified graduate students and serve two purposes: to provide research help for the members of the academic staff, and to provide apprenticeship experience for graduate students who are in training in research. Each one-half to three-quarter hour of service per week is required of a half-time assistant. Other part-time service is scheduled as appropriate, and limited academic service is permitted (see "Section IV. C.""). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods of time by special arrangement. Stipends vary with the qualifications of the appointee and the amount of service rendered. Faculty research assistantships appointed by the Graduate College pay their own fees. Graduate appointments beginning in August are usually made by the Graduate College at the time of the recommendation of the various departments. In the fall of each year, although applications may be considered, any stipend payments should be made on the form provided by the Graduate College, and should be accompanied by recommendations and/or a letter summarizing the student's qualifications.

D. Graduate Assistantships

These assistantships have two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both aims, academically superior graduate students who show exceptional promise as teachers are selected for graduate assistantships.

All appointments are made by the dean of the appropriate college on recommendation of the department.

E. Eligibility for Scholarships, Fellowships, and Research Assistantships

Scholars, fellows, and faculty research assistants on the Graduate College budget must be registered as regular students in good standing in order to hold such appointments. Appointments will be terminated when registration and/or student status is terminated. In no instance may a student be promised or tendered an appointment until after approval for admission to the Graduate College by the director of admissions.

F. Dismissal of Assistants

A uniform policy defining procedures to be followed in the dismissal of assistants has been approved by the Board of Regents. Copies of this policy are available in the office of the Graduate College dean.

G. Research Associatehips and Postdoctoral Fellowships

These provide for independent research. Appointment is made through the Office of the Vice President for Academic Affairs.

H. Credit

No academic credit is allowed for the semester in which the assistantship is held beyond the award received payment as a professor or a faculty research assistant.

I. Loans

Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Scholarships and Loans" section of the catalog.

J. Other Forms of Support

Many departments offer financial assistance in the form of teachships, part-time employment on research programs, or part-time teaching. Inquiries should be directed to the major department.

Section VII. Advanced Programs Offered in the Graduate College

The subject areas in which the Graduate College offers degree programs are listed under "Advanced Degree Programs" in the forepart of the "Graduate College" section of the Catalogue.

Section IX. General Requirements for Advanced Degrees

A. Application for Degree

The student must file an application for an anticipated degree with the registrar not later than 10 weeks after the start of the semester or one week after the start of the summer session in which the degree will be conferred. The student must have the application signed by him or her advisor. Failure to file the application by the deadline will result in postponement of graduation to a subsequent session.

B. Enrollment in Final Session

The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following paragraph. Students who must register for the session in which the degree is to be conferred but are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for the postcomprehensive registration described in "Section XII. K." If such registration is appropriate, the candidate must complete all work except the final examination only registered for 00004 or 00005 Final Registration a fee equivalent to the postcomprehensive examination. If such registration is appropriate, registration in the postcomprehensive course will not satisfy this requirement.

Students completing all requirements (including the final examination and thesis deposit) for a graduate degree who do not register for attendance in a Session may receive their degrees in the following session without additional registration.

Section XI. Master's Degrees

A. Kinds of Degrees

Master's programs require a minimum of 30 semester hours lead to the Master of Arts degree, Master of Science degree, Master of Business Administration degree, Master of Arts in Teaching degree, and such other master's degrees as are approved by the graduate faculty.

B. Plan of Study

The plan for a master's degree must be a plan of study approved by the adviser and the departmental committee for the Graduate College within the session in which the exams is to be taken. The plan must be established by the Graduate College. The plan must meet the requirements for the degree approved.
by the graduate faculty. (See also "Section IV.D. Departmental Regulations and Dissemination of Information.")

C. Major and Related Fields
The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval of the major department, may include related subjects from other departments.

D. Residence Requirement
Of the minimum of 30 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa. After admission to a formal program in the Graduate College, various forms of extramural registration may qualify toward fulfillment of the 24-hour residence requirement (see "Section II.B. Extramural Registration") in addition to regular on-campus registration. However, at least eight semester hours on campus are required, except for those departmental programs which ensure sufficient interaction between the student and the graduate faculty and have received approval from the Graduate Council and the dean of the Graduate College for reduction of this on-campus requirement.

E. Reduction of Old Credits
Credits for a master's degree dating back more than 10 years from the session in which the degree is to be conferred may not count toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Law, Medical, or Dental Students
Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's degree from the university and is work equivalent to that required for a bachelor's degree at the University of Iowa. The work accepted from the professional college must be directly related to the student's major field of study in the Graduate College and be approved as a part of the plan of study by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for master's degrees in the Graduate College only when the student is registered for an appropriate joint degree program.

G. Two Master's Degrees
The granting by this University of two master's degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including two theses where a thesis is required for each, and two examinations, with a minimum combined total of 60 semester hours of graduate credit.

H. Master's Degree with Thesis
Not more than eight semester hours of credit for thesis preparation shall be counted in satisfying the 30-hour minimum requirement. The thesis may be a scholarly study or an artistic production.

One copy of the thesis, in typed manuscript or print, must be presented to the Graduate College for a check of formal characteristics not later than four weeks before the graduation date on which the degree is to be conferred. (See Graduate College publication, "Thesis Manual.") After approval by the Graduate College and by the thesis committee, a final copy of the thesis must be deposited with the Graduate College not later than 10 days before graduation. The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical to the final examination committee. (See "K. Examining Committee.")

I. Master's Degree without Thesis
A master's degree without thesis, consisting of at least 30 semester hours of graduate study, may be awarded upon the completion of a curriculum prescribed by a department and approved by the Graduate Council.

J. Final Examination
The requirements for all master's degrees include a final examination which, at the discretion of the major department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the examination fail. The report of the final examination is due in the Graduate College not later than 48 hours after the date of the examination. If the department so recommends, a candidate who fails the examination may present himself or herself for re-examination not sooner than the next regularly scheduled examination period in the academic session. The examination may be repeated only once.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for the master's examination.

K. Examining Committee
The examining committee for the master's degree must consist of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program, at least two of whom are from the major department. If the examination covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons not necessarily members of the graduate faculty to serve as voting members of the examining committee, and, at his or her discretion, the Graduate College dean may add a member to the committee.

Section VI. Two-Year Degrees
A. Master of Fine Arts Degree
This degree is awarded for creative work in the visual arts, dramatic art, music, or literature. It is designed for students preparing themselves professionally in such fields as painting, design, mural decoration, sculpture, playwriting, acting, producing, stage design, musical performance, costume, instrumentation, poetry, fiction, and translation. Central to the program, the thesis may consist of a novel, a painting, a play, a musical composition, or any other approved artistic accomplishment.

The program for the Master of Fine Arts requires at least two years of residence credit in a graduate college. This requires a minimum of 48 semester hours of graduate credit, at least 24 of which must qualify for residence credit at this University. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for the degree separately, with a minimum combined total of 60 semester hours of graduate credit.

For other requirements see "Section VI.B. Plan of Study." "C. Major and Related Fields." "E. Reduction of Old Credits." "H. Master's Degree with Thesis." "J. Final Examination." and "K. Examining Committee."

B. Specialist in Education Degree
This degree is granted upon completion of one year of graduate study, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administrative supervision, and special services.

Of the minimum of 30 semester hours required for the degree, at least 24 semester hours must be completed in residence at this University, of which 15 semester hours must be earned while the student is on campus within one 12-month period or during two summer sessions.

Twenty-eight of the 80 semester hours are prescribed in the area of specialization. The remaining in cognate fields, supervised experience, and electives. Four semester hours of resident credit is required.

Courses successfully completed 10 or more years prior to the final examination...
Section XII. Doctor's Degrees

A. Character of Degree

The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the University. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

B. Prerequisites

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject proposed for investigation or, in the case of deficiency, must register for prerequisite courses.

C. Residence Requirement

The doctorate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one's discipline, at this University, beyond the first 24 semester hours of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (nine semester hours minimum) in each of two semesters or (2) enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least a one-third-time assistantship certified by the department as contributing to the student's doctoral program. (For purposes of research, acceptance of fees, student registration shall reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 semester hours of graduate work.)

D. Plan of Study

The development of a plan of study at the doctoral level is the responsibility of the student working together with his or her advisor. A formal plan of study must be approved by the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination.

E. Ad Hoc Interdisciplinary Programs

A student may prepare a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members and the department most directly concerned, which shall be designated as the sponsoring department. Final approval of such individual programs is granted by the Graduate College dean who may add members to the student's supervising committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, paraphrastically, the name of the sponsoring department.

F. Reduction of Old Credits

Courses taken ten or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

G. Limit on Law, Medical, or Dental Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree, or if repeated work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional colleges must be directly related to the student's major field of study in the Graduate College, and the plan of study must be approved by the student's advisor and the major department. handful of courses, work equivalent to a professional degree in law, medicine, or dentistry will not be counted as part of the academic year which must be spent in residence as a doctoral student on the campus of the University of Iowa.

H. Joint Program for Master's and Doctoral Degrees

The student must continue to expect to complete their training through the doctoral degree. The plan of study for the master's and doctor's degrees. The master's examination may be combined with the comprehensive examination for the doctorate for these candidates. The examination committee will give separate reports of its action on the final examinations for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that leads directly to the doctoral degree without earning the master's degree as an intervening part.

I. Requirement in Foreign Languages

There is no general Graduate College requirement in foreign languages. Those departments which do require competence in one or more foreign languages establish standards as to the extent and level of competence, as well
as methods of testing. Specific requirements will be found in the departmental statements of standards and procedures (see "Section IV. D."). Departmental executive officers are responsible for reporting completion of requirements to the registrar for entry on the student's record.

Specifications of departmental requirements in foreign languages are listed in the Graduate College office and are subject to change upon the initiative of the department.

J. Comprehensive Examination

A candidate must pass a comprehensive examination, consisting of written or oral parts, at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study, and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be passed not later than the semester prior to the session of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation of the candidate's mastery of the major and related fields of study, including the tools of research in which competence has been certified.

The comprehensive examination is not a deferred qualifying examination, it is intended to be a summation of the student's formal coursework and prior to the completion of the dissertation. The comprehensive examination and the final examination, which are intended to test the student's ability to work independently, are designed to test the thesis and related subjects, are the two principal examinations for the doctoral degree.

The comprehensive examination will be given to a candidate by the members of the committee and reported as satisfactory, satisfactory with reservations, or unsatisfactory to the Graduate College office within 14 days after the completion of the examination. Two "unsatisfactory" votes will make the committee report unsatisfactory.

In the event of a report with two or more votes of "unsatisfactory with reservations," the exact stipulations of the committee should be recorded with the report form. If the stipulations involve a reworking of a particular area of study, the statement should be specific in defining the area, required hours of work, other procedures, and in specifying the time and manner of such reworking or stipulation. The candidate will not be admitted to the final oral examination until such stipulations have been satisfied. The executive or major department must promptly send a written report to the Graduate College giving the date of removal of "reservations."

In case of a report of satisfactory on a comprehensive examination, the committee may grant the candidate permission to present himself or herself for reexamination not sooner than four months after the first examination. The examination may be repeated only once, at the option of the department.

K. Postcomprehensive Registration

The student is required to register each semester after passing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be readmitted to candidacy until the student has submitted an application which has been approved by the student's major subject, the departmental executive, and the Graduate College dean.

All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty. The student should register for the courses, research, and thesis necessary to complete the plan of study.

When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for a course of 0.0 Credit Hours in either comprehensive Registration and paying a special minimum fee for any semester in which the department (i.e., department chair or director of graduate studies) and the student's advisor determine that the student is neither making significant use of University facilities (except library privileges) nor partaking of consultation with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of that session or unless enrollment is required by the department.

L. Dissertation for the Doctoral Degree

A copy of the dissertation must be presented at the offices of the Graduate College not later than four weeks before the graduation date on which the degree is to be conferred and two copies deposited two weeks and form 10 days before graduation.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 300 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. This abstract is published in the Journal of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University Library.

If the dissertation is in some nonprofit form (e.g., painting, statue, performance in music) the librarian will help the student and faculty advisor work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as any other thesis. Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

M. Dissertation Fee

A nonrefundable dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

N. Final Examination

The work for the degree culminates in a final oral examination administered on-campus. This examination should include (1) a critical inquiry into the purposes, methods, and results of the investigation—not a mere reevaluation of the procedures followed—and (2) intensive questioning on areas of knowledge constituting the immediate context of the investigation.

The final examination may not be held until the next session after the student passes the comprehensive examination nor until the one-year following the session of the dissertation at the Graduate College; however, a student must pass the final examination no later than five years after granting the degree of a master's examination. Failure to meet this deadline will result in a rescission of the student to determine his or her qualifications for taking the final examination. The procedures to be followed are the same as those for the comprehensive examination. (See "A. J. Comprehensive Examination.")

Final examinations for the doctorate are open to the public. Members of the faculty of the Graduate College are especially invited to attend. Subject to the approval of the chair, to participate in the examination. The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be held and the thesis be processed only if the candidate is unsatisfactory. Two unsatisfactory votes will make the committee unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for registration until the next session. The examination may be repeated only once, at the option of the major department.
O. Examining Committees
The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of the major department, except that departments may request the dean's permission to replace one of the five members of the graduate faculty by a recognized scholar of professorial rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major department is included in the comprehensive examinations. For the final examination one member of the committee must be a member of the graduate faculty from outside the major department.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. A voting member may be added at the discretion of the Graduate College dean.

Section III. Exceptions
Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses
022001 Ph.D. Precomprehensive Registration 0 s.h.
022002 Master's Prefinal Registration 0 s.h.
002000 CG Scholar 0 s.h.
Program Objectives

The overriding objective of formal legal education is to establish a solid foundation for the development of professional growth. The educational elements necessary to build this foundation are varied. Thorough familiarity with the substantive law and legal principles and with the operation of legal institutions are important components, etc. The University of Iowa program places an equal emphasis on the development of fundamental lawyers' skills and an appreciation of the roles of law and lawyers in society. A uniting feature of the program is the conviction that these objectives can be achieved best by an educational program that cultivates active student participation in the learning process and creates regular opportunities for individuals and small groups to confront challenging teachers who genuinely are interested in each student's professional development.

While many law schools rely heavily upon graduate assistants or adjunct instructors to teach lawyers' skills, the University of Iowa is virtually unique in the extent of its commitment of full-time faculty to the development of professional skills in a small-group, individualized instruction format.

The University of Iowa College of Law confers upon its graduates the degree of Juris Doctor (J.D.). To be eligible for the degree, a student must satisfy the residence requirement, receive credit for 90 semester hours of course work, and complete all required courses, achieve a cumulative weighted average of 60, and satisfy the college's five-unit research and writing requirement.

Program of Study

Full-Time Policy

The faculty believes that students receive a better legal education when they are devoting substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law studies on a full-time basis. This policy coincides with the accreditation standards of the American Bar Association and the Association of American Law Schools.

In extraordinary circumstances, it may be possible for a student to enroll for less than 12 hours per semester. Students who believe they may be unable to attend on a full-time basis should contact the dean's office before registering for classes.

Options for Full-Time Study

The College offers two starting classes to entering students: late May (at the beginning of the summer session) or late August (at the beginning of the fall semester). Most students elect to enter law school in the fall and expect to graduate in May of their third year of study; these students also may attend summer school at any point during their careers.

An entering class of up to 49 students is allowed to enter law school in May of the year for which they applied. They complete nearly a full semester of work in the first eleven-week fall semester, and if they remain in the "accelerated" program, they can graduate nine months earlier than would otherwise be possible by attending summer school in each subsequent summer. Thus, the accelerated student who begins law school in the summer of 1983 may graduate in August 1985. Students who begin school in the accelerated program, however, need not continue to accelerate their graduation.

Both the accelerated and regular programs consist of 90 semester hours of required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or fewer hours without permission of the dean. No student may take less than 12 credits per semester or 13 hours in summer school without permission of the dean.

Summer Session

The summer session consists of two periods of five and one-half weeks duration, which are six to eight upperclass and three to four first-year courses normally are offered. Nonaccelerated students may attend either or both periods. Accelerated students attend the entire 11-week session.

First-Year Small-Section Program

One of the distinctive benefits of legal education at the University of Iowa is the first-year "small-section" program which integrates legal research and writing instruction into a substantive course taught by regular, full-time faculty. The program's purposes include giving careful attention to development of each student's skills in legal analysis, argumentation, research, and writing.
in the fall semester (or summer for accelerated students), the entering class is divided into sections of approximately 30 students. In the spring (or fall for accelerated students), each section contains approximately 20 students. The subject matter of the small-section courses has varied from year to year and has included virtually every course in the first-year curriculum.

In the small-section course, students are given a series of assignments and class discussions, with a different educational objective. Faculty members provide extensive critiques of students' papers and discuss the assigned problem both in class and in individual conferences.

Upper-Class Program

In the second and third years, students have the opportunity to gain exposure to a broad array of substantive areas of the law, to concentrate course work or writing and research opportunities in particular areas of interest (e.g., through specialized courses and seminars), and to expand their training in oral and written advocacy skills. In interviewing and counseling, and in articulation. Few courses are required in the second and third years, but all students must take 913/30 Administrative Advocacy I in the second year, and before graduating all must take 913/33 Constitutional Law II and an upper-class small section course. The latter requirement assures students the opportunity to take courses in a small class (usually 30 students) in a variety of substantive areas consistent with the substantive materials, content, and writing projects designed to teach legal drafting skills.

Also, in order to graduate, each student must earn five writing credits. This student earns two of the credits automatically from successful completion of 912/10 Appellate Advocacy I and the upper-class small section course. He or she can earn the remaining three credits through any legal writing projects or activities that carry writing credit, including seminar papers, independent research papers, Law Review, Journal of Corporate Law, 911401-411 Client Counseling, 911402 Most Court Board, and 912/11 Appellate Advocacy II.

Legal Clinic

Students who have completed one-half of the work toward their J.D. degrees are eligible to participate in the College of Law's Legal Clinic Program, which offers students the unique opportunities for students to apply their theoretical knowledge to real cases under the supervision of faculty members and other attorneys.

Students in the Legal Aid Clinic represent indigent clients in several eastern Iowa communities in a wide range of civil and criminal cases. Students in the Prisoner Assistance Clinic represent inmates at Iowa correctional institutions in both habeas corpus and civil cases. Both Legal Aid and Prisoner Assistance interns participate fully in interviewing, fact investigation, negotiation, and courtroom proceedings.

Students in the Complex Civil Litigation Clinic work on substantial matters relating to social welfare cases. Students in the Clarkshop Program act as law clerks to trial court judges. As law clerks, they observe the court and draft orders, opinions, and jury instructions.

Finally, students in the Legislative Internship Program are assigned to work for legal assistants in state legislators and to work in other aspects of the legislative process.

In addition to those programs carrying academic credit, the College of Law participates each summer in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state.

A student may earn up to a total of 15 semester hours of credit in the clinic program, although students taking courses in other schools or colleges of the University may receive no more than 20 hours of credit for such classes per semester.

Joint Law and Graduate Degree Program

The College of Law has developed a program with a number of departments of the Graduate College of the University of Iowa under which students can simultaneously pursue degrees in both colleges. Under this program, if a student takes a course which is relevant to both degrees, the course can, within limitations, be counted toward the degree requirements of both and reduce the time required to obtain the two degrees separately. Hopefully, too, the joint-degree student will continue to one discipline the learning and experience gained in the other. Graduate departments with which joint degree programs have already been initiated include Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counseling, Education, Economics, Education, Educational Administration, English, Finance, Journalism, History, Hospital and Health Administration, Library Science, Philosophy, Political Science, Sociology, Social Work, and Urban and Regional Planning. Further information about joint degree programs is available from the dean of the College of Law.

A two-year program leading to a commission in the United States Army is available to students entering the College of Law. Information about this program may be obtained from the UI Department of Military Science.

For information about programs leading to a commission in the United States Air Force, write to the UI Department of Aerospace Military Studies.

Student Life

There are currently eleven student organizations at the college; three cooperative programs, each managed by students, offering specific skills training; and several student-produced scholarly journals. The college operates a placement office to assist students in locating suitable summer and/or permanent employment.

Financial Aid

A comprehensive financial aid program at the college attempts to assist all students who need funds in order to permit them to attend school full-time. However, since financial aid funds are inadequate to cover the full cost of a legal education for every needy student, applicants and their families are expected to make a maximum effort to provide a reasonable portion of the students' expenses. Applicants are urged to contact the financial aid office at the college for further information about types of aid available.

Admission

Requirements

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the College of Law. The College of Law requires that applicants be accepted by the College of Law. The College of Law may be called upon to perform a varied and the possible fields of endeavor so broad and diverse, that the college prescribes no uniform undergraduate program for those planning to enter law school. In the absence of faculty advisers, each student should develop an undergraduate program which explores and develops that student's particular intellectual interests. There are three basic objectives, however, recommended by a committee of the Association of American Law Schools which every entering law school should keep in mind in planning an undergraduate course of study: education for comprehension and expression in words; education for a greater understanding of human institutions and values; and education for greater power in thinking. That committee strongly emphasized that undergraduate education for a full life through liberal education is far more important than education directed too pointedly toward later professional training and practice. Students are
urged not to sacrifice the broader perspective for detailed specialization.

**Application Procedures**

Applications may be obtained by writing to: Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must file his or her application for admission by March 1 preceding the summer or fall semester in which he or she wishes to enter. Applications should be sent to the Director of Admissions, Canon Hall, The University of Iowa. An evaluation fee of $10 must accompany each application unless the applicant’s baccalaureate degree was/is to be conferred by The University of Iowa. This fee is nonrefundable except for residents of Iowa who are denied admission. Students from disadvantaged backgrounds who cannot afford this fee should apply for its waiver. The applicant is responsible for submitting an official transcript from each college or university he or she has attended to the Law School Data Assembly Service (LSDFS), Box 2000, Newington, PA 18904. The College of Law must receive the applicant’s LSDFS report prior to March 1 deadline for submission of applications. An LSDFS registration packet contains Law School Application Matching Forms. To preserve the right to privacy, LSDFS has agreed not to release LSDFS reports to any school that does not furnish ETS with a Law School Application Matching Form. The University of Iowa cannot process an application without the Law School Application Matching Form. Therefore, please complete an application form with the application. Otherwise, the processing of the application will be delayed until the form is received.

**Law School Admission Test**

Each applicant for admission must take the Law School Admission Test (LSAT) administered by the Educational Testing Service and Law School Admission Service, Box 2000, Newington, PA 18904, and have his or her test scores forwarded to the College of Law, along with the LSDFS report. The test is given several times each year and may be taken in numerous locations throughout the United States and abroad. Applicants are urged to take the test during the fall preceding the fall or summer semester for which they are making application. The test that will be considered by the admissions committee for the summer or fall first-year class is the test given in January. However, if the test is taken in February, it may put the applicant at a competitive disadvantage since it takes at least four weeks for the college to receive the results. Applicants who wish to take the test in February must have their applications on file with The University of Iowa prior to the March 1 deadline. Foreign student applicants whose native language is other than English must take the Test of English as a Foreign Language (TOEFL), which is administered by the Educational Testing Service, Princeton, New Jersey 08540.

**Deposit**

Applicants accepted prior to April 1 are required to make an advance, nonrefundable deposit of $150 by April 1. Applicants accepted subsequent to April 1 must make the deposit within two weeks after being notified of favorable action on their applications. In either event, the deposit need not be made if a financial aid application is under active consideration. However, the deposit is due within two weeks after action is taken on the financial aid application. For those who enroll, the deposit is credited toward the student’s tuition. University bill. An applicant who fails to make the deposit within the time specified forfeits his or her place in the entering class.

**Evaluation Process**

For a more detailed description of the admissions evaluation process, please consult the college’s bulletin which is available from the Admissions Office of the College of Law.

**Admission to the Iowa Bar**

A recent rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa Bar to register that intention with the court no more than 90 days after beginning law school. Details are available from the dean’s office in the College of Law upon registration as a student is the college or from the clerk of the Iowa Supreme Court.

**Courses**

For descriptions of these courses, consult the college’s bulletin, which is available from the Admissions Office of the College of Law.
College of Medicine

The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students, and only those in the health college of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences areas of the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through "refresher," short-courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a statewide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa offering work toward the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on state and regional health planning councils, health boards, and various health agencies; some faculty also take part in the University's Health Services Research Center.

The College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, medical technologists, physical therapists, and nuclear medicine technologists.

The medical and associated medical science students have several opportunities to gain first-hand experience in physicians' offices and community hospitals. For medical graduates, the college offers family practice residency programs at 18 community hospitals in eight cities throughout the state. The college also promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level. Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, The University of Iowa College of Medicine meets the requirements of state licensing boards. Its diploma admits the holder to all privileges granted to graduates of all medical colleges before such boards. All other professional programs administered by the College of Medicine are accredited by their respective accrediting bodies.

Faculty

Nearly all College of Medicine faculty members are full-time, their work in practice and research being part of not apart from—their work in teaching. Many have earned national and international honors.

Graduate Programs

The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, nutrition, pharmacology (including toxicology), physiology and biophysics, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to the Master of Science degree are offered in otolaryngology, pathology, and physical therapy.

Medical Scientist Training Program

An interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides preparation for careers in medical science and academic medicine with emphasis on research and teaching. With support from the National Institutes of Health, the program integrates the requirements for doctoral training in sciences basic to medicine with the full clinical requirements of the medical curriculum. The program entails six to seven years of study. Further details are given in the program description.

Combined M.D.-Master's Degree Programs

Students who want to pursue the M.D. degree in combination with a master's degree program may do so by gaining admission both to the College of Medicine and to the Graduate College, and making detailed arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.
Interdisciplinary Programs and Centers

Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the facilities available to them, without regard to their departmental units or to the separation of graduate and postgraduate training. Notable among these are the interdisciplinary programs in endocrinology, neurobiology, and immunology, in which students are not offered but in which the student can place emphasis by appropriate selection of a study program. Further information can be obtained from the associate dean for academic affairs.

The following centers are subdivisions of the College of Medicine:

Clinical Research Center

The Clinical Research Center provides the setting for patient-oriented research in disease processes. Studies of normal human physiology, biochemistry, and physiology are also conducted. It is an important resource for the college, fully financed by federal monies, enabling all faculty members to conduct carefully supervised studies that cannot be accomplished with equal precision with existing beds of the affiliated hospitals.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates the research and training programs related to cardiovascular diseases and encompasses the following feature of its programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Arteriosclerosis, the Lipid Research Clinic, these training programs and a coordinated program of other interdisciplinary research supported by a number of individual project grants. Gifts from private donors have underwritten costs of two floors of cardiovascular research laboratories on top of the Medical Research Center.

Toxicology Center

The Iowa Center for Toxicology and Biochemical Pharmacology is an integral part of the Department of Pharmacology. In broad terms, the research is directed to the disposition of drugs and poisons, their metabolic rate, the biological availability to dogs, and studies of drug action at the molecular and cellular level.

Diabetes Center

The Diabetes Center coordinates research and training programs related to diabetes and associated endocrinologic diseases. It was established in 1979 with support from the Institute of Arthritis, Metabolism and Digestive Diseases.

Center for Research on Psychological Disorders of Children

This center draws from the expertise in the departments of Psychiatry, Pediatrics, Neurology, Speech Pathology, Psychology, and Sociology. It is centered in the Division of Child Psychiatry.

Cancer Center

A Cancer Center was established in 1960 to coordinate the efforts of the faculty and staff of the University in research, educational, and demonstration programs related to all aspects of cancer.

Educational and Patient Care Facilities

First and second year classes are taught in the Bower Sciences and Medical Laboratories buildings. A Health Sciences Library is at the core of the medical campus.

Students acquire clinical experience in the 1,000-bed University Hospitals and Clinics complex. In the adhesive 332-bed Veterans Administration Medical Center, and in a score of affiliated hospitals and ambulatory care centers throughout the state.

College of Medicine and College of Dentistry faculty members comprise the 41-member clinical staff for University Hospitals and Clinics whose clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 534 resident physicians and dentists who comprise the house staff of University Hospitals and Clinics, which provides facilities for teaching all medical specialties, and for residents in all such specialties, and for fellows in a number of subspecialties.

University Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with patients being referred for care and treatment not readily available in their home communities. For details about University Hospitals and Clinics, Veterans Administration Medical Center, and related academic and health service units, see "The University of Iowa Health Center" section of this Catalog.

Research Facilities

A number of facilities are administered through the dean's office in support of the research and teaching endeavors of the faculty of the College of Medicine.

The animal care facility arranges for the purchase, maintenance, and recordkeeping and wide variety of animals.

The bioengineering facility provides specialized electronic design, construction, and repair services.

The Office of Consultation and Research in Medical Education is composed of educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, initiates and cooperates in educational research endeavors, and conducts teacher education activities.

The medical instrument design and fabrication scientific equipment, providing precision service services.

The medical graphics, photography, and television sections offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Genigraphics, a computer generated graphics system.

The P3 facility meets federal guidelines for recombinant DNA research requiring P3 containment. It can be used also for research on other biohazardous human or animal pathogens.

Studies on protein structures are conducted in a facility containing ultracentrifugation, amino acid analyses, and protein sequencer equipment. A facility for mass spectrometry provides service for structural studies of important biological molecules and their analysis for protein interaction with a gel chromatograph.

Doctor of Medicine

The University of Iowa College of Medicine accepts 175 freshman students into its four-year course of study leading to the degree, Doctor of Medicine (M.D.).

The curriculum in medicine at The University of Iowa is based on a strong tradition of excellence. It is evaluated and renewed continually to reflect the changing needs of the new physician and of society.

Basic Medical Sciences

The first three semesters present the core of sciences basic to the study of medicine:

First Semester

98-183 Biochemistry for Medical Students is centered around a series of clinical situations. The language of this discipline is presented in the context of problems the physician will meet. In the small group discussions that follow the clinical cases, the student learns to use various clinical problem-solving approaches.

80-103 Gross Human Anatomy for Medical Students includes embryology,
clinically relevant areas of anatomical radiology, and surface anatomy with clinical correlations. A complete dissection of the human body is undertaken; evaluation of relationship to the living system is stressed.

60:105 General Histology for Medical Students provides a course of study for the core information concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

118:102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine. The course provides students with small-group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

63:110 Biostatistics complements the work of the semester. It utilises a self-paced study of statistical principles and their application to the biological and medical sciences.

Second Semester

72:212 Medical Physiology offers the student an understanding of the responses as an organism gives to external stimuli and provides a basis for understanding the integration function of organ systems. Much of the material of this course is presented from a clinical point of view. In small discussion groups, where with adequately replaced laboratory exercises, the students participate in the study of the physiological mechanisms at work in the clinical material. Some demonstrations are used to good advantage.

81:103 Medical Microbiology includes laboratory work and a core of information in the classification and mode of action of infectious agents, as well as certain aspects of body response to these agents. Laboratory work continues to play an important role in this course.

69:201 General Pathology for Medical Students is correlated with microbiology in this semester to increase the efficiency of the learning process. Much of pathology at this level is self-explanatory to the student "testing out" of each segment as it is completed. Clinical problem solving and discussion periods have replaced laboratories in this course. A section in pathology outlines clinical manifestations of general diseases.

Third Semester

69:202 Systemic Pathology for Medical Students, in which the principles given in the general course are applied in an organ approach. Student-centered laboratories in each organ are presented.

63:140 Myocardial Neuroneurotomy presents the structure of the nervous system. Much of the material is available for self-study and small-group study in classes.

65:108 Community Health presents fundamentals to help prepare the student in some of the societal, economic, and public health aspects of medical practice.

71:105 Pharmacology for Health Sciences. Medical bridge the clinical and basic sciences and provides the students with principles that must be understood to describe properly the actions of drugs in the patient.

Several elective courses are available to students during the third semester. These courses vary semester hours of credit. Topics include areas not specifically covered in the required curriculum and areas related to medical practice and the role of the physician. Typical examples are Perspectives in Aging, Humanistic Medicine, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine

A major interdisciplinary course, 50:111 Introduction to Clinical Medicine, is taken the fourth semester. It includes participation by a large proportion of the faculty and is vital in providing a student with the tools for a lifetime of patient care.

The first series of mornings is devoted to introducing the patient as a person and giving guidance in interviewing, counseling, and history-taking. Following this, there is an overview of clinical medicine on an organ system basis, guided lecture in Clinical and basic science. The final group of mornings is spent in areas of medicine which do not naturally fall into organ system, and on re-emphasise of some key inductives. Throughout the 16 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinician in history-taking and physical examination. Habits of care, concern, and compassion needed by all physicians are emphasised during this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level he has achieved. If further work is needed, guidance and assistance are provided.

Clinical Clerkships

The third year includes the required clinical clerkships and presents each student with opportunities to work with physicians of almost all disciplines as they care for their patients. Students spend nine weeks in internal medicine; six weeks each in surgery, pediatrics, psychiatry, and obstetrics and gynecology; and two weeks each in anesthesia, dermatology, neurology, ophthalmology, orthopedics, urology, and family practice. Students spend most of this time in Iowa City.

The clinical clerkship year is the most critical period of time in medical education. For this is when the student takes on the posture of a physician to learn first-hand the complexity of medical science when viewed at the bedside, and to understand the responsibility of the physician for human life.

Period of Selective Study

Following the clerkships, the fourth year provides a period of selective study, giving the student many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify the student to participate in a variety of medical experiences, ranging from advanced courses in specialty areas to community-based clerkships in primary care.

Financial Aid

The College of Medicine provides financial assistance on the basis of need demonstrated financial need. Most aid is in the form of loans. The Health Professions Student Loan and Guaranteed Student Loan are federally funded or sponsored programs. This Medical Education Assistance Program, Caroll Brown Medical Student Loan and Stieg Loan are College of Medicine programs. The Deans Student Loan is available to Iowa residents through the Iowa Medical Foundation.

A limited number of grants are awarded each year to students who demonstrate exceptional need.

In certain situations small, short-term emergency loans may be obtained through the college.

Information and advising on financial aid can be obtained through the Office of Student Services, College of Medicine.

Educational Opportunities Program

The Educational Opportunities Program provides financial assistance to disadvantaged students from groups under-represented in American medicine.

Admission to the M.D. Program

The College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit casefiled application processing service for applicants to U.S. medical schools. Preliminary applications are due December 15 of the year preceding the beginning of the class for which
application is being made. Prospective
students are urged to apply as early as
possible. The closing date is December 1.

Final application will be forwarded to
applicants whose AMCAS applications are
reviewed and recommended for admission by
the Medical Admissions Committee. A $10 fee
must accompany the final application from
applicants who have not completed their
residency in residence at The University of Iowa.
This fee is not refundable except to residents of
Iowa who are denied admission.

Each applicant must also file with the
University Office of Admissions an official
transcript from each college he or she has attended.

Requirements

An applicant for admission to the
College of Medicine must have:

- Received the baccalaureate degree:
  or
- Completed three years of a curriculum
  qualifying him or her to receive the
  baccalaureate degree after completing
  the first year in medica.
  or
- Completed three years of a
  baccalaureate program meeting the
  general graduation requirements of
  the college he or she is attending.

Prospective students must have earned
at least 94 semester hours of credit, or
the equivalent, including:

- Physics: a complete introductory
  course.
- Mathematics: college algebra and
  trigonometry, or advanced college
  mathematics for applicants who
  completed college algebra and
  trigonometry in high school.
- Chemistry: as a minimum, a
  complete introductory course in
  organic chemistry, ordinarily following
  a complete introductory course in
  modern general chemical principles.
- Biological sciences: a complete
  introduction to the principles of
  animal biology, or zoology and botany
  (not botany alone), and an advanced
  biology course.

All the foregoing must be taken with
appropriate laboratories.

Applicants for admission to the College
of Medicine must possess the capability
to complete the entire medical curriculum
and achieve the degree, Doctor of Medicine.
The medical curriculum requires demonstrated
proficiency in a variety of cognitive,
problem-solving, manipulative,
communicative, and interpersonal skills.

Therefore, the following abilities and
expectations are of primary importance to
students admitted to the College of Medicine:

- Candidates must be able to observe
demonstrations and experiments in the
  basic sciences;
- Candidates must be able to learn to
  analyze, synthesize, solve problems,
  and reason diagnostic and therapeutic
  judgments;
- Candidates must have sufficient use
  of the senses of vision and hearing
  and the somatic senses necessary to
  perform a physical examination;
- Candidates must be able to perform
  palpation, auscultation, and
  percussion;
- Candidates must be able to relate
  reasonably to patients and establish
  effective, professional relationships
  with patients;
- Candidates are expected to be able
  to communicate the results of the
  examination to the patient and to their
  colleagues with accuracy, clarity, and
  efficiency;
- Candidates are expected to be able
  to learn and perform routine laboratory
tests and diagnostic procedures;
- Candidates are expected to be able
to display good judgment in the
  assessment and treatment of patients;
- Candidates must be able to learn to
  respond with prompt, quick, and
  appropriate action in emergency
  situations;
- Candidates are expected to be able
to accept criticism and respond by
  appropriate modification of behavior;
- and
- Candidates are expected to possess
  the perseverance, scientific
  curiosity, and integrity necessary to
  complete the medical school curriculum
  and enter the independent practice of
  medicine.

Applicants who may be in medical school
are encouraged to contact the
coordinator of admissions.

Eligibility for the specific requirements
for admission does not ensure admission
to the College of Medicine. From the
applicants meeting the requirements, the
Admissions Committee of the College of
Medicine selects those who appear to be
best qualified for the study and practice of medicine.

Applicants who have completed
the baccalaureate degree and required
courses five or more years before
seeking admission to the College of Medicine
are considered by the
Admissions Committee only under
exceptional circumstances.

To be considered for admission, the
applicant must have attained a grade
point-average of at least 2.5 (A=4) for
college work undertaken. Knowledge
and skills in the basic sciences are
 prerequisites for success in medicine,
the Admissions Committee gives special
attention to grades in science and to the
level of difficulty of the program
undertaken. Where courses are on
a graded or pass/fail basis, it is expected
that applicants will take the required
science courses on a graded basis.
Preference is given to applicants with
high scholastic standing who are
residents of Iowa. Outstanding
nonresidents are considered exclusively
under the Early Decision Plan Under
this plan, the prospective student
submits a single application to him or her
first choice of schools by August 1 of
the year preceding the one for which
the applicant is seeking admission, and the
decision is made by October 1.

Applicants are required to take the New
Medical College Admission Test administered
by the Association of American
Medical Colleges in the spring or fall of
the year preceding that for
which they are seeking admission.

Students may make arrangements
for the examination through the
University's Placement and Examination
Services.

Personal interviews are not usually
conducted but are occasionally
requested by the admissions committee.
Applicants who feel that an interview is
necessary may request that an interview
be arranged by contacting the
coordinator of admissions. Requests for
interviews should normally be made
before January 1. The specific purpose
of the interview should be clearly stated.

Applicants accepted on or prior to
February 15 must submit a $50 advance
payment by March 1. Applicants
accepted after February 15 must submit
this payment within two weeks after
they receive notification of acceptance.
The advance payment is credited toward
tuition.

All students entering the College
of Medicine are required to submit
the results of a physical examination. They
must also take a tuberculosis skin test and
an electrocardiogram prior to entering the college.

Promotion Policies and Procedures

Role of the Promotions Committee

The purpose of the promotions
committee is to ensure that each person
is promoted from The University of Iowa
College of Medicine has adequate skills,
knowledge, and judgment to assume the
responsibilities of a medical doctor. To
perform its duties, the committee
depends upon the cooperation of
faculty, students, and
administration.

Composition of Promotions Committee

The Promotions Committee consists of
six members and the Associate Dean for
Medical Education (without vote). There
are five faculty members, one of whom is designated
by the dean to serve as chair. Two
are from two basic science departments,
and three are from the clinical departments. There is a medical student member from either the junior or senior class. The Dean of the College of Medicine makes faculty appointments to the committee after consulting with the Executive Committee, and appoints the student member after consulting with the Medical Student Council and the chair of the committee.

Regulations and Procedures

In general, promotion from one grading period to the next is contingent upon the satisfactory completion of the courses of each grading period. Continued enrollment of a student who has not satisfactorily completed courses in a preceding grading period may be recommended by the promotion committees, provided that an appropriate tutorial program is designed for that student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in basic science seminars is based on such examinations or other tests as are determined by each department or course. Evaluation of student progress in clinical seminars is based on clinical skills and competency, and on such examinations or other tests as are established by each department or course.

Scholastic performance in the first three years in the liberal arts courses (at F, P, and I) in the initial sequence and in all preclinical years will be used. The letter P indicates satisfactory achievement at the passing level. The letter F indicates "honor." Grades of I indicate satisfactory achievement at an exceptionally high level. The letter P indicates work below the passing level. The letter I is used when for good reason the student has not completed the work of a course.

The promotion committees meet at least three times a year, normally involving the completion of at least two semesters of academic work, at other times requested by the associate dean for medical student affairs.

The committee reviews with the course directors the records of all students who have received a grade of F or D during the previous grading period. The committee reviews the record of any student presented by the course director, associate dean, or the associate dean for medical student affairs as doing unsatisfactory work. The committee considers other business or procedures as deemed necessary to perform its duties as set forth in this charge. The promotion committees recommend actions to be taken in the case of any student whose work is in any way considered unsatisfactory. These recommendations are considered by the medical council and executive committee, meeting in joint session to represent the faculty. Possible recommendations include immediate dismissal of the student from the college; requiring the student to repeat all or any part of the curriculum; allowing the student to continue at the college on a regular or a decelerated schedule. Students having uncorrected grades of failure or incomplete will normally be placed on academic probation. Students who are in a probationary status may be considered for dismissal should they experience further academic failures.

The promotion committees presents all recommendations for the awarding of the degree, Doctor of Medicine, to a joint meeting of the medical council and executive committee, which acts on the recommendations for the faculty.

The College of Medicine believes that its faculty and students should be up to general fitness requirements, and that those stated in the principles of medical ethics of the American Medical Association. (Informal Student Handbook).

Relationship to Course Directors Committees

The course directors committees will provide guidance and counseling for students and will be a resource for and provide advice to the promotions committee.

Appeals

Students desiring to appeal promotion decisions must submit such appeals in writing to the dean of the College of Medicine within two weeks after the date of writing of the decision. All appeals are heard and decisions rendered by the medical council and executive committee meeting in joint session. Students may request an opportunity to appear personally before the joint session to make a statement and to answer questions.

Leave of Absence

The College of Medicine believes that certain students may profitably be granted a leave of absence from the college for specified periods of time. A leave of absence should be requested from the dean's office. It will be granted at the discretion of the dean. Any student who is absent without leave for a major section of a clinical clerkship may receive, at the discretion of the department, a grade of F.

Withdrawal from the College

A student withdraws from the college voluntarily upon written application to the dean's office.

Reinstatement

Application for reinstatement by any student who has withdrawn voluntarily or who has been required to withdraw from the college must be received in writing in the office of the dean at least four months prior to the requested date of reinstatement.

The faculty is authorized to require continued or further registration to any student, if it believes that he or she has not lived up to the expected general fitness requirements, nor established the medical fitness, the standards for which must be in keeping with principles of medical ethics of the American Medical Association. Ordinarily such action is taken by the medical council and the executive committee meeting in joint session and acting as representatives of the faculty.

Informal Procedures

When a dispute arises between a student and a faculty member or department, there is often confusion as to the best way to resolve the problems.

The medical school has a formal procedure as stated in "Promotion Policies and Procedures" and an informal procedure as outlined below.

In the College of Medicine, students with problems or complaints should attempt first to resolve the issue with the faculty member with whom there is a problem. Lack of a satisfactory outcome, the student should then turn to the department of which the faculty member is a part. Should this outcome be still unsatisfactory, the student should seek to resolve the problem with the Associate Dean for Student Affairs of the College of Medicine. This informal discussion would not necessarily lead to involvement of the appropriate administrative official capacity.

Should these procedures not resolve the situation, the student may then file a formal complaint through the office of the dean of the College of Medicine. This formal procedure allows the greatest flexibility for all concerned in resolving the conflict and can avoid the enticements of the student's permanent record that are a part of the formal procedure. This informal procedure is intended for any situation a student may encounter including grading disputes, alleged academic dishonesty, alleged dishonestly during clinical rotation (e.g., falsifying patient data), and perceived discrimination or retaliation.

When a student is resolving a complaint with a faculty member or department, others should try to avoid jumping to conclusions based on rumors and bits of information. To the interest of that student's confidentiality, full details of the complaint should not be released to the medical student body.

Students are encouraged to make full use of the counseling services available.
from the dean's office or through Student Health. These cover the full range of academic, personal, financial, or moral difficulties and will easily be handled informally without going into the student's record, unless it involves an official action (e.g., taking a year off or readmitting an exam).

Associated Medical Sciences
The Division of Associated Medical Sciences is organized to include the programs for medical technologists, nuclear medicine technologists, physical therapists, and physician assistants. Admission to these professional programs follows the selection described in the respective sections of this Catalog.

Unclassified Students
Persons who do not wish to be admitted to the College of Medicine but wish to register for certain courses will be admitted only upon complying with all the regular requirements for admission to such a course, or by action of the faculty upon recommendation of the professor in charge of the course.

Hodnopolodental Courses
50:11 Medicine Early Fourth Year...
50:12 Medicine Final Year...
50:13 Radiology...
50:14 Medicine in the Tropics...
50:15 Law and Medicine for Physician Assistant Students...
50:16 Psychological principles of law bearing on professional activities; health vocabulary necessary to understand legal concepts.
50:17 Introduction to Hospital Medicine...
50:18 Introduction to Clinical Medicine...
50:19 Behavioral problems of patients from basic science courses with clinical experiences in junior and senior years; pertinent information and development of skills in history-taking, physical examination, laboratory data, and related material which will prepare student for required clinical clerkships.
50:20 Undergraduate Electives in Dentistry...
50:21 Introduction to Clinical Medicine for Physician Assistant Students...
50:22 1615 Designing and Developing Instructional Materials...
50:23 Techniques and procedures for planning, developing, producing, and using instructional materials, with particular emphasis on self-help printed instructional sections.
50:24 202 2 to 4 courses selected in health sciences, and section 3 or 4 for students interested in health sciences, and section 5 or 4 for those students concerned primarily with government, business, and industrial training. Same as WME 121.
50:25 The Human Body at Rest and in Motion...
50:26 Advanced Behavioral Studies...

Anatomy
Department head: T.J. Williams

Department offers: anatomy of the human body to students preparing for careers in the health care professions; provides advanced course in teaching experience, and research training to graduate students preparing for careers in teaching and research; and conducting original research into biological structure and function as one of several areas of emphasis.

Preclinical Study for the Health Care Professions
The department contributes to the preclinical education of health care professionals by providing courses in gross anatomy, microscopic anatomy, and neuroanatomy for medical and dental students; gross anatomy and microanatomy for dental hygiene students; and student training in anatomy for physician assistant, nursing, and pharmacy students.

Master of Science
Admission to the M.S. program is limited to individuals either holding or currently registered for a health-professional degree, and to individuals established in a career and seeking a master's degree for reasons of professional improvement. The M.B. is awarded on the basis of satisfactory completion of course work in each of the five preclinical phases of anatomy—gross anatomy, microscopic anatomy, and neuroanatomy; teaching experience in one of these areas; a thesis based upon an experimental study; and a successful oral defense of the thesis.

Doctor of Philosophy
There are excellent teaching and research opportunities in medical colleges on our campuses in anatomy.

All students in the Ph.D. program work directly for the doctorate without an intermediate master program. They acquire in-depth knowledge of gross anatomy, microscopic anatomy, and neuroanatomy by taking courses and
teaching in these laboratory sections under faculty supervision. Students ordinarily require three or four full-time study to complete the doctorate in anesthesia.

During the first year, the student chooses a research area and becomes affiliated with a faculty member whose research is in that area. The department's research strengths currently are in endocrinology and reproduction, neurobiology, and the cardiovascular system. By the end of the second year, the student defines a research problem with his or her major advisor, formulates a research prospectus, and undertakes a comprehensive examination. This examination assesses the student's ability to analyze, organize, and apply the information, concepts and skills acquired in the first two years of the program. The third and fourth years are devoted heavily to research. During this period, the student may select advanced graduate course work and gain additional teaching experience.

The final examination for the Ph.D. degree consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the student's faculty advisor and four other faculty members.

Financial Aid
Financial aid is awarded on a competitive basis to students admitted to the D. P. program. Applications for aid should be completed by February 1.

Graduate Admission
An applicant for admission to the M.S. or Ph.D. programs in anatomy should have completed a bachelor's degree and be taking courses in general physics, and upper level courses in biology. For admission requirements, see the "Graduate Catalog" in the Graduate Catalog. In addition to taking the Graduate Record Examination (GRE) Aptitude Test, applicants to graduate programs in anatomy are strongly encouraged to take the Biochemistry Advanced Test. This is particularly useful to the admissions committee when considering applicants whose undergraduate record may not reflect the individual's full capabilities.

Facilities
The department occupies over 35,000 square feet in the Bowen Science Building in the health sciences corridor of the University campus. These starters house modern facilities and well-equipped research laboratories. The most modern instrumentation is available, including three high-resolution electron microscopes, Ritter corporation unit, spectrophotometer, cryostat, and an automated gamma counting system. Research is problem-oriented, rather than discipline-oriented, and is principally in the theme areas mentioned in the previous section.

Courses
6205 Embryology Human Anatomy 4.0
- Lab and laboratory demonstrations on human anatomy. Open to freshmen and dental hygiene students. Prerequisite: 6265 or equivalent.
6221 Human Molecular Anatomy 3.5
- Human anatomy study of the body, primary systems, and their interrelationships. Prerequisite: 6205 or equivalent.
6231 Human Gross Anatomy 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6232 Human Gross Anatomy for Dental Students 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6233 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6234 Human Gross Anatomy for Pharmacists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6235 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6236 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6237 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6238 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6239 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6240 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6241 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6242 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6243 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6244 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6245 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6246 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6247 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6248 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6249 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6250 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6251 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6252 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6253 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6254 Human Gross Anatomy for Pathologists 3.5
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6255 Human Gross Anatomy for Pathologists 3.5
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6258 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6259 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6260 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6261 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6262 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6263 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6264 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6265 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6266 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6267 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6268 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6269 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6270 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6271 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6272 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6273 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
6274 Human Gross Anatomy for Pathologists 3.5
- Human anatomy study of the body, primary systems, and tissue relationships. Prerequisite: 6205 or equivalent.
Division of Associated Medical Sciences

Division head: Rex Montgomery

The Division of Associated Medical Sciences provides for coordination of professional programs that presently include the training of medical technologists, nuclear medicine technologists, physical therapists, and physician assistants. Flexible undergraduate programs are established to prepare students for entry into these professional areas. The student is easily enrolled initially in the College of Liberal Arts and is assigned a faculty advisor from the division.

Although each program in the division has its own admission requirements, the first two years of undergraduate study are similar. Each program requires a foundation in biology, chemistry, and mathematics; physics, computer science, and psychology are also required by some programs and are highly recommended by others. The student should carefully plan his or her study program so that conflicts in specificity required courses do not occur. It is imperative that the student consult with the appropriate program advisor to assure the proper sequencing of courses.

This is a typical curriculum for undergraduate students with options being exercised after consultation with program advisors. Programs are abbreviated as follows: MT—Medical Technology; NMT—Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.

Freshman Year

First Semester
10:11 Rhetoric 4.s.h.
10:15 General Science 3.s.h.
4:13 Principles of Chemistry I 3.s.h.
22:15 Linear Mathematics for the Biological Sciences 4.s.h.
Total 15 s.h.

Second Semester
10:22 Rhetoric 4 s.h.
10:31 Human Anatomy 3 s.h.
10:36 Physical education skills 1 s.h.
4:14 Principles of Chemistry II 3 s.h.
37:83 Principles of Animal Biology (MT) 5 s.h.
4:16 Principles of Chemistry 2 s.h.
Lab I 2 s.h.
Total 16-18 s.h.

Sophomore Year

First Semester
10:32 Human Anatomy 3 s.h.
10:33 Social science 3 s.h.
28:03 Organic Chemistry I (MT, PA, PT) 3 s.h.
37:11 College Physics (NMT) 4 s.h.
37:13 Principles of Animal Biology (NMT) 5 s.h.
PA, PT General Microbiology (PA) 4 s.h.
29:11 Introduction to Medical Technology (MT) 1 s.h.
Physical Education 1 s.h.
Total 15-18 s.h.

Second Semester
10:34 Human telescopes 3 s.h.
28:04 Organic Chemistry II (PA) 3 s.h.
29:12 College Physics (NMT) 4 s.h.
37:10B Fundamental Genetics (PA, PT) 3 s.h.
37:10B Introduction to Medical Technology (MT) 1 s.h.
29:10 General Microbiology (PA) 4 s.h.
41:10B Introduction to Medical Technology (MT) 3 s.h.
Total 14-16 s.h.

The student who has satisfactorily completed the above prerequisites has satisfied the minimum academic requirements for admission to the Medical Technology, Nuclear Medicine Technology, and Physician Assistant Program. Others complete the additional requirements below.

Junior Year

First Semester
29:12 College Physics 4 s.h.
29:11 Human Genetics (PA) 3 s.h.
or 37:10B Comparative Vertebrate Anatomy 4 s.h.
or 37:112 Cell, Tissue, and Organ Biology 5 s.h.
51:15 Introduction to Clinical Psychology (PA) 3 s.h.
Total 15-18 s.h.

Second Semester
29:12 College Physics 4 s.h.
37:10B Cell Pathology (PT) 4 s.h.
Total 8-10 s.h.
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37:128 Fundamental Physics 3 a.h.
Genetics(P?) 3 a.h.
or 63:151 Introduction to Biostatistics 3 a.h.
Total 14-15 a.h.

Senior Year
General education, elective, or advanced courses in the departments of Biochemistry, Microbiology, Chemistry, Zoology, or others specified for specific degree requirements.
A student who has satisfactorily completed the prerequisites has satisfied the minimum academic requirements for admission to the physical therapy program in the senior year.

Medical Technology
Program director: Marcus Schweitzer
Medical director: James A. Shanklin
Faculty include: Louise Olenick, James A. Shanklin, Marco Berwick, Atlee Scott-Friss, Frank W. Meyer, and associates.
Degree offered: B.S.

Medical technologists perform laboratory tests upon which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and governmental laboratories; clinics; physicians' offices; and industrial, pharmacists, biologist, and medical research laboratories. Medical technologists are highly skilled health team members who utilize a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

The Medical Technology Program is sponsored cooperatively by the College of Medicine, College of Liberal Arts, The University of Iowa Hospitals and Clinics, and Iowa City Veterans Administration Medical Center. Satisfactory completion of this program qualifies the student for all medical technology certification examinations. The program is approved by the Council on Medical Education of the American Medical Association and by the National Accrediting Agency for Clinical Laboratory Sciences.

At the conclusion of this program, an individual is prepared for a career in clinical laboratories of hospitals, clinics, and industrial companies.

Electives
4 a.h.
Total 15 a.h.

Second Semester
Foreign Language 4 a.h.
37:116 Parasitology 4 a.h.
65:110 Biotechnology 3 a.h.
Electives 5 a.h.
Total 16 a.h.

Senior Year
The clinical program comprises 12 months of didactic and practical instruction. The first six months are devoted to lectures, laboratory experience, demonstrations, and seminars covering theory and technique in the clinical laboratory sciences. During the last six months, the student rotates through the clinical laboratory facilities of the University of Iowa hospitals and clinics and the Iowa City Veterans Administration Medical Center, and attends additional lectures.

The program comprises the following courses:
69:120 Medical Technology Practice
69:121 Immunology for Medical Technologists
69:122 Clinical Chemistry for Medical Technologists
69:123 Immunohematology for Medical Technologists
69:124 Clinical Hematology for Medical Technologists
69:125 Microbiology for Medical Technologists
69:126 Clinical Chemistry for Medical Technologists
69:127 Clinical Immunohematology for Medical Technologists
69:128 Clinical Microbiology for Medical Technologists
69:129 Clinical Hematology for Medical Technologists
For course descriptions, see the catalog in the section on the College.

Admission
The professional program is limited to 30 students who begin the program in June. Applications close November 1. Fifteen students continue during the fall and spring semesters and complete the program in May. The other fifteen have the opportunity to complete unfinished prerequisites course work during the fall semester and then return to the program for the spring and fall semesters of the following year, graduating in December.

To apply for admission to the professional program, the student must be able to complete all of the following prerequisites and University graduation requirements by the end of the professional (clinical) year.

Eleven semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry; Six semester hours of mathematics, including a course in statistics; and Sixteen semester hours of biology, including general zoology, microbiology, physiology, and parasitology.
Admission is on a competitive basis.
Minimum cumulative grade-point averages of 2.5 overall and 2.5 in science are generally required. An applicant who enters the program as an underclass student must meet the general admission requirements of the University's College of Liberal Arts, and should consult with the director of the Medical Technology Program as early as possible to plan practical studies to meet all requirements.

Expenses
Medical Technology students in the professional year curriculum are responsible for their textbooks, University tuition, and student fees. Laboratory costs and equipment such as microscopes are provided by the program.

Nuclear Medicine Technology
Program director: Peter T. Kennedy
Advising program director: Kenneth A. Holmes
Technical director: John A. Blish
Faculty include: Irwin K. Ewing, James C. Donahue, and associates.
Degree offered: B.S.

Nuclear medicine technology is a medical specialty which deals with the application of nuclear, pharmacologic, therapeutic, and research purposes. It is a rigorous, dynamic field that has grown rapidly over the past two decades and is still expanding and growing in complexity. This continued expansion of the specialty has fostered an increasing demand for highly skilled and motivated nuclear medicine technologists.

Nuclear medicine is a field where the living body is imaged either by gamma rays or by positron emitting radionuclides. At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the movement and localization of radioactive tracers in the human body.

Other basic job responsibilities may include: radiation safety; quality control; radiopharmaceutical preparation and administration; and collection and preparation of biological specimens to measure levels of hormones, drugs, or other body components. All these functions the nuclear medicine technology worker hands-on with nuclear medicine, physicians, health
physicists, radiopharmacists, and radiochemists as an integral part of a highly trained specialty team.

The Nuclear Medicine Technology Program at the University of Iowa is fully accredited by the Committee on Allied Health Education and Accreditation, and the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the AHA Accreditation Board involves three years of practical work in the College of Liberal Arts and a minimum of 15 months of professional clinical experience, available in The University of Iowa Hospitals and Clinics.

Upon satisfactory completion of the four-year program, the student receives the Bachelor of Science degree and a certificate of training from the College of Medicine. The graduate is then eligible for national certification as a nuclear medicine technologist.

The required courses in the freshman and sophomore years emphasize the physical and biological sciences, which provide a basic background for further development in the junior year.

**Junior Year**

**Required courses:**
- 80-1 Human Anatomy
- 72-130 Human Physiology

**2nd Year Introduction to Computing with FORTRAN**

**3rd Year Advanced courses in chemistry, zoology of invertebrates**

**Recommended course options:**
- Science: 37-110 PHYS 110, 112, 120, 121 Physical Science; 122, 123, 124 Principles of Physics; 211, 212, 213, 214, 215 Mechanics and Heat, Electricity and Magnetism, Waves and Optics, Modern Physics; 250 Elementary Physics
- Biology: 37-101 Introduction to Biology

**Elective:**
- 63-101 Dynamics of Health
- 69-104 Principles of Human Pathology

**Senior Year**

The curriculum of this clinical year is organized in accordance with the "Education of an Accredited Educational Program in Nuclear Medicine Technology." Courses are taught in the following areas: radiobiology, radiopharmacology and tracer techniques, radionuclide and immunoradiology, clinical radiation therapy, radiation protection, patient care, medical technology, anatomy and physiology, X-rays and instrumentation, administration and management, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine.

Clinical rotations focus on nuclear imaging, clinical radiopharmacy, computer applications and quantification of radioactivity in vivo and in vitro, including kinetic studies. Rotations are also included in radiomunocopy, computerized tomography, and ultrasound.

The clinical year consists of these courses:

- 74:140 Principles of Nuclear Medicine 12 s.h.
- 74:180 Advanced Nuclear Medicine 12 s.h.
- 74:180 Advanced Nuclear Medicine 12 s.h.

For course descriptions, see "Radionu" in this section of the Catalog.

**Admission**

Prerequisites for admission to the nuclear medicine technology program include:

- A minimum of 60 semester hours in all course work, with a minimum cumulative grade-point average of 2.5.
- Fulfillment of the College of Liberal Arts general education requirements in rhetoric, physical education, humanities, historical perspectives, foreign civilization and culture, and social sciences (sociology and psychology are recommended).

A minimum of 20 semester hours in three science areas to include a complete introductory course with laboratory in chemistry, physics, and zoology.

A minimum of 4 semester hours in mathematics to include at least intermediate algebra.

Fulfillment of these basic admission requirements does not ensure acceptance into the nuclear medicine technology program. Promotion from the intermediate year to the final clinical year is conditional upon satisfactory completion of a minimum of 16 semester hours of study in the required areas.

A new class begins in late August each year. Application materials must be received by March 1. Personal interviews are scheduled in April and the class is selected by May 1. At present, the class size is limited to eight students. Because prerequisites are becoming increasingly important, prospective students are encouraged to apply early and consult with the program office to plan an appropriate preprofessional program.

**Financial Aid**

Students in the nuclear medicine technology program are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work within the Department of Radiology is also available on a limited basis.

**Physical Therapy**

Program director: Gary L. Smith
Department of Physical Therapy
Professor: Gary L. Smith
Associate professor: John J. Fadner
Asst. professor: John J. Fadner
Assistant professor: Jonathan A. Kuzma
Assistant professor: David J. Fadner
Assistant professor: Jonele D. A. Fadner
Assistant professor: Leslie S. Fadner
Assistant professor: Robert W. Fadner
Assistant professor: James W. Fadner
Assistant professor: Mark W. Fadner

**Admission**

To be admitted to the physical therapy program, students must meet the following prerequisites:

- 1 year of college biology
- 1 year of college chemistry
- 1 year of college physics
- 1 year of college mathematics
- 1 year of college English
- 1 year of college psychology
- 1 year of college history
- 1 year of college social sciences
- 1 year of college music

**Financial Aid**

Students in the physical therapy program are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work within the Department of Radiology is also available on a limited basis.
Professional Program

The professional program in physical therapy at The University of Iowa is fully accredited by the American Physical Therapy Association and the Council on Medical Education of the American Medical Association. Satification of the professional program qualifies candidates for the Professional Examination Service (PES) test for licensure in Iowa and other states.

The two-year professional certification program consists of:

First Semester
50:108 Human Anatomy 4 s.h.
50:120 Fundamentals of Physical Therapy 3 s.h.
50:1119982l Clinical Observation 3 s.h.
50:111 Therapeutic Physical Agents I 3 s.h.
50:11111 Introduction to Physical Therapy 1 s.h.
50:203 Introduction to Human Pathology 2 s.h.

Second Semester
50:106 Human Anatomy and Neuromuscular Anatomy 4 s.h.
72:180 Intermediate Physiology 4 s.h.
50:10186 Therapeutic Exercise I 2 s.h.
50:111 Clinical Observation 0 s.h.
50:1101 Introduction to Clinical Medicine I 1 s.h.
50:11222 Emotional Aspects of Disability 1 s.h.
50:110 Physical Agents II 2 s.h.
50:115 Applied Biostatistics 2 s.h.

Third Semester
50:10112 Fundamentals of Orthopaedic Physical Therapy 3 s.h.
50:11115 Therapeutic Exercise II 4 s.h.
50:11112 Principles of Neurology and Clinical Science 1 s.h.
50:11555 Clinical Education and Rehabilitation 2 s.h.
50:11030 Scientific Inquiry 2 s.h.
50:11911 Physical Therapy Administration 1 s.h.
50:11517 Fundamentals of Cardiovascular Therapeutics 2 s.h.
50:11977 Biostatistics and Orthotics 1 s.h.

Fourth Semester
10:12012 Internship err.

Admission to Professional Program
A new class is admitted to the professional certification program each fall. Students may enter the program following their junior year of college or after earning a baccalaureate degree.

A student entering the program after the third year of undergraduate study must be able to satisfy all requirements for the baccalaureate degree by successfully completing the first year of the professional certification program. Undergraduate students who complete their professional work at other colleges or universities must meet the general admission and graduation requirements of The University of Iowa College of Liberal Arts; they should consult with the director of the Physical Therapy Program to plan their professional studies to meet the requirements of the Physical Therapy Program.

Regardless of academic preparation prior to admission, all students are enrolled in the first two-year professional curriculum leading to certification in physical therapy.

To be considered for admission, the applicant must have completed at least semester hours of college study, including a complete introductory course in science or biology (12 semester hours; zoology preferred), a complete introductory course in chemistry (3 semester hours), a complete introductory course in physics (3 semester hours); a complete introductory course in psychology (3 semester hours), one college-level mathematics course (3 semester hours), and statistics (3.5 semester hours). The student must have completed all science courses in the admitting departments offering the courses, and all must include at least one-fourth laboratory instruction.

The applicant should have a minimum overall grade-point average of 2.7, and a 2.0 minimum in all courses in zoology or biology, chemistry, physics, and psychology.

Graduate applicants must take the Graduate Record Examination (GRE) Aptitude Test prior to admission. Undergraduates must take the GRE during the first year of professional training. Results of the examination must be mailed to The University of Iowa.

Person interviews may be required.

The physical therapy discipline has become a science in its own right, and the literature relates to a specific topic and area of interest.

Be familiar with the application of basic concepts in the areas of neurophysiology, neuromuscular, and cardiovascular physical therapy.

Required courses:
10:1301 Thesis Research
10:120 Medical Instrumentation
10:120 Biomechanics and Bioassay
10:1199900l Clinical Nutrition
10:12212 Clinical Psychological Testing
10:11517 Biostatistics and Orthotics

10:1406 Introduction to Human Pathology

Master of Arts
The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: musculoskeletal (orthopaedics), neuromotor (neurology), and cardiovascular. Further studies are offered in the musculoskeletal area. Clinical experiences are also offered. The programs focus on theoretical and practical bases for assessment and treatment of abnormal human movement. The master's degree requires a minimum of 30 semester hours of graduate work. Completion of basic professional and therapeutic education is a prerequisite. Clinical experience is recommended.

Physical therapy laboratories are available for human and animal studies. These laboratories are well-equipped with electromechanical systems for measurement of locomotor function such as muscle strength, gait, posture, reflexes, muscle activity (EMG), endurance, and aerobic capacity. Equipment includes laboratory computers. Use of extra departmental laboratories may also be arranged.

Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopaedics, physiology, anatomy, engineering, pharmacology, and with personnel in the physical therapy clinics.

A student successfully completing the M.A. program in physical therapy will:

Be a leader in scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practice.

Be able to teach at the basic professional level of physical therapy training and show promise of ability to teach at a more advanced level.

Have a knowledge of the physical therapy discipline that will enable him to perform research, to read literature related to a specific topic and area of interest.

Be familiar with the application of basic concepts in the areas of neurophysiology, neuromuscular, and cardiovascular physical therapy.

10:1301 Thesis Research
10:120 Medical Instrumentation
10:120 Biomechanics and Bioassay
10:1199900l Clinical Nutrition
10:12212 Clinical Psychological Testing
10:11517 Biostatistics and Orthotics

10:1406 Introduction to Human Pathology

Recommended courses:
10:1301 Thesis Research
27:153 Advanced Anatomy and Physiology

69:203 Introduction to Human Pathology
Physician Assistant Program

Program Director: Deirdre O为进一步 college admission, please contact the designated admissions office at the University of Iowa or the American Association of Physician Assistants.

The program's curriculum is designed to provide students with a comprehensive understanding of the medical field, including both theoretical and practical knowledge. Students are required to complete a series of core courses in areas such as anatomy, physiology, pharmacology, and disease management. The curriculum also includes clinical rotations in various settings, such as hospitals, clinics, and other healthcare facilities. This hands-on experience allows students to apply their knowledge in real-world scenarios.

Graduate students are encouraged to pursue advanced degrees, such as a Master of Science in Physician Assistant Studies or a Doctor of Medicine. These advanced degrees can lead to specialized careers in areas such as acute care, primary care, or research.

For more information on the Physician Assistant Program at the University of Iowa, please contact the program director or the admissions office. Potential students are also encouraged to visit the University of Iowa website for additional resources and application information.

Program Director Information

Deirdre O
Department of Surgery
University of Iowa
Iowa City, IA 52242
Email: deirdre.o@uiowa.edu
Phone: (319) 335-3456

Admissions Information

Admissions Office
University of Iowa
Iowa City, IA 52242
Email: admissions@uiowa.edu
Phone: (319) 335-3456

Financial Aid Information

Financial Aid Office
University of Iowa
Iowa City, IA 52242
Email: financialaid@uiowa.edu
Phone: (319) 335-3456

Contact Information

For more information, please contact the program director or the admissions office.

Program Director: Deirdre O
Department of Surgery
University of Iowa
Iowa City, IA 52242
Email: deirdre.o@uiowa.edu
Phone: (319) 335-3456
A new class begins the last week in May. Applications are accepted beginning one year in advance, and close January 15. Each applicant must complete the University of Iowa application and the Physician Assistant Program supplementary application and submit at least three letters of recommendation.

Expenses
In addition to general University student expenses, students in the Physician Assistant Program are responsible for the purchase of their uniforms and diagnostic equipment, approximately $850. Microscopes are not required.

Courses
1110 Physiologic Clinical Global Year ar.
1110 Seminar for Physician Assistant Students 0.4 a.
Lectures, readings, and group sessions. In the History and development of physician assistant professions. Open only to students in the Physician Assistant Program.
1110 Abdominal Emergency Medicine for Physician ar.
Assess patient's condition, treatment, clinical examination, clinical evaluation, procedures involved in surgical laboratory and clinical training, which involves direct emergency-room patient management and accurate emergency experience. Open to second-year physician assistant students and graduates physician assistants.

Biochemistry
Department Head: Edward C. Huch
Assistant professor Alisa S. Fulton, Brian G. Van Neess, Joseph J. Weller, Factor Anthony Welles Degrees offered B.S., M.S., Ph.D.

Undergraduate Programs
See "Biochemistry" in the Liberal Arts section of the Catalog.

Graduate Programs
The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue M.S. M.D. or Ph.D.-M.D. (medical student training) combined programs.

The focus of the graduate program is on the individual student, whose educational needs are met in formal courses and by tutorial conferences in the research areas from which they may choose a thesis topic.

First-year pre-med students usually take general and advanced biochemistry courses (926 130 Physical Biochemistry), an seminar on effective oral presentation (926 262 Seminar), and elective courses. Students spend about half of their time working in three different faculty laboratories (926 261 Research Techniques, learning research techniques in the context of ongoing projects). At the end of the first year students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take elective courses that supplement their interests and preparation. Students are required to complete a minimum of 10 semester hours of 2 5 semester hour minicourses in biochemistry (chosen from the 4必修课程) and 8 semester hours of elective science courses offered in other departments. After passing the comprehensive examinations toward the end of the second year, students are formally admitted to degree candidacy and, in the context of their work, the research culminates in the completion of their work, and its successful defense before the thesis committee.

In addition to meeting three and the general requirements of the Graduate College, students are expected to satisfy in the teaching of biochemistry for two or three semesters as part of their training.

Throughout the program, students are associated with small seminar groups and the biochemistry faculty members who serve as research advisors.

Research Interests
The department's current research interests span several aspects of physical biochemistry, effects of configuration on protein and chemical and biochemical reactivity of the proteins, normal control mechanisms, structure and function of chromatographic, gas chromatographic, higher organisms, biochemistry of glycoproteins, pharmacology of ionizable groups, membranes, and control of protein synthesis, biochemistry of proteins, characterization of liver and hepatoma enzymes, neurochemistry, lipid metabolism, thymic mechanisms, and identification of glycine/synthetic, analysis of enzyme systems utilizing oligopeptides, organic and inorganic enzymes, synthesis of enzymes, and characteristics of the biochemistry of oligopeptides and biochemical changes during development.
Biochemistry/COLLEGE OF MEDICINE

Facilities
Biochemistry shares modern research quarters of the Basic Sciences Building with the departments of Anatomy, Microbiology, Pharmacology, and Physiology and Biophysics. Research- and teaching laboratories in each department are interrelated, and faculty members with common interests are grouped around core of important research facilities and laboratories further helping to bring the various groups into a more intimate relationship with one another.

The individual staff research laboratories are large and3acqued, and the building provides generous space for many common-use facilities, including instrument rooms, reading room, cold rooms, glassware kitchens, and stockroom. Research is facilitated by good technical support in such areas as glassblowing, machine shops, animal quarters, and electronics, and by services supplied by photographers, illustrators, secretarial staff, stockroom supervisors, a purchasing agent, and technicians.

The department is well supplied with virtually all of the equipment used in modern biochemical research, including analytical and preparative ultracentrifuges, fluo-rescence spectrophotometers, infrared absorption and optical rotatory dispersion instruments, amino acid analyzers, protein sequencers, gas chromatographs, liquid scintillation counters, electrophoresis equipment, an electron microscope, microanalysis for protein X-ray crystallography, computer terminals, and a number of Cary spectrophotometers.

In addition to the department reading rooms and library, facilities provided by the Health Sciences Library and the various other departmental branches of the University Libraries system.

Financial Assistance
Financial assistance is available to all students admitted to the doctoral program in biochemistry.

Admission
The graduate program in biochemistry is sufficiently broad to accommodate students with bachelor's degrees in any of the physical sciences, appropriate preparation includes one-year collegelevel courses in mathematics, chemistry, biology, physics, and mathematics or the equivalent. Students with demonstrated ability may be admitted by special action.

Beyond the general Graduate College admission requirements (see the Graduate College section of the Catalog) minimum requirements of the department include an undergraduate grade point average of 3.0 (A=4.0) in 3.0 courses in science and mathematics courses and an acceptable score on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) Aptitude Test.

Courses
9910 Senior Internship 3.0 h.

Introduction to the laboratory, current developments and opportunities. Guide and trains the student in the techniques of writing and communication of biochemical information. Required of all students.

9110 Biochemistry 3.0 h.

Introduction to the subject of "Biochemistry," its history, its place in medicine, and its applications to medicine. Prerequisites: CHEM 121 and 122.

9123 The Chemistry of Biological Materials 3.0 h.

Chemical properties of biologically important materials. Prerequisites: CHEM 211, 212, and 213 recommended.

9160 Statistics 3.0 h.

Mathematical theory of the problems of determining the significance of experimental results and the limitations of experimental data. Prerequisites: CHEM 121 and 122.

9161 Molecular Biology 3.0 h.

Molecular basis of biological systems: how energy is obtained, stored, and utilized within the cell. How intermediary metabolism and macromolecules are synthetized and degraded and how these processes are controlled. How these processes are regulated at the molecular level. Prerequisites: CHEM 121 and 122.

9361 Plant Biochemistry 4.0 h.

Theory and interpretation of plant biochemical measurements which relate to plant systems; plant tissues, plant metabolism; plant nutrition and the environment. Prerequisites: CHEM 121 and 122.

9160 Experimental methodology 3.0 h.

Quantitative design and execution of experiments on plant biochemistry. Prerequisites: CHEM 121 and 122.

9060 Biochemistry of Interdisciplinary 3.0 h.

Introduction to modern methods of investigation of complex biological systems, the role of the biochemist in the problem-solving university, and the role of the biochemist in the future. Prerequisites: CHEM 121 and 122.

9160 Research Internship 3.0 h.

Students pursue independent study and research in areas of interest to them, in current research as members of laboratories. Prerequisites: CHEM 121 and 122.

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9160 Research Internship 3.0 h.

Students pursue independent study and research in areas of interest to them, in current research as members of laboratories. Prerequisites: CHEM 121 and 122.
various electives are available for fourth-year medical students, including extramural clerkship, extramural research, and special studies.

Courses

6201 Clinical Dermatology 3 cr.
Basic dermatology and first medical school year:
less independent study materials, clinical experience.

6202 Small Animal Surgery 3 cr.
Fourth-year medical students spend six weeks in animal hospital setting to gain experience in dermatologic surgery and special assignments.

6204 Research in Dermatology 3 cr.
Student's research project.

6206 Special Studies in Dermatology 3 cr.
Student's research project.

Dermatologic Examinations

Dermatology

Department head: John B. Brause

Professor: Dominick W. Capion, Donald T. Downing

Assistant professors: Louis Tompkins, Roger C. Coffin, Robert F. Gates, Robert M. Hebert, Joseph Phair, James E. Tisdale

Clinical lecturer: Donald B. Johnson, Jr., Susan Patel

The Department of Dermatology instructs medical students and trains dermatology residents in the care of patients with skin disease, and provides opportunity for the development of research skills in the field of dermatology.

This is one of few medical dermatology programs in the United States. In addition, the department offers a dermatology residency program for four years. The program is approved by the Accreditation Council for Graduate Medical Education (ACGME). Students generally complete the program within 15-17 semester hours of graduate credit. University Hospital awards a certificate of graduation in the program. Credit earned in the program may be applied toward an advanced degree, and approximately half of the graduates of the program go on to complete advanced degree programs, most typically the master's degree in home economics, preventive medicine, health education, or business administration.

American Dermatological Association and University of Iowa Graduate College requirements for admission to the program include the bachelor's degree with a strong background in science and mathematics, good academic standing, and previous coursework in human anatomy, physiology, and biochemistry.

Students must enter the program in the fall semester. The deadline for application is March 1.

University Hospitals pays an internship stipend which partly covers educational and living expenses.

For descriptions of programs courses, see the "Nondepartmental," "Human Nutrition," and "Pediatriciatrics" listings in this section of the Catalog.

Family Practice

Department head: Robert E. Nolan

Faculty: professors: Ronald D. Ogilvie, Robert B. Toner, associate professor: William M. O'Byrne, William J. Uebel, Craig L. Bednar, Linda P. Fahey, Diane G. Willows

Assistant professors: Elizabeth A. Bama, Prong, G. Cusick, Charles E. Dossick, Richard W. Neuhart, Paul E. Willows

Assistant associate professors: Karl E. Joch, Kenneth J. Judkins, David J. McGinley, Harold F. Meehan, Pond.


The Family Practice Program was affiliated in response to the need for more primary care physicians in Iowa and throughout the nation.

Appropriate course work in the department is included throughout the four-year medical program. The department's 25 elective minor rotations give students opportunities for exposure to various forms of medicine, including in affiliated hospital or community hospitals, in the department's Oakdale, University Hospital's offices, and in conjunction with selected family physicians throughout the state. There is also ample opportunity for study during the senior year, and an international health care elective offers exposure to primary health care systems of other countries.

Residency

The department directs a three-year residency program, graduates of which are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care to the total family unit, utilizing a concept integrating the patient, allied health professionals, and the physician into an efficient and effective health care team.

The program is interinstitutionally flexible to allow each resident freedom to tailor his or her training to individual interests and
Genetics

The Ph.D. program in genetics is an interdepartmental program involving members of the Departments of Biochemistry, Botany, Microbiology, and Zoology, as well as a number of faculty members in clinical departments. See "Generics" under "College of Liberal Arts" for a list of participating faculty members, degree requirements, and courses offered.

Hospital and Health Administration

Program director: Samuel Levy
Faculty: professor Samuel Levy, James L. Price
assistant professors: Gerhard Harries
associate professors: Linda H. Davis
senior research assistant: Harold Harrison
senior research assistant: John M. Muler
senior research assistant: Mary V. Miller
senior research assistant: Marie Back
Outstanding medical student:

Since its inception in 1955, the Graduate Program in Hospital and Health Administration has offered two degree programs, eximiously distinct, mutually reinforcing academic objectives.

The Master of Arts Program is designed for individuals who seek executive positions in health organizations.

The Doctor of Philosophy program is oriented primarily to individuals who are interested in careers in teaching and research in the health fields, although individuals seeking senior managerial

appointments in health organizations are also encouraged to apply.

The graduate program in Hospital and Health Administration accepts responsibility for the management and development of the University's Center for Health Services Research in 1981.

Master of Arts

The curriculum for the M.A. degree in hospital and health administration requires two years of full-time study. It is aimed at providing students with the knowledge, attitudes, and skills required to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care facilities, planning agencies, and related health organizations.

In the first year, courses are designed to familiarize students with the social, political, economic, and legal environment of hospitals and health care institutions. Concepts, tools, and techniques for effective and efficient managerial decision making, planning, and control are introduced.

The entire program is founded upon an interdisciplinary approach which includes exposure to the theoretical and applied aspects of health systems management.

In the second year, the curriculum is oriented to the special interests and career objectives of individual students. Upon recommendation of the faculty, an administrative residency may be arranged. Students will be provided with opportunities to concentrate in areas such as hospital administration, health planning, or long-term care administration.

Although a thesis is optional for the master's degree, students who wish to pursue doctoral studies are encouraged to engage in research leading to preparation of a thesis.

The normal program of study leading to the master's degree consists of a minimum of 64 semester hours of graduate work. All master's students must complete eight required core courses which represent a core of disciplines and fields of knowledge. These courses are as follows:

60:101 Introduction to Health Care Organization 3 a.h.
60:102 Health Administration 3 a.h.
60:104 Economics of Health Care 3 a.h.
60:108 Legal Aspects of Health and Medical Care 3 a.h.
60:122 Financial Management of Hospital and Health Institutions 3 a.h.
60:227 Quantitative Methods in Health Administration 3 a.h.
60:226 Quantitative Applications in Health Care 3 a.h.

In addition to electives offered by the program, students are encouraged to take advantage of relevant courses offered by the Department of Preventive Medicine and Environmental Health in the School of Medicine, and by the colleges of Business Administration, Nursing, Pharmacy, Education, and Liberal Arts.

Five Year Program

An early admissions plan supported by the W.K. Kellogg Foundation enables a student to complete both the M.A. and undergraduate requirements in five years. Traditionally, students entering the field of hospital or health administration have exhibited an early interest in the health sciences or management. Diversity of background will contribute to the development of a pool of well-trained administrators who can offer differing perspectives on problem resolution. The plan seeks to attract exceptional students from diverse backgrounds.

The student's undergraduate college must be willing to award the bachelor's degree after the student's successful completion of a specified number of undergraduate semester hours. Upon receiving the bachelor's degree, the student becomes eligible for admission to the Graduate College, a prerequisite for receiving a graduate degree. Students who wish to be considered for the early admissions plan must apply directly to this program during the third year of undergraduate study. Application to be considered will be available in the third year. Students interested in this program are encouraged to contact the program for application for admission.

Doctor of Philosophy

The primary purpose of the doctoral program is to prepare scholars who are competent in the conduct of excellence teaching and research and in management and policy development in the health fields.

At the doctoral level, the curriculum is organized into four basic fields of study.
Financial Support
Financial support is available to all students in the program.

Courses
65.291 Biokinetics Seminar
1.5 h.
Discourse of problems in research design for
mutations, including clinical investigation.
Offered fall semester.
65.292 Biokinetics Seminar
1.5 h.
Continuation of Biokinetics Seminar may be taken
independently. Offered spring semester.
65.293 Clinical Biokinetics
4.5 h.
Energy, specific patterns, nutrient-coordinated
and drug interactions, interspecies noise for food
technology, dental health, emphasis or nutrition
of normal individuals. Offered fall semester.
65.299 Clinical Biokinetics
4.5 h.
Assessment of nutritional status, age and sex
specific considerations, common clinical
features, food data, trended nutrition.
Offered repeating semesters.
65.300 Projects in Biokinetics
2 h.

65.305 Projects in Biokinetics
2 h.

65.307 Biokinetics Research
2 h.

65.311 Biokinetics of the Old
1.5 h.
Developmental aspects of nutrient metabolisms of the
infant and elderly for feeding practices, major
public health problems, influence of early feeding
and nutritional health. Offered fall semester.
65.315 Biokinetics Methods
3.5 h.
History of nutrition research, animal models
(sexology, environmental factors, diets, feeding
methods, sample collection, body composition),
human substates (growth, dietary intake, metabolic
behaviors studies, indirect measurements of body
compositions), surveys, special techniques.
Offered fall semester.
65.317 Comparative Biokinetics
1 h.
Age, sex, and species differences in metabolisms
of chemical changes in human diet in
developed countries. Offered spring semester.

Internal Medicine
Department head: Francois M. Ribbod
Faculty: professor: Francois M. Ribbod, Mark L.
Armstrong, Robert F. Atkinson, George S. Baskin, C.
Patrick Bercovitz, James Christensen, James S. Cohen,
Richard L. DeBold, Gerald Dolan, John W.
Eckstein, Norman L. Fleisher, Annette Flicek, David
Freeman, David K. Grima, Henry E. Hamilton, Robert
J. Hvidt, Eric W. Kasper, David O. Kass, Kenneth
Nadel, John E. Sall, Richard E. Kurbat, Nadine
Moses, Nile L. Mousa, Paul H. Miller, James M.
Snedell, Philip D. Schmidt, Paul M. Sebrell,
Ralph E. Sheehan, Barry Silverman, Jan M. Smith,
Raymond Speaker, Enis O. Thelen, Donald Sznat
professors emeriti: William C. Bassett, John S. Alexander,
William M. Speer
associate professor: Susan F. Avrett, Robert Bl.
Donald Jone: J. J. Streen, Michael Conder, David
Foster, John L. Younger, Charles M. Hanes,
Walter I. Scherer, Gary Hughes, Lawrence
Douglas E. Leibrock, William Leon, Vincent Lic,
John Vasquez, D. Michael Missri, Edward
Prentice, James E. Smith, John S. Smith, Paul
vanVoorst, Robert Samuels, Marc Thomas, Carl
Watson, Linda E. Wadhams, Donald Watson, James
assistant professor: David S. Atman, James
Armstrong, Zuber Kadar, Bruce Brown, Daniel
Clarke, Louis D. Einhorn, George Gerall, Robert
Felter, Robert Tsch, Jeffrey Field, Daniel Furr,
Seyde Gether, Roger Gofh, Jack Goldberg,
Jonathan Greenfield, Robert Knoll, Robert Kitchenspeck,
Lyle H. Tinsley, Donald Maloney, James S.
March, W. James Haeger, Kenneth Kaplan, John
Oseth, Janet Balbo, México, John Schenkel, John
Shriver, Michael Shaub, David Silvera, John
Weiler, Michael W. Wagner, Andy Yee
instructor: Rosa Freeman, David Hix, Jack Heston
student associate: John Bertinsh, John Dzudz, David
Ferguson, Michael Flack, Manuel Frendno, Jeffrey
Gauthier, Mark Michael Gufi, James Hagense,
David Johnson, Kevin Jones, Brian Kelly, John Klein,
Thomas Parks, Jesse Reiner, Marilyn Saldino,
Aime Taplos, Rolf Teerman, William T.
clinical professor: Leslie N. Swanson
clinical associate professor: Oscar C. Bessey,
Naline Josephine, Eliza Lason, Ewan Muir, C.S.
Siddiqui, George Summum, Lawrence Stephak
clinical assistant professors: Sareena Alexander,
John Deceaux, David Donat, Thomas M. Dunn, M.
Fleming, David Gordon, Philip Jakub, Richard R.
Hunsicker, Richard Kao, Timothy L. Kuc, John
Kuhl, R. Cameron, Richard L. Kraft, John
Kraft, Robert Leventhal, Peter Lee, Steven
MacBains, Karen, Har Levitt, Donald Lemon,
John J. Mace, Thomas F. Nieman, John Ote,
Hao-Chang Do, James Press, Edward Pomier, Jr.,
Kampf C. Parks, George River, Brian R. Stow,
William Sowder, Craig Ender, John Stodd, Joseph
Thomassen, Robert V. Toombs, John R. Uhlem,
Douglas V.Valmer, Victor Weimert, Chad
Williams, Jared Yee clinical instructor: Thomas Christ, Robert C. Lentner, Edward
Yardley

The Department of Internal Medicine is concerned with the
diagnosis, prevention, and treatment of diseases of adults.
The educational, patient-care, and research activities of the
department cover all facets of internal medicine, including
general internal medicine and primary care as well as the
specialized areas of allergy- immunology, cardiology, clinical
pharmacology and oncology, endocrinology, pulmonary medicine,
gastroenterology, hematology, infectious diseases, nephrology,
neurology, rheumatology, and urology.

The department is organized into divisions in
order to carry out these functions. Members of the department a
major share of the teaching of second-
year M.D. students in 50111
Introduction to Clinical Medicine, in
which students begin to learn the
pathophysiology, signs, symptoms,
complications, prevention, and treatment
of disease. Students work to
acquire knowledge, perform physical
examinations, and plan a rational
Approach to diagnosis and treatment.

In the third year, students are assigned
sites to work at medical sites at University and Veterans Administration
hospitals, under the guidance of the
Department of Internal Medicine house staff and faculty members, and actively participate as members of the ward
team in diagnosis and treatment.

In the fourth year, students may select a clinical experience to
fit their own plans from among courses offered in general medicine and the specialties.

Graduate Program
The department offers extensive
specialties and as approved residency programs of high quality. In addition, most of
the department's specialty divisions offer clinical research fellowships for periods of two to three years. These
permit the development of special knowledge and skills vital to the specialty. Candidates for internships are selected by the
department on the basis of the medical school. Postdoctoral fellows who have completed
residency programs are also accepted for programs in which the
major focus is laboratory research.

Facilities
Two tuberculosis in the medical school and
in the laboratories of the laboratory in
hospitals in Iowa City and Des Moines, and
the teaching hospital

Courses
73100 Cardiovascular Research and Special Study
73101 Advanced Cardiovascular Research and Special Study
73102 Clinical Medicine Research and Special Study
70100 Medical Immunology for Physicians Assistant
70101 General Internal Medicine
75100 Clinical Internal Medicine
75101 Advanced Cardiovascular Research and Special Study
Medical Scientist Training Program

Program Director: Robert E. Finkle (Physiologist)

The Iowa Medical Scientist Training Program is designed to prepare highly qualified men and women for a lifelong career of creative activity in the preclinical and clinical sciences. To accomplish this, the program provides a means for efficient integration of graduate education and doctoral research with the full complement of clinical studies necessary for the medical degree. With few exceptions, the requirements for the combined M.D. and Ph.D. degree can be completed in six to seven years of continuous study.

In the first two years of the program, trainees are enrolled in the College of Medicine for the basic science and introductory clinical portions of that curriculum. In the first three semesters, the basic science core provides trainees with a broad exposure to both the language and organizing concepts of the preclinical sciences, which form the foundation essential for all subsequent medical training. In the first semester, trainees take courses in biochemistry, microbiology, general pathology, and neurobiology. The fall semester of year two is devoted to the study of pharmacology, systemic pathology, community health sciences, oncology, and behavioral sciences. In the second semester of the second year, trainees are enrolled full time in an introduction to Clinical Medicine sequence which initiates the development of diagnostic approaches, knowledge, and skills necessary for building and maintaining competence as a physician. This semester provides an opportunity for practice in history-taking, physical diagnosis, and laboratory diagnosis, as well as insight into major health problems and needs. The introduction to Clinical Medicine sequence is followed in the summer of the second year by six-week clinical clerkships in two of the following disciplines: medicine, pediatrics, psychiatry, surgery, and obstetrics and gynecology.

In years three, four, and five, to the extent necessary, six, trainees are enrolled full time in the graduate department which they are asked to select by January of the second year. During this time, trainees are provided with academic and research experiences appropriate to their development as independent investigators. This academic training is directly supervised by the faculty of the student’s graduate department. As soon as trainees complete the graduate component of their training, they immediately return to the College of Medicine to begin a final clinical year. This year serves two important purposes. First, it allows the trainee to take his or her considerable and growing fund of information and specialization in laboratory science back into the clinical environment and apply it to problems of human disease. Second, it permits the trainee to renew and further develop the clinical skills he or she acquired in the second year of the program. With completion of the final 36 weeks of clinical clerkships, including medical and surgical subspecialties, trainees are awarded the M.D. and Ph.D. degrees.

Financial Support

Trainees admitted to the first year of the program receive an award, including stipend and fees, which will provide for a Medical Scientist Training Program at the University of Iowa from the National Institutes of Health. The current annual award is $5,040 per year. Support from this grant will be continued for a second additional year provided trainee achievement and progress remain satisfactory. In cases, trainees admitted to a delayed standing in the program will be arranged on an individual basis.

Eligibility

All applicants must be acceptable for admission to the College of Medicine and Graduate College of the University of Iowa. It is expected that trainees will have completed requirements for a bachelor’s degree at an accredited academic institution. In addition to outstanding academic credentials, including strength in physical and mathematical sciences, the applicant should demonstrate aptitude for and commitment to a research-oriented career, usually through productive research experience as a graduate student. Applications are normally accepted from students requesting admission to the first year of the program. Consideration will also be given to applications for admission to advanced standing from individuals currently enrolled in the College of Medicine or Graduate College at The University of Iowa.

Application Procedures

The University of Iowa College of Medicine is a participant in the American Medical Association Application Service (AMCAS). Program applicants should submit AMCAS to forward their credentials to the College of Medicine as soon as possible after June 15. At the same time, applicants should request a separate Medical Scientist Training Program application form from the Program Office, 6-800 Bowen Science Building, The University of Iowa, Iowa City, Iowa 52242. The application to the Medical Scientist Training Program is reviewed by a Program Selection Committee after the AMCAS selection is received.

The deadline for receipt of applications is December 1. It is strongly recommended that all applications be submitted as early as possible to facilitate review by both the College of Medicine Admissions Committee and the Program Selection Committee. The early decision plan of the College of Medicine for out-of-state residents is waived for this program. Equal consideration will be given to individuals regardless of their state of residence.

All candidates in addition to the Medical Scientist Training Program should take both the Medical College Admissions Test and the Graduate Record Examination (GRE). Applicants to the latter must apply at the same time as the former. The deadline for the calendar year in which the application is submitted is December 1.

Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog.

Microbiology

Chair: Irving P. Crawford
Assistant professor Gertrude D. Dzierzansey, Charles D. Cox, John E. Fournier, Mark F. Stievick, C. Martin Berghauser, Ronald H. Wecker
Research Assistant Susan Rice, Ough, lady Dante and David M. Lukens
Degree offered: B.S., M.S., Ph.D.
Doctor of Philosophy
A candidate for the Ph.D. must satisfy departmental course requirements determined by his or her advisory committee (minimum requirement: one course in each of the four subdisciplines available in the department, or 15 semester hours of course work in two different areas). Pass a comprehensive examination; write a thesis and defend it satisfactorily in an oral examination.

Facilities
The department shares the Bowen Science Building with the departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Adequate space and excellent equipment are available for teaching and research.

Admission
Prospective graduate students should consult with the graduate admissions advisor of the College of Medicine. Departmental requirements include a review and formal exam by the faculty before a student is admitted. Before beginning graduate work, the student must have completed courses in biology, chemistry (inorganic, organic, quantitative analysis), mathematics (up to calculus), and physics. Students admitted without the above course work must take it during the first year of graduate school. The student should achieve a grade-point average of 3.7 or better to be admitted to the graduate program in microbiology.

Courses

Elective Microbiology
- Principles and methods essential to study of microorganisms, their classification, and identification; laboratory techniques; preparation of bacterial cultures for research; registration in College of Medicine, or consent of course director.

Microbiology for Public Health Students
- Introductory course in medical microbiology, with emphasis on the more commonly encountered bacterial pathogens and the procedures useful in their isolation and identification; registration in College of Medicine, or consent of course director.

Microbiology Survey of Microbiology
- Interdisciplinary survey of fundamentals of cellular and molecular biology, genetics, and basic bacterial, viral, fungal, and protozoal clinical problems; appreciation of fast food; bacterial hygiene from the departments of Microbiology, Internal Medicine, Obstetrics and Gynecology, Radiology, and Surgery. Consent of instructor required.

General Microbiology
- Concepts of basic principles of bacterial, fungal, and viral physiology, genetic organization, and population dynamics; identification of methods useful in teaching and identifying microorganisms. Consent of instructor required.

Pathogenic Microbiology
- Introduction to soil and water, with emphasis on the mechanisms of transformation and laboratory methods used for isolation and identification of bacteria. Laboratory includes advanced methods used in study of pathogenic bacteria, Prerequisites: 610.107 and consent of instructor.

Molecular Pathology
- Microbial cell structure and function, growth, energy metabolism, respiration, and control mechanisms. Genetics of chromosomes and plasmids; molecular genetics; nucleic acids, enzymes, and enzymes; microbial evolution; molecular techniques in microorganisms; electrical of metabolic pathways, and study of microbial organisms. Prerequisites: 610.107 and consent of instructor.

Problem in Microbiology
- Doctor works on research problem under supervisor or a faculty member. For undergraduate students with sufficient background, Prerequisites: 610.107 or equivalent, and consent of instructor.

Introductory Course in Microbiology
- Principles and practical teaching in labeling and identifying bacteria and fungi; clinic of anatomical and historical importance; other courses with the University Hospital Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 and consent of instructor.

Clinical Microbiology
- Open only to nurses and dental hygienists.

Global Laboratory Microbiology
- Fundamentals and practical teaching in vital laboratory procedures and in research techniques. Other courses with the University Hospitals Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 and consent of instructor.

Leucosis Laboratory
- Principles and practical teaching in labeling and identifying bacteria and fungi; other courses with the University Hospital Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 and consent of instructor.

Basic Medical Microbiology
- Basic methods of soar cell intercalations and the use of stained blood smears. Registration in Pathology and consent of instructor.

Introductory Microbiology
- Principles and practical teaching in labeling and identifying bacteria and fungi; other courses with the University Hospital Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 and consent of instructor.

Basal Microbiology
- Basic methods of soar cell intercalations and the use of stained blood smears. Registration in Pathology and consent of instructor.

Histology
- Principles and practical teaching in labeling and identifying bacteria and fungi; other courses with the University Hospital Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 and consent of instructor.

Histology
- Principles and practical teaching in labeling and identifying bacteria and fungi; other courses with the University Hospital Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 and consent of instructor.

Laboratory Methods in Cellular Immunology
- Intermediate-level course in immunology dealing with the application of immunologic techniques to the study of infectious diseases. Consent of instructor required.

Experimental Immunology
- Principles and practical teaching in labeling and identifying bacteria and fungi; other courses with the University Hospital Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 or 610.108, and consent of instructor.

Experimental Immunology
- Principles and practical teaching in labeling and identifying bacteria and fungi; other courses with the University Hospital Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 or 610.108, and consent of instructor.

Experimental Immunology
- Principles and practical teaching in labeling and identifying bacteria and fungi; other courses with the University Hospital Laboratories; registration in Division of Medical Research, Prerequisites: 610.107 or 610.108, and consent of instructor.
Neurology

Department head: Maria W. Van Allen

PhD, AB, MD, RNI

Chair of the Department of Neurology

3.5 h

Lectures and laboratory sessions to familiarize students with the practice of medicine, neurology, and related disciplines in the care of patients. Techniques in bedside examination of patients with neurological diseases and methods of management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Teaching and postgraduate training, carefully integrated with patient care, have long been a significant function of the department.

The department offers clinical and clinical research training to third- and fourth-year medical students, depending on the Doctor of Medicine degree. An active three-year approved residency program qualifying physician

Neurology is a branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Teaching and postgraduate training, carefully integrated with patient care, have long been a significant function of the department.

The department offers clinical and clinical research training to third- and fourth-year medical students, depending on the Doctor of Medicine degree. An active three-year approved residency program qualifying physician

Trainees for board certification in neurology is a major aspect of departmental activity; experience in clinical electrophysiology, pediatric neurology, psychiatry, and neuropathology is part of this training.

The department also offers research opportunity in behavioral neuroscience, to candidates for the Doctor of Philosophy degree in psychology.

Investigative interests of the staff center on sleep disorders, disturbance of behavior, behavioral abnormalities based on disease of the nervous system.

Electrophysiological correlates of disease, proteins and gliarial growth factor of the central nervous system, biochemistry of the anticonvulsant drugs, treatment of myasthenia gravis, peripheral neuropathy, and cerebrovascular disease.

Courses

ES510 Clinical Neurology

3.5 h

Ward teaching and bedside examinations in ward groups or management of ambulatory patients. Third year.

ES510C Clinical Neuro-Ophthalmology

3.5 h

Clinical evaluation of visual systems, ophthalmic examination, oculomotor function, and assessment of visual fields.

ES512 Principles of Neurology and Clinical Sciences

1.5 h

The nervous system, cerebrospinal fluid, and autonomic nervous system. Neuroanatomy, neurophysiology, and neuropharmacology.

ES518 Introduction to Neuroimmunology

1.5 h

Current concepts in the field of neuroimmunology.

ES519 General Neuroimmunology

1.5 h

Pathophysiology and immunology of the nervous system.

ES520 Introduction to Neurochemistry

1.5 h

Chemical aspects of the nervous system.

ES521 Introduction to Neuroendocrinology

1.5 h

Neuroendocrine aspects of the nervous system.

ES522 Introduction to Neurobiology

1.5 h

Basic principles of neurobiology.

ES523 Introduction to Neurosurgery

1.5 h

Clinical aspects of neurosurgery.

ES524 Neuroanatomy

1.5 h

Anatomical and functional aspects of the nervous system.

ES525 Neurophysiology

1.5 h

Physiological aspects of the nervous system.

ES526 Neuropharmacology

1.5 h

Pharmacological aspects of the nervous system.

ES527 Neurosurgery

1.5 h

Clinical aspects of neurosurgery.

ES528 Neuroimmunology

1.5 h

Immunological aspects of the nervous system.

ES529 Neuroendocrinology

1.5 h

Endocrine aspects of the nervous system.

ES530 Neuroendocrinology

1.5 h

Clinical aspects of neuroendocrinology.

ES531 Neuroimmunology

1.5 h

Immunological aspects of the nervous system.

ES532 Neuroanatomy

1.5 h

Anatomical aspects of the nervous system.

ES533 Neurophysiology

1.5 h

Physiological aspects of the nervous system.

ES534 Neuropharmacology

1.5 h

Pharmacological aspects of the nervous system.

ES535 Neurosurgery

1.5 h

Clinical aspects of neurosurgery.

ES536 Neuroimmunology

1.5 h

Immunological aspects of the nervous system.

ES537 Neuroendocrinology

1.5 h

Endocrine aspects of the nervous system.

ES538 Neuroanatomy

1.5 h

Anatomical aspects of the nervous system.

ES539 Neurophysiology

1.5 h

Physiological aspects of the nervous system.

ES540 Neuropharmacology

1.5 h

Pharmacological aspects of the nervous system.

ES541 Neurosurgery

1.5 h

Clinical aspects of neurosurgery.

ES542 Neuroimmunology

1.5 h

Immunological aspects of the nervous system.

ES543 Neuroendocrinology

1.5 h

Endocrine aspects of the nervous system.

ES544 Neuroanatomy

1.5 h

Anatomical aspects of the nervous system.

ES545 Neurophysiology

1.5 h

Physiological aspects of the nervous system.

ES546 Neuropharmacology

1.5 h

Pharmacological aspects of the nervous system.

ES547 Neurosurgery

1.5 h

Clinical aspects of neurosurgery.

ES548 Neuroimmunology

1.5 h

Immunological aspects of the nervous system.

ES549 Neuroendocrinology

1.5 h

Endocrine aspects of the nervous system.

ES550 Neuroanatomy

1.5 h

Anatomical aspects of the nervous system.

ES551 Neurophysiology

1.5 h

Physiological aspects of the nervous system.

ES552 Neuropharmacology

1.5 h

Pharmacological aspects of the nervous system.

ES553 Neurosurgery

1.5 h

Clinical aspects of neurosurgery.

ES554 Neuroimmunology

1.5 h

Immunological aspects of the nervous system.

ES555 Neuroendocrinology

1.5 h

Endocrine aspects of the nervous system.

ES556 Neuroanatomy

1.5 h

Anatomical aspects of the nervous system.

ES557 Neurophysiology

1.5 h

Physiological aspects of the nervous system.

ES558 Neuropharmacology

1.5 h

Pharmacological aspects of the nervous system.

ES559 Neurosurgery

1.5 h

Clinical aspects of neurosurgery.

ES560 Neuroimmunology

1.5 h

Immunological aspects of the nervous system.

ES561 Neuroendocrinology

1.5 h

Endocrine aspects of the nervous system.

ES562 Neuroanatomy

1.5 h

Anatomical aspects of the nervous system.

ES563 Neurophysiology

1.5 h

Physiological aspects of the nervous system.

ES564 Neuropharmacology

1.5 h

Pharmacological aspects of the nervous system.

ES565 Neurosurgery

1.5 h

Clinical aspects of neurosurgery.

ES566 Neuroimmunology

1.5 h

Immunological aspects of the nervous system.

ES567 Neuroendocrinology

1.5 h

Endocrine aspects of the nervous system.
Ophthalmology

Department: Frederick G. Boldt
associate professors: Don F. Justiss, Thomas A. Marquez
assistant professors: James C. Fields, Russell V. Mays, Andrew J. Parker, David T. Yee
Degree offered: M.S.

Ophthalmology is a medical and surgical specialty concerned with the diagnosis, treatment, and prevention of diseases of the eye and its adnexa, including correction of refractive errors. Several subspecialties are represented in the department: ocular pathology and physiology; pediatric ophthalmology and strabismus; retinal disorders, glaucoma, neuro-ophthalmology, choroid, cornea and external diseases, vascular diseases, plastic surgery, contact lens and refraction service, and medical optometric photography.

The teaching program is directed toward the training of medical students and resident physicians. It emphasizes a scientific approach to problem solving in diagnosis and treatment.

The residency program lasts three and one-half years, and culminates in qualification for the examination of the American Board of Ophthalmology.

The Master of Science degree is not offered as a primary professional objective but can be pursued only in conjunction with a residency program.

Facilities

The department maintains several research laboratories: tumor diagnosing, pathology and electron microscopy, electrophysiology, microbiology, reticuloendothelial, papillopathy, and vascular diseases. Clinical facilities are available not only at the University Hospitals, but also at the Veterans Administration hospitals in Iowa City and in Des Moines. The department also manages an eye clinic at the Broadlawns County Hospital.

The department sponsors biennially an Annual Scientific Symposium, an Annual National Meeting, and monthly a statewide grand round of continuing education.

Two features of the department are outstanding: a large resident faculty, and the opportunity it offers to prepare for a career of teaching and research in ophthalmology.

Courses

Ophthalmology Department

Four-week course in common diseases of the eye, cornea, and lids, and cornea.

Ophthalmology Department

Four-week course in ophthalmology, neuroradiology, and internal medicine; emphasis on visual and cranial nerve diseases due to many systemic diseases, as well as diseases primarily of the eye or lids; basic knowledge of ocular surgery needed; examine patients seen by attendants.

Ophthalmology Department

Four-week course in pediatrics, neuroradiology, and internal medicine; emphasis on common diseases of childhood, as well as diseases primarily of the eye or lids; examine patients seen by attendants.

Ophthalmology Department

Four-week course in ophthalmology, neuroradiology, and ophthalmology; emphasis on anatomy, physiology, and pathology of the eye;

Ophthalmology Department

Two-week course for students who wish to intend to become ophthalmologists; covers ocular anatomy, physiology, and pathology, and the diagnosis and treatment of ocular diseases; includes a practical program in corneal and ocular surgery, facility requirements, in vitro examination, and in vitro examination of corneal diseases.

Ophthalmology Department

Four-week course in basic and clinical sciences related to ophthalmology: dissection lecture, seminars, laboratory work, and research; clinical training is being supervised by the American Board of Ophthalmology.

Orthopaedics

Department: Robert P. Copen

The department offers two types of postgraduate training—a five-year, comprehensive integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery and science related to the neuromusculoskeletal system, and a five- or six-year program for those interested in full-time academic orthopaedic careers.

Clinical Program

Trainees enter this program through the National Internship Matching Plan directly out of medical school. The program consists of a one-year categorical diversified orthopaedic internship and four years in orthopaedic residency.

During the internship year, the trainee gains experience not only in clinical
orthopedics, but in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesia, and other services.

During the following two years, residents gain experience in trauma, children's orthopedics, adult orthopedics, neuromuscular disorders, rehabilitation, prosthesis and orthotics, rheumatology, and basic science as related to orthopedics. The residents take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

A weekly seminar covers biomechanics, kinesiology, and selected clinical subjects. Residents also attend the Northwestern University courses on lower extremity and protheses.

Program for Full-Time Academic Orthopedics

This program includes the training described under the clinical program above. In addition, the resident devotes one or two years to research. This research may be in any field in which the resident is interested, provided it is related to the musculoskeletal system, and may be done in one of the orthopaedic laboratories or in a basic science department.

Departmental Laboratories

The orthopaedic laboratories deal with problems in these major subject areas:

Biochemistry—The biochemical understanding of the musculoskeletal system, both normal and those altered in disease. Biomechanics—in conjunction with the College of Engineering, biomechanical problems of the upper extremity, biomechanics of the hip and the gait, and total joint replacements.

Cell biology and pathology—Ultrastructural studies on normal bone, cartilage, tendons, and muscles, and on those altered by experiment and disease. Tissue transection, radioactive isotoles, and metabolic bone disease—Skin, bone, and cartilage transplanation, skeletal physiology, qualitative and quantitative aspects of histologic, chemical composition, bone density, effect of in vivo and in vitro metabolic bone disease, and exercise.

Facilities

The department is housed in the Carver Pavilion of the University of Iowa Hospitals and Clinics and has an active service in the Veterans' Administration Medical Center.

Facilities include 100 beds, an outpatient clinic, a specialty laboratory, a specialty radiology unit, a brace shop, and physical therapy facilities.

Physicians in the outpatient clinic see approximately 100 patients a day. Specialty clinics deal with such problems as scoliosis, club feet, congenital dislocated hips, neuromuscular disease, metabolic diseases, neck, back, amputees, hips, knees, hands, neoplasms, and trauma. Approximately 1,500 major operations are performed each year under auspices of the department.

The department provides consulting service to the Hospital School for Handicapped Children, State Services for Crippled Children, and two state schools for the mentally retarded.

Courses

70.1 Clinical Orthopaedics
70.13 Orthopaedic Surgery for Physician Assistant
70.24 Orthopaedic Surgery for Physician Assistant
70.26 Clinical Orthopaedic Research
Open to senior medical students only.
70.28 Handahond University
Open to senior medical students only.
70.55 Surgical Care of the Hand
Open to senior medical students only.
70.109 Laboratory Experience
Open to senior medical students only.
70.109 Basic Studies in Osteoporosis
Open to senior medical students only.
70.109 Special Studies in Osteoporosis
Open to senior medical students only.

Otolaryngology—Head and Neck Surgery

Department head: Brian T. McAllister

Facilities include 100 beds, an outpatient clinic, a specialty laboratory, a specialty radiology unit, a brace shop, and physical therapy facilities.

Physicians in the outpatient clinic see approximately 100 patients a day. Specialty clinics deal with such problems as scoliosis, club feet, congenital dislocated hips, neuromuscular disease, metabolic diseases, neck, back, amputees, hips, knees, hands, neoplasms, and trauma. Approximately 1,500 major operations are performed each year under auspices of the department.

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Otolaryngology—Head and Neck Surgery

Department head: Brian T. McAllister

Faculty: professors: James Blundel, Leo A. Harker, Carl G. W. Kallman, William E. Leibman, Brian F. McCas, Hugh C. Martin, William R. Cline, D.O. Snodgrass, Diane A. Van Dusen

Associate professors: Richard W. Babin, Robert M. Benedict, William P. Barta, Jean R. Van

Associate professor emeritus: Jeanne R. Smith

Assistant professor emeritus: Bruce J. Davis, Richard S. Tyler, Richard Voss

Research scientist: Raymond N. Lindell, Kenneth J.

Clinical instructor: Sabine Thomas J. Benda, Gay McFadden, Roger Simpson

Degree offered: M.S.

The department provides one of the oldest and largest otolaryngology and maxillofacial surgery training programs in the world. Currently it has a full-time faculty of 18, including several members from plastic surgery, audiology, speech pathology, and dentistry (orthodontics and maxillofacial prosthodontics).

The department's main objective is to provide a high-level instructional program in otolaryngology and maxillofacial surgery for medical students and residents. To maintain a teaching program, the department's faculty and staff carry a large patient load of head and neck oncology, head and neck plastic reconstructive surgery, maxillofacial trauma surgery, congenital defects (such as cleft lip and palate), neurotology, pediatrics, and geriatric hearing problems. Voice problems, parotid embolus, surgery for deafness, and all the areas usually considered otolaryngologic.

There are seven divisions in the department which make up this program comprehensive: otolaryngology, neurotology, plastic and reconstructive surgery of the head and neck, oncologic surgery of the head and neck, microsurgery, craniofacial defects, speech pathology, and audiology, and research.

Another major objective of the department is to offer research programs designed to study new knowledge in the field and provide models for student and resident research training. All senior faculty members participate in research and all residents are enrolled as part of the resident training program, to design, conduct, and report on a research project during their program of study. In addition, there are several large-scale research programs within the department in vestibular neurophysiology, cleft palate and other craniofacial defects, otology, facial nerve condution, microvascular reanastomosis, and the effects of aging on hearing, anatomy of the anterior chamber, corneoscleral lamina, bone resorption in ear disease, and electroneurophysiology of the inner ear.

Several of these research programs receive federal and private financial support.

Graduate Program

The graduate program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology.

The program consists of a four-year course of study and thesis. The basic science lectures and laboratory studies are conducted during the first three and one-half months of residence.

After passing an oral and/or written examination, the student enters the six-month phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of otolaryngology and related fields.

To complete the requirements for the Master of Science degree, the student must successfully pass a written examination in an area of credit, one-third of which must come from the thesis assignment, and must present and defend a thesis. Students
add depth to the educational program in community pediatrics and primary care.

The Department of Pediatrics is responsible for all aspects of the pediatric section of the MCAT (Medical College Admission Test). Didactic lectures and simulated physical examination of the newborn and toddler provide students with their initial pediatric patient contact. This experience includes taking a history, performing a physical, assessment of growth and development, nutrition and symptomaticology of the newborn, toddler, and adolescent.

For the junior and senior medical student the inpatient stipend provides an opportunity for training in the complex problems of disease and critical illness. There are daily rounds involving general pediatrics and all subspecialties. Challenging and interesting cases are presented to the staff for discussion of diagnosis and treatment. Outpatient experience stresses principles and practices required for the maintenance of health in children—immunizations, physical care, nutrition, mental hygiene, and utilization of public health facilities and referral agencies.

Graduate Program

The department offers an approved three-year residency program which is designed to prepare each trainee for a professional career in the broad field of pediatrics and which meets the requirements for American Board of Pediatrics training. Fellowships are available in all of the ABP subspecialties as well as in the major subdisciplines of pediatric surgery, internal medicine, and critical care. Opportunities for research and clinical orientation are available in each subspecialty.

Facilities

The Department of Pediatrics is located in The Iowa University Hospitals, with inpatient and outpatient areas immediately adjacent to faculty offices, and in the pediatrics building of the Iowa State University Hospital. The inpatient service comprises more than 160 beds, and more than 24,000 patients per year are treated by the department, general, specialty, and continuing care clinics. Laboratories performing both clinical and research studies are maintained within the department.

The Hospital School for Handicapped Children is available for the child with development and neurologic disabilities, cerebral palsy, and mental retardation.
Pharmacology

Department head: J.P. Long

Pharmacology is a scientific discipline that deals with the study of the effects of drugs on living organisms. It is a branch of medical science that aims to understand how drugs work in the body, and how they can be used to treat diseases.

The department provides professional training in pharmacology for health science students, offers a Master of Science program in clinical pharmacology and clinical toxicology for students with the M.D. degree, and offers a doctoral program in didactic and research experience.

For qualified graduate students, a 3-year research and training program in biochemical pharmacology and toxicology, drug metabolism, central nervous system and autonomic pharmacology, and the pharmacology of the cardiovascular and renal systems. The Toxicology Center is located primarily within the Department of Pharmacology, and the department is involved with other departments in such educational and research activities as the National and Behavioral Sciences Program, the Diabetes Center, and the Cardiovascular Center.

The department pioneered the offering of pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions in 7:30 A.M. Drugs: Their Nature, Action, and Use emphasize the natural and clinical setting and give students a background for rational decision concerning the personal use of drugs.

The department offers research training in all areas of pharmacology and toxicology at the postdoctoral and predoctoral levels, in preparation for career opportunities in teaching, government, and industry.

Prerequisites for graduate study include undergraduate background in chemistry, biology, and mathematics. The level of performance in undergraduate courses must be in the top quartile.

Master of Science

In cooperation with the clinical departments in the College of Medicine, the Department of Pharamacology offers a Master of Science program in clinical pharmacology to applicants who already hold the Doctor of Medicine degree. The specific objective of this program is to provide increased emphasis on research in the science of clinical pharmacology for residents in the various clinical specialties. Completion of the M.S. program requires a minimum of two years. Satisfactory completion of the following core courses is mandatory unless specifically waived by the Department of Pharmacology faculty. Any of these course requirements may be waived at the request of the trainee if he or she can satisfactorily pass an oral examination at a time to be determined by the Department.

7:203 Pharmacology Research
7:204 Pharmacology Seminar
7:206 Biochemical Pharmacology
7:210 Special Topics in Pharmacology
8:217 Biometrics and Bioassay
7:212 Toxicology
7:216 Clinical Toxicology
7:280 Clinical Pharmacology and Therapeutics Lecture Series

The trainee may audit 7:105 Pharmacology for Health Sciences: Medical, and may take additional courses appropriate to his or her program, including:

7:205 Advanced Cardiovascular Pharmacology and Physiology
7:213 Advanced Neuropharmacology
7:214 Retail Pharmacology

Courses in other departments

Eligibility for the M.S. degree in pharmacology requires demonstrated proficiency in basic research, satisfactory performance on the qualifying examination (written and oral), and satisfactory preparation and defense of a thesis.

Doctor of Philosophy

Course requirements for the Ph.D. in pharmacology are as follows:

7:100 Chemobiodynamics
99:120 The Chemistry of Biological Materials
99:130 Metabolism
72:512 Medical Physiology
7:101 Pharmacology for Health Sciences: Pharmacy
82:187 Biometrics and Bioassay
7:105 Pharmacology and Toxicology
7:206 Biochemical Pharmacology
7:203 Pharmacology Research
7:210 Pharmacology Seminar
7:212 Pharmacology of Excitable Cells
7:120 Introduction to Pharmacology

The student must complete at least one additional course appropriate to his or her area of interest, and individual faculty research advisors may require more than one.

There is no departmental foreign language requirement.

Students are encouraged to obtain a maximum of laboratory research experience during the first two years.

After successful completion of the Ph.D. comprehensive exam, usually at the end of two and one-half years, the student begins or continues his or her Ph.D. thesis research. Thesis research usually requires two years beyond the comprehensive examination. Satisfactory preparation and oral defense of the thesis complete the program.

Financial Aid

Financial support is available for all predoctoral and postdoctoral students in pharmacology.

Courses

7:110 Clinical Pharmacology

Philosophical and experimental approaches to drug design; emphasis on concepts and tools of biological chemistry of drug design; introduction to contemporary pharmacological methods included. Offered fall term. Prerequisite: consent of instructor.

7:21 Pharamacy for Health Sciences: Retail

Lecture course: general principles of pharmacology, pharmacokinetics of drugs, and clinical applications for use in a pharmacy. Prerequisite: consent of instructor or consent of instructor. Offered fall term. Prerequisite: 7:210 or 99:150 or equivalent.

7:110 Pharmacology for Health Sciences: Retail

Lecture course: general principles of pharmacology, pharmacokinetics of drugs, and clinical applications for use in a pharmacy. Prerequisite: 7:210 or 99:150 or equivalent.

7:111 Pharamacy for Health Sciences: Retail

Lecture course: general principles of pharmacology, pharmacokinetics of drugs, and clinical applications for use in a pharmacy. Prerequisite: 7:210 or 99:150 or equivalent.

7:112 Pharamacy for Health Sciences: Retail

Lecture course: general principles of pharmacology, pharmacokinetics of drugs, and clinical applications for use in a pharmacy. Prerequisite: 7:210 or 99:150 or equivalent.

7:120 Drugs That Affect Mood, and the

Lecture course: introduction to psychoactive drugs and their effects on mood and behavior. Prerequisite: 7:210.

7:130 Pharamacy for Health Sciences: Prelicensing Subjects

Lecture course: introduction to psychoactive drugs, general principles of pharmacology, and pharmacokinetics of drugs, and clinical applications for use in a pharmacy. Prerequisite: 7:210.

7:210 Intermediate Pharmacology

Lecture course focusing on functional principles of drug action, the mechanisms of drug disposition, pharmacokinetics, pharmacodynamics, metabolism, excretion, and toxicity of various classes of drugs. Prerequisite: 7:110. Recommended for students interested in pharmacy or graduate biochemistry and physiology.

7:212 Pharamacy for Health Sciences: Prelicensing Subjects

Lecture course focusing on functional principles of drug action, the mechanisms of drug disposition, pharmacokinetics, pharmacodynamics, metabolism, excretion, and toxicity of various classes of drugs. Prerequisite: 7:110. Recommended for students interested in pharmacy or graduate biochemistry and physiology.
Physiology and Biophysics

Physiology and Biophysics offers graduate programs leading to the Doctor of Philosophy degree, provides instruction in physiology and biophysics for medical, dental, pharmacy, nursing, and other health professional students; participates in the Medical Scientific Training Program (Combined M.D.-Ph.D. program) conducted under the auspices of the Graduate College and the College of Medicine; and offers a program leading to the Master of Science degree.

Graduate Study

The graduate programs in physiology and biophysics are designed to provide broad general knowledge of fundamental life processes at cellular and organ levels, and as opportunity for intensive study in major areas of physiology and biophysics. The program places major emphasis on the development of modern research skills and the application in the conduct of original dissertation research.

The entering student is advised in the precomprehensive exam year by the director of the graduate school, who provides guidance in the planning of a program of formal course work and an introduction to research activities of departmental faculty. In addition to general courses in advanced physiology and biophysics, the department offers specialized formal study in cardiovascular, endocrine, environmental, respiratory, metabolic, and nervous systems physiology. The student is advised to take a limited number of courses in other departments appropriate to meeting his or her educational needs.

Upon completion of required course work and satisfactory performance on a comprehensive examination in physiology and related areas, the student is expected to devote full time to original research, culminating in his or her preparation of a doctoral dissertation which makes a significant contribution to scientific knowledge. The student defends the dissertation in a final oral examination.

All degree candidates are expected to have supervised experiences as classroom instructors and teaching assistants as part of their graduate training program.

Financial Aid

Full-time doctoral students in physiology and biophysics are eligible for financial aid, with continued support contingent upon satisfactory progress.

Facilities

The Department of Physiology and Biophysics is located in the Science complex and in adjacent laboratory facilities at the nearby Oakdale campus. In addition to specialized equipment in individual research laboratories, the department has modern digital computers and computer graphics systems, electron microscopes, an electron microscope, fluorescence microscopes, a flow cytometer, laser microbeam analyzers, and a cell culture facility, as well as classroom and machine shop facilities. Through the first two years, graduate students are aided with individual study space adjacent to the departmental reading room, which supplements resources available at the Health Sciences Library.

Admission

An applicant for graduate admission must have completed undergraduate study in a related field, and have an overall grade-point average of 3.0 and a science grade-point average of 3.0.
methodology, the department participates in extensive collaborative research with other departments, particularly in the College of Medicine. Medical epidemiology, while also linked to the clinical activities in the University Hospitals and Clinics, is primarily oriented toward the community. Teaching and research are concerned with basic epidemiologic methods, but the emphasis is on application to community health problems. Areas of specific interest include the organization and delivery of Health services and the description, etiology, and control of acute communicable and chronic diseases, as well as clinical epidemiology. There is a special emphasis within the department on the epidemiology of cardiovascular diseases and cancer.

A prominent program is the development, evaluation, and field testing of a vaccine against achalasia (several levels). Examples of specific ongoing programs include investigations of the problems of aging, occupational medicine, a summer medical student primary care program for migrant farm workers, cardiovascular disease and hypertensive screening program, cancer epidemiology through the State Health Registry of Iowa and the Iowa Cancer Epidemiology Research Center (both based within the department), major participation in evaluation of health services research activities on a University-wide basis, the study of the health effects of pesticides, and the study of agricultural worker accidents and trauma. Consultation on epidemiologic problems is given widely in diverse areas of research and applied clinical and community activities. All departmental programs are enhanced through affiliations with the University Hygienic Laboratory, Environmental Health and Safety, School of Public Health, College of Engineering, Health Services Research Center, and other national health delivery programs.

Graduate Programs

The master's program offers a degree with emphasis in environmental health, bioclinical epidemiology, or for those who already are health professionals. The Ph.D. program is available with an emphasis in epidemiology, biometry, or environmental health.

While pursuing a degree program, students are expected to maintain a 3.0 grade-point average. In a graduate course, students receiving more than 8 semester hours of grades below B are not allowed to continue in the departmental course work will be dissolved from the program.

A joint masters option exists between the Urban and Regional Planning Program and the School of Medicine and Environmental Health in the College of Medicine. This option results in a M.A. or an M.S. in Planning and an M.S. in Preventive Medicine and Environmental Health. Separate admissions to both academic units are required.

Institute of Agricultural Medicine

The Institute of Agricultural Medicine is housed in the Agricultural Medicine Research Facility on the Oxidate Campus. Research, teaching, and extension activities concern the safety and health problems of rural Iowans. Areas of study include environmental toxicology, comparative medicine, occupational health, the Accident Prevention Laboratory, and the Iowa Pesticides Epidemiology Studies Center.

Financial Aid

A limited number of research assistantships and tuition grants are available within the department.

Preventive Medicine and Environmental Health

COURSES

0269: 0248 Preventive Medicine Internship

0260: Preventive Medicine Internship for training occupational health professionals (0248/Dissertation)

0250: Dynamics of Health

0313: Survey of Preventive Medicine and use in patient follow-up, with emphasis on pharmaceutical, epidemiology, and prevention to improve health status investigation. Offered fall semesters.

0315: Basic and the Environment

0316: Human ecology in relation to environmental and occupational health, emphasizing aspects of biological, chemical, physical, and biological factors of health, research, and occupational health, emphasis on application of community and preventive skills in health control and clinical problems. Offered fall semesters.

0317: Statistics

0318: Survey of statistical methods for persons who are taking a brief introduction to statistical terminology and methodology. Topics include descriptive statistics, sampling distributions, estimation, hypothesis testing, correlation coefficients, confidence intervals, tests of significance, and decision analysis. Offered fall semesters.

0319: Public Health Aspects of Food and Housing

0321: Survey of safety and health problems associated with sanitization and housing conditions, including building and housing codes, their administration and enforcement, environmental health problems peculiar to institutional and institutional establishment. Offered fall semesters.

0322: Principles of Epidemiology

0323: Study of the development and control of outbreaks; statistical and control studies; historical and current examples of outbreaks of communicable and non-communicable diseases; current techniques for study of distribution and determinants of disease in man, animals, and plants, with discussion of methods to control outbreaks and to others with consent of instructor. Offered fall semesters.

0324: Introduction to Epidemiology

0325: Techniques of controlling and analyzing simple epidemiological studies, including methods of disease incidence and mortality rates, standardization methods, basic concepts of incidence and mortality, and concepts of risk and illness. Offered fall semesters.

0326: Introduction to the Design of Sample Studies

0327: Techniques of computing and analyzing sample studies, including general methods of data analysis, frequency distributions, statistical tests, design, and analysis of experiments, and the use of computer programs in research. Offered fall semesters.

0328: Principles of Research

0329: 0326 Principles of Research and survey administration, emphasis on sampling and research methodology. Offered fall semesters.

0330: 0329 Principles of Research and survey administration, emphasis on sampling and research methodology. Offered fall semesters.

0331: Basic Concepts of Biostatistics

0332: Descriptive statistics and application of statistical methods in the analysis of medical and public health data. Offered fall semesters.

0333: Design and Analysis of Experiments in the Biomedical Sciences

0334: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0335: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0336: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0337: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0338: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0339: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0340: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0341: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0342: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0343: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0344: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0345: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0346: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0347: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0348: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0349: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0350: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0351: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0352: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

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0372: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0373: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0374: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.

0375: Analysis of variance, chi-square, regression, and correlation analysis. Offered fall semesters.
Psychiatry

Department Head: George Wacker

Courses
71:100 Psychology for Physician Assistant
71:200 Research in Psychiatry
71:300 Clinical Psychiatry: adult, child, adolescent
71:350 Radiology of the Brain
72:100 Radiology of the Skull
72:200 Radiology of the Spine
72:300 Radiology of the Atomic Energy in Medicine
72:400 Radiology of the Radiological Physics
72:500 Radiology of the Nuclear Medicine
72:600 Radiology of the Medical Physics
72:700 Radiology of the Radiological Engineering

Graduate Programs
The M.D. program in radiation biology emphasizes the technical aspects and serves well as a minor field for students whose major interest is in another related field.

The Ph.D. program is open to graduate students with a background in study of physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. Ordinarily, the M.S. in this or a related field is required for admission to the Ph.D. program, but consideration is given to other methods of qualifying.

Upon completion of the introductory courses, the student may emphasize a particular aspect of the field. The details of the program are built around previous training, interests, abilities, and career objectives. Some students elect to emphasize training in physical aspects, such as radiological physics or health physics. Others major in biological aspects. In either case, a broad base rather than complete knowledge is sought. In addition to formal lectures, the programs involve small group conferences and discussions. Laboratory exercises are emphasized, and the student has the opportunity to become familiar with many types of instruments and techniques. It is recommended that a candidate for the Ph.D. have a reading knowledge of Greek and German and competence in biological statistics or computer programming before taking the final examination.

Special Programs
Postdoctoral training is available by arrangement with the program chairman and individual faculty members.

Radiation Biology

Program director: James W. Osborne
Faculty: professors Frank M. Abballe, Charles R. Burch, Richard L. DeLauter, James C. Ethelston, James W. Osborne, and Charles W. Blosser

The program provides in-depth training and research experience in the study of the physical, chemical, and biological effects of radiation and the radiation and the widespread application of radiobiological methodology. The program stresses the importance of these areas to scientific research, clinical medicine, and the general public.

Undergraduate Study
Two courses, 77:103 Introduction to Radiobiology and Radiation Biology, are open to all students majoring in natural or professional colleges. These courses should be of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or similar programs.

Program director: James W. Osborne
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Surgery

Department Head: Robert J. Carr


clinical professor: Louise H. Draper, Donald J. Luna, John D. Church, Henry K. Martin, Thomas J. Proctor, David B. Showalter, Robert S. Carr.


Courses

Courses in surgery provide opportunities for a unique combination of experience oriented toward patient care with basic surgical research designed to give the interested student an awareness of the practice of surgery among the physician's skills. These courses are available only to medical students and qualified students in associated health sciences. The student in surgery develops awareness of surgical therapy's place in the treatment of disease. Emphasis is placed upon basic emergency techniques. The student is introduced to basic cancer research, endoscopy, endoscopic surgery, transplantation, plastic surgery and reconstructive surgery, vascular surgery, thoracic and cardiovascular surgery, and bioethics.

A majority of the courses involve patient-centered discussions and practical experiences. Students participate in the operating room experience. Lectures and practical experiences are regularly scheduled on specific topics. Special courses in selected topics of surgical research, independent study, and clinical experiences are available to individuals on two-year student status in special arrangement with the faculty.

Faculty

Special faculty strengths are centered in the fields of pathophysiology and problems of severe burn, organ transplantation, surgical control of intractable disease, inflammatory bowel disease, biliary tract disease, urologic surgery, and plastic surgery. The thoracic-cardiovascular and neurosurgical service offers the clinical expertise in the clinical management of the spectrum of disease in their specialties.

Facilities

The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit in the state, providing adequate patient material for both clinical and basic science research. Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal operating, tissue culture, genetics research, microbiology, biochemistry, vascular, transplantation, organ preservation, cardiovascular, and thoracic and surgical research.

Courses

751 Basic Emergency Skills

751 Clinical Research

751 Advanced Emergency Medicine

751 Advanced Surgical Intensive Care

751 Advanced Surgical Intensive Care

751 Emergency Room Care

751 Emergency Room Care

Urology

Department: David A. Cole


Currently available professors: William W. Sweeney, Barry Frankel.

Course director: Walter L. G. Arnow, Barry D. Frankel.

In addition to the areas of urinary tract acuity, urinary tract infections, diagnostic urology, and the result of urinary tract obstruction, urology also includes renal physiology, dialysis, hyperparathyroidism, urologic oncology, urologic endocrinology, and pediatric urology.

The Department of Urology is The University of Iowa College of Medicine offers courses in all these fields, at the undergraduate and graduate levels, and in continuing education for the delivery of urologic care. In the first year of the M.D. program, the department participates with several of the basic science departments in teaching the relationship of urology to the basic sciences. The department participates with the Department of Microbiology in the teaching and research in immunology as it relates to transplantation and cancer.
The Department of Urology participates very actively in S0 1 11 Introduction to Clinical Medicine, which involves the entire second semester of second-year medicine. The department offers illustrative lectures and demonstrations concerning the diagnosis and treatment of diseases involving the genital or urinary tract in the male and the urinary tract in the female and child.

In the third and fourth years of the curriculum in medicine, the department offers courses in diagnostic urology, reconstructive urology, urological oncology, and the entire field of urology. In the required third-year clerkship, the department offers the basics of this material, and in the fourth year it offers advanced elective courses of intensive study in these areas.

The department offers continuing education throughout the year for urologic and family practitioners. These activities are conducted by the senior staff whose interests include pediatric urology, reconstructive physiology, urologic oncology, and prostatic diseases.

The department has earned international recognition for its studies of prostatic diseases.

The urological laboratories are active and offer instruction in various urology research areas. The department offers special elective courses in these areas.

Courses

79-108 Clinical Urology 3 h.
preclinical two-week course of study on urology
writings. Junior medical students responsible for patient care under supervision of residents.

79-109 Advanced Clinic in Urology 3 h.
Student assumes integral member of urologic staff, spends full time in department for four weeks; assignment is subject of department, under direction of junior and senior staff.

79-109 Advanced Clinic in Urology of PV 4 h.

79-110 Individual Duty and Research 4 h.
individual projects, either preclinical or clinical, coordinated by chief resident, supervised senior staff and, where applicable, a member or another clinical department or departmental procedure. Upon completion of the project, the student will prepare a thesis and undergo oral examination.

79-111 Urology 2 h.
Full-time in department of Urology and Radiology, where indications, contraindications, therapy, and surgical techniques are presented and discussed in clinical and radiographic conferences. Weekly objects and research activities of corresponding units.

79-112 Pathology 2 h.
Participation with Urology and Pathology departments in study of urologic material derived from postmortem examinations and surgical procedures. Effective study of collected pathologic material, both gross and microscopic, provided from various clinical departments.

79-114 Pediatric Disease 2 h.
Research and clinical care of prostatic diseases; assignments made to provide experience in department's regular research in problems of prostatic diseases. Availability of supervisory personnel is unrelated to prior clinical interest may be arranged; clinical material with prostatic diseases assigned as available.
The College of Nursing is an integral part of the University Health System, offering a variety of opportunities for nurses and other health care professionals. The College emphasizes community health nursing services, including preventive health care, ambulatory care, and home care. The College also offers graduate programs in nursing education, and the baccalaureate program is approved by the Iowa Board of Nursing. Graduates of the program qualify to take the licensure examination required for practice as registered nurses.

Undergraduate Program

Men and women educated as professional nurses are in demand in a variety of settings, including community health nursing services, doctors' offices, clinics, hospitals, armed forces, the Peace Corps, the World Health Organization, the Red Cross, and foreign missions. The professional nurse is an integral part of an interdisciplinary medical team, caring for patients in acute and chronic care settings. The Bachelor of Science degree program, which includes college-level preparation for careers in the health care of patients and in such community agencies as public health services, schools, and industries. In addition, it provides the essential base for graduate study in nursing.

In addition to the advantages of combining general education with specific career preparation, a college or university program offers the advantages—hardly less important—of full participation in the social, cultural, and recreational activities of a highly diversified campus community. In nursing no less than in other pursuits, a college or university background enables many young people not only to realize their highest career potentialities, but to achieve the greatest measure of self-fulfillment in life.

The baccalaureate program is designed to provide both liberal arts and professional education. The basic 128-semester-hour program consists of 36 semester hours of general education courses, 42 semester hours of supportive prerequisites courses, and 50 semester hours of core courses in nursing. Most students complete the program in four years and one-and-a-half academic years.

Course offerings are based on the concepts of health, development, nursing, and nursing interventions, and are presented in progressive levels of complexity as the student advances through the nursing program. The curriculum reflects the current trend in health care delivery toward greater emphasis on nursing as a service rather than on hospitals and to other than the acutely ill.

Approaches to the College of Nursing

The student may complete the entire program at low, enrolling for the first year in the University's College of Liberal Arts, or transfer from an institution offering a two-year sequence of specific courses approved by the College of Nursing.

Cooperating state institutions are the two-year transfer plan includes Iowa State University, the University of Northern Iowa, and Upper Iowa University. The College also cooperates with the College of Nursing at Grinnell College, Pixel Health, and Hillsboro College. Participating students must complete all the requirements of the College of Nursing in Mason City, Marshalltown, Muscatine, Clinton, Iowa Falls, Ankeny, Boone, and Fort Dodge.

Completion of the two-year transfer program at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for two-year transfers are the same as for all other College of Nursing applicants. Prospective two-year transfer students who wish to consult the cooperating institution about their options should contact the College of Nursing.

Registered Nurses

With some modifications, registered nurses who enroll in the baccalaureate program in nursing at low complete the same liberal arts and science courses as students with no previous nursing preparation. Registered nurses planning to enroll in the baccalaureate program at
NURSING

Application Deadlines
Applications must be received by January 15 for the fall semester, and June 15 for the spring semester.

Master of Arts
The University of Iowa Master of Arts program in nursing is accredited by the National League for Nursing. The curriculum is designed to build upon general and professional baccalaureate study in which nursing is an upper-division offering. For this reason, graduation from an N-approved baccalaureate degree program is one of the admission requirements.

The aim of the program is to prepare students in an area of nursing specialization and to allow for development of skill in a role area related to their career goals. The curriculum has a 17 semester hour core of advanced nursing courses which are designed to serve as the foundation for specialization and role preparation in specific areas. Since the approach to nursing specialization may be broad or narrow, the curriculum offers three general nursing specialization options which focus on patients or clients: child health nursing, adult health nursing, and community/family health nursing. Within these specialty areas, however, students may tailor their plans of study to accommodate their specific interests by arranging for specific areas and types of field experiences to fulfill the praxis component of the specialization courses; through selection of relevant concepts to be developed in these courses, by selection of specialty courses in the supporting areas, and through practical experiences selected for study in their thesis project.

Similarity, role preparation is available in three areas: education, administration, and advanced clinical practice. Because the number of students to be admitted is limited, the number of students who are admitted to the program is determined on the basis of the ability to accommodate the specific educational needs of a limited number of students. The curriculum is designed to accommodate students interested in advanced practice, administration, or advanced clinical practice. The University of Iowa Master of Arts program in nursing was established to provide immediate and long-range benefit for those students who desire to advance their levels of education and professional practice.

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Degree Requirements

The 45-semester-hour curriculum will ordinarily require four semesters of full-time study for completion. Part-time and evening study options are available, however. The student must maintain a 2.5 minimum grade-point average, and must successfully complete both a thesis project with oral defense and a written, comprehensive examination.

The master's degree curriculum is structured into five components:

1. Advanced nursing core (17 semester hours): Core work in the areas of conceptual and theoretical foundations for nursing (five semester hours), leadership in nursing practice (five semester hours), methods of nursing research (six semester hours), and a professional issues seminar (two semester hours).

2. Nursing specialization (eight semester hours): Allows the student to build a special area of knowledge and practice which extends beyond the advanced nursing core. Specialization may be in the broad areas of child health nursing, adult health nursing, or community/family health nursing. Students may develop their areas of specialization through their choices of courses which are related to their specific career goals.

3. Thesis (five semester hours): Every student is expected to write and successfully defend a thesis. This involves a systematic inquiry into a nursing problem to include such methodologies as historical research, case studies, analytical literature review, surveys, or experimental studies which meet the requirements of the Graduate College.

Plan of Study

The plan of study described below would require full-time study. Students wanting to study on a part-time basis would progress through courses in approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, would extend the time of study to three to five years.

First Year

Fall Semester 90:220 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
90:204 Leadership in Nursing: Theory and Application 4 s.h.
Supporting course 3 s.h.
Total 10 s.h.

Spring Semester 90:201 Conceptual and Theoretical Foundations for Nursing II 3 s.h.
90:222 Child Health Nursing I 4 s.h.
90:226 Adult Health Nursing I 4 s.h.
90:234 Community/Family Health Nursing I 4 s.h.
90:210 Methods of Research in Nursing 3 s.h.
Supporting course 3 s.h.
Total 12 s.h.

Second Year

Fall Semester 90:211 Methods of Nursing Research I 3 s.h.
90:223 Child Health Nursing II 4 s.h.
90:227 Adult Health Nursing II 4 s.h.
90:235 Community/Family Health Nursing II 4 s.h.
90:246 Curriculum Development in Nursing Education 3 s.h.
90:260 Nursing Administration: Process, Roles, and Strategies I 3 s.h.
or
90:268 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
Total 12 s.h.

Spring Semester 90:262 Professional Seminar: Issues in Nursing 2 s.h.
90:247 Nursing Education: Process, Roles, and Strategies I 3 s.h.
or
90:261 Nursing Administrations: Process, Roles and Strategies II 3 s.h.
90:269 Clinical Specialization: Process, Roles, and Strategies II 3 s.h.
Supporting course 3 s.h.
90:269 Thesis 3 s.h.
Total 11 s.h.

Graduate Admission

Students should seek admission to the graduate program by direct application to the Graduate College of the University. Minimum requirements for admission to the Graduate College are a completed application, official transcripts from other institutions attended; Graduate Record Examination (GRE) Aptitude Test scores, scores from the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.5 minimum grade-point average for regular admission, or a 3.0 for conditional admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant:

- Possess a bachelor's degree with a major in nursing from a program accredited by the National League for Nursing;
- Fulfill the legal requirements for the practice of nursing in at least one state in the United States; and
- Have an undergraduate grade-point average of at least 2.7 or a demonstrated ability to do graduate work for regular admission, at least a 2.5 undergraduate grade-point average for conditional admission; and
- Have recommendations from three persons familiar with his/her competency in the practice of nursing and potential for leadership and scholarship; and
- Submit the scores from the Miller Analogies Test;
- Submit a 600-word essay detailing career goals; and
- Have successfully completed a basic nursing course.

Applications for master's degree candidacy are reviewed on a continuing basis. For review, the applicant's file must be complete, with all relevant admission materials having been submitted. Deadline for fall and full-time spring admission is May 1. The initial application deadline is December 1. Initial course enrollment may begin any term.

All regulations of the Graduate College pertaining to academic probation, and dismissal are applicable to graduate students in nursing. Transfer credits applicable to the master's degree program are limited, and must be approved by the dean for the graduate program in nursing and by the student's advisor.
Professional Improvement
Some nurses may wish to take course work at the University to fulfill the objective of professional or personal improvement only. Such individuals may request admission into the professional improvement category. This admission status will be allowed if the student takes some graduate courses in the University without commitment to a degree objective.

Admission
Applicants must have a baccalaureate in nursing and be registered to practice professional nursing in Iowa (or be eligible for licensure by endorsement) and have one year of experience in child health care delivery. The general requirements for admission to the Graduate College apply.

Facilities
The Nearing Building is centrally located on the University’s main campus in close proximity to the colleges of Medicine, Pharmacy and Dentistry; University Hospitals; the Bowen Science Building; and the Health Sciences Library.

Courses
Undergraduate
560 Introduction to Health and Health Care
Overview of health and health care services, with emphasis on consumer and patient needs. Selected topics from various agencies, affecting current health care systems, and trends in health delivery systems. Prerequisite: E 101 or equivalent.

5600 Human Development and Behavior
Survey of basic principles of human development and behavior through physiological, psychological, sociological and educational factors. Prerequisites: 5610 or 5611.

5601 Nutrition
Stresses such as meal patterns, observation and evaluation of dietary habits, nutrition and health, and medical aspects. Prerequisites: 5601 and 5602.

5602 Pathophysiology
Prerequisite: admission to the College of Nursing.

5603 Psychiatric Nursing
Prerequisite: admission to the College of Nursing.

5604 Family Nursing
Prerequisite: admission to the College of Nursing.

5605 Introduction to Gerontology
Prerequisite: admission to the College of Nursing.

5606 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

5607 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

5608 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

5609 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

5610 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

5611 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

5612 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

5613 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

5614 Health Promotion and Disease Prevention in Individuals, Families, and Communities
Prerequisite: admission to the College of Nursing.

Nursing Practice
5615 Nursing Research I
Crisis situations of society are analyzed from the standpoint of psychiatric nurses. Development of skills needed to assess, interpret, analyze, and criticize research. Prerequisites: 5610 and 5611.

5616 Nursing Research II
Study of selected societies and their impact on human health. Legal, ethical, and moral implications of research and evaluation of the impact of research on nursing practice and education. Prerequisites: 5610 and 5611.

5617 Nursing Practice I
Auditing and evaluation of nursing practice. Discussion of research, evaluation, and formulation of policy as the nurse interacts as a member of the interdisciplinary health team.

5618 Nursing Practice II
Auditing and evaluation of nursing practice. Discussion of research, evaluation, and formulation of policy as the nurse interacts as a member of the interdisciplinary health team.

5619 Professional and Social Foundations of Nursing
Study of professional values and attitudes of the nurse as a member of society. Discussion of relationships among nurses, health professionals, and the community. Prerequisites: 5610 and 5611.

5621 Individual Study
Prerequisite: permission of instructor.

5622 Group Study
Prerequisite: permission of instructor.

5623 Ethics and Values
A study of ethical issues related to health care delivery. Prerequisites: 5610 and 5611.

5624 Human Behavior
Physiological and psychological aspects of human behavior. Prerequisites: 5610 and 5611.

5625 Health Psychology I
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5626 Health Psychology II
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5627 Health Psychology III
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5628 Health Psychology IV
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5629 Health Psychology V
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5630 Health Psychology VI
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5631 Health Psychology VII
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5632 Health Psychology VIII
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5633 Health Psychology IX
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5634 Health Psychology X
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5635 Health Psychology XI
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5636 Health Psychology XII
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5637 Health Psychology XIII
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5638 Health Psychology XIV
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5639 Health Psychology XV
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5640 Health Psychology XVI
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5641 Health Psychology XVII
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5642 Health Psychology XVIII
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.

5643 Health Psychology XIX
Introduction to health psychology and health psychology research methods. Prerequisites: 5610 and 5611.
NURSING 383

58.260 Theory of Health and Illness 3 a.h.
Theory and concepts of health and illness, treatment modalities and their application in nursing practice.

58.280 Nursing Administration Process, Roles, and Strategies 2 a.h.
Functions and responsibilities of the nurse administrator, emphasis on the administrative process of planning, organizing, directing, and controlling administrative activities in a hospital setting, with other responsibilities as may be required, includes a clinical component and a weekly practicum of 40 hours minimum. Prerequisites: 58.251 and 58.254.

58.251 Nursing Administration Process, Roles, and Strategies 2 a.h.
Analysis of job functions and responsibilities of the nurse administrator, emphasis on responsibilities used by the nurse in a hospital setting, with other responsibilities as may be required, includes a clinical component and a weekly practicum of 40 hours minimum. Prerequisites: 58.214 and 58.216.

58.254 Clinical Specialization Process, Roles, and Strategies I 1 a.h.
In-depth study of the role of the clinical specialist through the process of empowerment and application of clinical techniques, emphasis on conducting special studies for a specific client population, setting various nursing interventions, emphasizing management, and other issues. Prerequisites: 58.251, 58.254, and one nursing administration course.

58.255 Clinical Specialization Process, Roles, and Strategies II 2 a.h.
Augmentation, synthesis, and integration of the clinical specialist roles as preparation for work within a specific clinical area. Prerequisites: 58.254, 58.255, and two nursing administration courses.

58.290 Advanced Topics in Nursing Research and Theory 3 a.
Prerequisites: consent of instructor.

58.299 Hours 4 a.
The pharmaceutical sciences are concerned with the discovery, development, and dispensing of medicinal products and monitoring of their activity. The pharmacist is also trained to identify, analyze, test, combine, and standardize these medicines, and serves his or her community as a prime source of information on health topics. Although he or she performs a variety of tasks, the pharmacist is basically a specialist in the science of drugs. He or she must understand their composition, chemical and physical properties, manufacture and use, and activity in the normal individual as well as in the ill patient, and must be familiar with tasks for the strength, purity, and efficacy of drug products. The pharmacist is prepared to compound and dispense prescriptions written by health practitioners, who rely on the pharmacist for information about various drugs— their availability, activity, toxicojogy, reihavilations, etc. Another important role of the pharmacist is the communication of knowledge of drugs to the patient. Nearly everyone is familiar with the community pharmacist and his pharmacy in which he or she practices. The size and type of practice may vary— community pharmacies may be large or small, operated by individuals or by corporations. The pharmacist who staffs these pharmacies is known as the proprietor or of pharmacists. More than 100,000 men and women practice in community pharmacies. Another group of pharmacists is employed in pharmaceutical work. The government also employs pharmacists in the Public Health Service, Veterans Administration, Food and Drug Administration, and the armed forces. Many pharmacists assume administrative positions in industry, including manufacturing, research and development, control, and marketing and advertising. In addition to these pharmacists, numerous others are employed in pharmaceutical sales. Pharmacy training is especially valuable to these men and women, who are responsible for equipping physicians, dentists, veterinarians, and other pharmacists with drug products. In the United States, more people are receiving total health care than ever before. This expansion of health care will continue. Young men and women in pharmacy will face new challenges, expanded responsibilities, and an ever-increasing growth in opportunities. Undergraduate Program Students in the College of Pharmacy are in a Bachelor of Science program, and they receive professional training and education in a number of areas, including pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomics, and clinical and hospital pharmacy. The colleges of Liberal Arts, Business Administration, Dentistry, Law, and Medicine contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, law, humanities, and social sciences. Basically, the Barmear of Science program in pharmacy consists of one year of prepharmacy study, taken in the College of Liberal Arts at The University of Iowa or in accredited community or liberal arts colleges, and four years of pharmacy studies. It is possible to transfer into the College of Pharmacy after two years at college-level work at an approved institution. A student entering the college after two years of preprofessional study can complete the professional program in three years if the preprofessional study includes, in addition to the basic preprofessional requirements, at least eight semester hours of organic chemistry, from five to eight semester hours of biology or zoology, three or four semester hours of economics, and three to four semester hours in quantitative analysis. The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the college are qualified to take the licensure examination given by the Iowa Board of Pharmacy Examiners. The professional curriculum includes a minimum of 16 semester hours of electives; eight of these must be taken in the fourth professional year. By choosing appropriate electives, the student may focus on such special areas as clinical or hospital pharmacy or prepharmacy study.
The Professional Curriculum

First Year
First Semester
46:13 Pharmacy Math 3 s.h.
37:15 Principles of Animal biology 5 s.h.
4:121 Organic Chemistry I 3 s.h.
4:101 Elementary Qualitative Analysis 4 s.h.
Total 15 s.h.

Second Semester
46:14 Pharmacy Orientation 2 s.h.
9E:1 Principles of Economics 4 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Intermediate Chemistry Laboratory I 3 s.h.
50:102 Principles of Human Anatomy 3 s.h.
"Elective" 3 s.h.
Total 15 s.h.

"Also offered first semester for students on a 2-3 program only.
**18 semester hours of electives are required, of which at least eight must be taken in the P-4 year.

Second Year
First Semester
48:23 Pharmacology I 4 s.h.
56:183 Biochemistry for Pharmacy Students 4 s.h.
61:147 General Microbiology 4 s.h.
*46:101 Principles of Human Anatomy 3 s.h.*
Total 15 s.h.

Second Semester
46:24 Pharmacology II 4 s.h.
46:22 Pharmaceutical Social/Economics: Health Care Systems 4 s.h.
46:128 Medical Chemistry: Natural Products I 4 s.h.
72:190 Intermediate Physics 4 s.h.
Total 15 s.h.

"May be taken in second semester of first year.

Third Year
First Semester
46:131 Medical Chemistry: Natural Products II 4 s.h.
66:203 Introduction to Human Pathology 4 s.h.
71:101 Pharmacology for Health Sciences: Pharmacy 5 s.h.
46:35 Pharmaceutical Social/Economics: Practice Management 3 s.h.
Total 16 s.h.

Second Semester
46:123 Advanced Medical Chemistry: Natural Products III 3 s.h.
71:103 Pharmacology and Toxicology 3 s.h.
46:5a Pharmacology III 3 s.h.
46:120 Clinical Pharmacy: Case Study 3 s.h.
46:81 Clinical Pharmacy: Drug Information 2 s.h.
Total 15 s.h.

"May be taken in first semester of fourth year.

Fourth Year
First Semester
46:41 Jurisprudence 2 s.h.
46:43 Pharmacology IV 4 s.h.
*46:80 Clinical Pharmacy: Community Pharmacy 2 s.h.*
46:61 Clinical Pharmacy: Drug Information 2 s.h.
46:111 Clinical Pharmacy: Therapeutics I 2 s.h.
"Electives" 4 s.h.
Total 10-12 s.h.

Each P-4 student must complete six clinical clerkships (usually three each semester). Two of these are required (46:80 and 46:41). Some of the remaining clerkships may be used to satisfy the P-4 electives.

Second Semester
46:80 Clinical Pharmacy: Community Pharmacy 2 s.h.
*46:110 Clinical Pharmacy: Therapeutics II 2 s.h.*
"Electives" 4 s.h.
Total 12 s.h.

"May be taken in either semester.
**A minimum of eight of electives must be taken in the P-4 year.

Professional Electives
46:48 Community Pharmacy Retailling 3 s.h.
46:50 Pharmaceutical Chemistry: Drug Analysis 3 s.h.
46:52 Seminar: Seminar 1 s.h.
46:50 Non-Pharmacology Drugs 1 s.h.
*46:115 Clinical Pharmacy: Family Practice Therapeutics 1 s.h.*
46:85 Clinical Pharmacy: Pediatric Therapeutics 2 s.h.
46:85 Clinical Pharmacy: Surgical Therapeutics 3 s.h.
46:85 Clinical Pharmacy: Geriatric Therapeutics 2 s.h.
46:87 Clinical Pharmacy: Neurology 3 s.h.
46:89 Clinical Pharmacy: Elective Therapeutics 3 s.h.
46:101 Pharmacy: Projects 1-3 s.h.
46:103 Physical Pharmacy 3 s.h.
46:104 Biochemistry and Biopharmaceutics 3 s.h.
46:105 Industrial Pharmacy 2-3 s.h.
46:107 Hospital Pharmacy 3 s.h.
46:109 Hospital Pharmacy: Survey 5 s.h.
46:114 Advanced Clinical Pharmacy 4 s.h.
46:120 Clinical Pharmacy: Psychotherapeutics 4 s.h.
46:135 Perspectives in MOP Research 1 s.h.
46:136 Introduction to Medical Chemistry: Natural Product Research 1-2 s.h.
46:174 Introduction to Research Methods 3 s.h.
46:180 Communications Skills for Pharmacists 3 s.h.

Grading system: the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 18 semester hours of electives and to achieve a minimum grade-point average of 2.0 for all work undertaken.

For rules and regulations concerning academic probation, good-standing, credit by examination, maximum schedule, second-semester-only option, waiver or substitution of courses, cancellation or registration, drop date and correspondence study, see the "College of Pharmacy" section in the current Schedule of Courses.

Admission
Admission to the College of Pharmacy requires the following preprofessional course work:
Phyiscs: one or two semester courses in basic physics. A one-year animal biology or zoology course may be substituted.
Mathematics: two or four semester hours of a satisfactory differential and integral calculus course.

Applicants who have minor deficiencies in meeting the above requirements may be admitted to the college upon recommendation of the chairman of the admissions committee and the approval of the applicant.

The applicant must have earned a 2.0 cumulative grade-point average on all college work attempted.

Fulfillment of these requirements does not ensure admission to the college.
From applicants who meet the admission requirement, the admissions committee of the college selects the best-qualified applicants.

Transfer Students
Students who transfer into the college after two years in a community or liberal arts college can complete the pharmacy program in three years if they have satisfactorily completed course in organic, inorganic, biology or zoology, economics and quantitative analysis.

Students who plan to enroll in a community college for two years before transferring to the UI college should consult the dean of the College of
Pharmacy concerning course requirements.

Transfer with Advanced Standing

Students transferring from other colleges of pharmacy accredited by the American Council on Pharmaceutical Education receive credit toward the Bachelor of Science degree in pharmacy for satisfactorily completed course work required in this curriculum. However, at least one academic year (30 semester hours) of residence in The University of Iowa College of Pharmacy is required for the degree.

Students transferring from nonpharmacy colleges may receive credit for work required in the Bachelor of Science curriculum in pharmacy, but should still expect to be enrolled for at least three years in the College of Pharmacy. A minimum grade of C is required for work applied toward the pharmacy degree.

Doctor of Pharmacy Program

The Doctor of Pharmacy (Pharm. D.) program is a two-year, postbaccalaureate professional degree program which combines didactic course work and clinical clerkships. The major goal of the program is to provide the health-care system with pharmacists who are specifically trained to understand and expand an extended role in monitoring, evaluating, and optimizing drug therapy in hospitalized and ambulatory patients. This program is available to students who have completed a course of study at a highly qualified pharmacy graduate.

Prospective students may obtain specific information regarding the Pharm. D. program by writing to The University of Iowa, College of Pharmacy, Iowa City, Iowa 52242.

Graduate Programs

The college has graduate programs in each of its four academic divisions. Masters, doctoral, and postdoctoral programs in pharmacology, pharmaceutical chemistry, and pharmacy practice are available. A Master of Science Degree is awarded in clinical-pharmacology pharmacy.

Advanced study in the pharmaceutical sciences prepares the student for research, teaching, and administrative positions in the pharmaceutical, chemical, and agricultural chemical industries, in colleges of pharmacy, in government agencies, and in a number of health-related governmental organizations.

The application deadlines, grade-point average for admission, GRE scores and other letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate status and for the degrees are determined by individual divisions of the College of Pharmacy.

Facilities

The Pharmacy Building is located in the Health Center complexes on the University's main campus, in close proximity to the colleges of Medicine, Nursing, and Dentistry; University Hospitals; the Basic Science Hospitals; and the Health Sciences Library.

The Pharmacy Building is a five-story, structure designed to provide modern facilities on a comprehensive program of pharmacy education. In addition to classrooms, an auditorium, and learning resources center, the building houses well-equipped separations laboratories for instruction at the graduate and undergraduate levels. The Pharmaceutical Services Division of the college serves as a teaching unit as well as a service center. Here undergraduate and graduate students have the opportunity to learn methods of large-scale pharmaceutical product development and production.

The Iowa Drug Information Service (IDS) is also a service division of the college. IDS serves as a central repository and distribution center of specialized information on the use and drug therapy. IDS reaches subscribers throughout the world. It also plays an important educational role for pharmacy students.

In the clinical pharmacy program, students work with other health professionals to provide the opportunity to monitor drug therapy in hospitalized patients. In addition to clinical pharmacy, the students are involved in many areas of research at the University and Veterans Administration Hospital, in the family practice clinics at Oskaloosa, Marshalltown, and Des Moines, and at the libraries at the University of Iowa and in Cedar Rapids. Public service is coordinated with the pharmacists in the Des Moines, Waterloo, and Cedar Rapids areas.

Graduate Pharmacies

4010 Pharmaceutics

2.0 Aa

Application of systems of weights and measures and nonprescription drug dosage systems to problem solving in clinical and industrial pharmacy. An understanding of the nature of pharmaceutical dosage systems and the application of systems in practice will be emphasized. Lectures in dosage and its application in pharmaceutical practice.

4014 Pharmacy Dispensing

4.0 Aa

Ethics, organization, and development of the science and profession of pharmacy.

4050 Pharmacy Practicum

4.0 Aa

Preparation for the practice of pharmacy. Observation and participation in the clinical, pharmaceutical, and clinical pharmacy practice settings. Credit 1-4.

4053 Pharmacy Seminar

4.0 Aa

Lecture and laboratory on subjects of particular interest to the profession of pharmacy. This course is intended for those planning careers in pharmacy, a career involving alternative occupations or who are considering various fields of pharmacy practice. Prerequisites: 4824 and 7131.

4054 Pharmacy Management

4.0 Aa

Lecture and laboratory on management aspects of a pharmacy. Topics include management theory and practice, pharmacy organization, and the use of computers in pharmacy practice. Prerequisites: 4824.

Graduate Pharmacies

4910 Pharmaceutics Projects

3.0 Aa

During and after completion of one of the courses in pharmacy, P 21 or above in Pharmaceutics. P 21 or above in hospital pharmacy, or permission of instructor.

4910 Product Pharmacy

3.0 Aa

Topics in the production field of pharmacy, such as chemical, pharmaceutical, and industrial pharmacy. Prerequisites: 4910.

4910 Drugs and Biopharmaceutics

3.0 Aa

Research in the area of drug and drug therapy, under the supervision of a clinical instructor in pharmacy. Prerequisites: 4910. Credit 9, 12, or 24.

4920 Research Survey

4.0 Aa

Organization, charting, and statistical operations in professional pharmacy practice. Prerequisites: 4910.

4930 Pharmacy Special Topic

2.0 Aa

Determination of an area of interest to the student, research and literature review, oral and written report of research. May be repeated.

4980 Qualitative Research Methods

4.0 Aa

Methods of research; development of experiment; and evaluation of the quality of experimental research. Prerequisite: P 21.

4982 Protocol Development

4.0 Aa

Design and development of content and psychological experiments in pharmacy research. Prerequisites: 4910 and 4982 or approval of instructor.

4983 Protocol Development

4.0 Aa

Design and development of content and psychological experiments in pharmacy research. Prerequisites: 4910 and 4982 or approval of instructor.

4985 Product Development

4.0 Aa

Design and development of content and psychological experiments in pharmacy research. Prerequisites: 4910 and 4982 or approval of instructor.
4606 Clinical Pharmacy: Geriatric Therapeutics
Pharmacotherapeutic and administrative components of geriatric clinical pharmacy practice.

4607 Clinical Pharmacy: Geriatric Therapeutics
Pharmacotherapeutic and pathophysiological considerations of newer and clinical pharmacy practice.

4608 Clinical Pharmacy: Critical Care
Severe illness in health care outcomes. May be repeated. Prerequisites: 4611D and consent of instructor.

4611 Clinical Pharmacy: Case Study
Introduction to selected disorders and their treatment—clinical manifestations, complications of drug therapy, clinical pharmacology, medical pharmacology, and treatment regimen. Prerequisites: 46100, 46150, and 46101.

4613 Clinical Pharmacy: Therapeutics
Pharmacotherapeutic and basic issues concerning drug therapy in practice. Prerequisites: Corequisites for all courses in treatment regimen. Prerequisite: 46110.

4615 Clinical Pharmacy: Therapeutics II
Pharmacotherapeutic and basic issues concerning drug therapy in practice. Prerequisites: Corequisites for all courses in treatment regimen. Prerequisite: 46110.

4617 Clinical Pharmacy: Clinical laboratory studies in adverse drug interactions and pharmacologic therapies. Prerequisites: 46110, 46150, and 46110.

4619 Clinical Pharmacy Thrombophilia
In-depth discussion of selected clinical disorders and their complications of drug therapy, clinical pharmacology, medical pharmacology, and treatment regimen. Prerequisite: 46110.

4620 Clinical Pharmacy Psychopharmacology
Lectures and laboratory course in clinical pharmacologic treatments. Prerequisites: 46110 and 46110.

4623 Advanced Therapeutics
Pharmacotherapeutic and basic issues concerning drug therapy in practice. Prerequisites: 46110, 46150, and consent of instructor.

4625 Advanced Therapeutics
In-depth analysis of selected major disease states and their drug therapy. Prerequisites: Pharm. D. standing and consent of instructor.

4627 Advanced Therapeutics
Continuation of 4623. Prerequisites: Pharm. D. standing and consent of instructor.

4629 Drug-Related Diseases
Studies of drug-related diseases according to a pharmacotherapeutic classification of drugs. Prerequisites: Pharm. D. standing and consent of instructor.

4633 Food and Beverage Therapy
Theory and application of contemporary field and dietary therapies. Prerequisites: Pharm. D. standing and consent of instructor.

4637 Clinical Investigation
Students participate in clinical investigations under the direction of clinical pharmacy faculty. May be repeated for credit. Prerequisites: Pharm. D. standing and consent of instructor.

Graduate Clinical-Hospital Pharmacy

4638 Hospital Pharmacy: Survey
Hospital as part of health care system. Management, financial, regulatory, organizational, and management, with particular attention to pharmacy—ordering, staffing, and operating hospital pharmacy, pharmacy, and related services on supervision of pharmaceutical, compounding, and quality assurance of clinical pharmacy practice. Prerequisites: consent of instructor.

4641 Hospital Pharmacy: Survey
Continuation of 4638. Hospital pharmacy operation, financial, regulatory, organizational, and management, with particular attention to pharmacy—ordering, staffing, and operating hospital pharmacy, pharmacy, and related services on supervision of pharmaceutical, compounding, and quality assurance of clinical pharmacy practice. Prerequisites: consent of instructor.

4642 Advanced Clinical Pharmacy
Application of principles of pharmacology and pharmaceutical sciences to the treatment of hospital patients. Prerequisites: 4641 and 4641. May be repeated for credit. Prerequisites: 4641 and consent of instructor.

4643 Advanced Clinical Pharmacy
Application of principles of pharmacology and pharmaceutical sciences to the treatment of hospital patients. Prerequisites: 4641 and 4641. May be repeated for credit. Prerequisites: 4641 and consent of instructor.

4644 Advanced Clinical Pharmacy
Application of principles of pharmacology and pharmaceutical sciences to the treatment of hospital patients. Prerequisites: 4641 and 4641. May be repeated for credit. Prerequisites: 4641 and consent of instructor.
Continuing Education

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to render a larger service to the Commonwealth and to the people of Iowa by carrying out to every part of the State the knowledge, the thought, the ideals and the spirit of the several departments and colleges of the University and by bringing the University generally into closer contact with the citizen. The division's organization and services include:

Center for Credit Programs

Correspondence Courses
Correspondence courses are available for credit toward a degree, for preparation for special occupations, or for self-improvement. Students resident at The University of Iowa must obtain the permission of the dean of their college to enroll in correspondence courses for degree credit.

Correspondence study is offered in anthropology, business administration, chemistry, communication and theatre arts, economics, education, engineering, English, French, geology, geography, German, history, home economics, journalism, Latin, letters, mathematics, nursing, physical education, political sciences, psychology, religion, social work, sociology, Spanish, and zoology. Noncredit courses offering CEU awards are available in areas such as advertising, medical terminology, nursing, time management, mathematics review, religious studies, and secretarial skills.

There is a $5 enrollment fee. The course fee is $30 per semester hour. Fees are payable at the time of registration. A catalog including procedure and enrollment forms may be obtained from Correspondence Study, W400 Seashore Hall.

In cooperation with the Naval Department of Defense, the University offers many correspondence courses to men and women in the armed services. Former service personnel should ask their education officer for information.

Veterans may enroll for correspondence courses concurrently with other academic study under Public Law 93-50. Veterans are referred to the Veterans Affairs Office of the University.

Off-Campus Classes
The division offers off-campus classes in liberal arts, business administration, education, and engineering. Classes are scheduled where they may best benefit the off-campus students and at the request of public school officials, or where professional, industrial, or other qualified groups indicate a specific need for educational services. Courses offered in engineering are scheduled on a contractual basis; courses in liberal arts, business administration, and education require enough enrollment to meet course expenses. For information, write to Off-Campus Courses and Programs, W400 Seashore Hall.

Saturday and Evening Class Program
The program provides credit course offerings for part-time undergraduates, graduates, or unclassified students. Courses are offered from schools and departments of the University. For a Saturday and Evening Class Program catalog, write to Saturday and Evening Class Program, W400 Seashore Hall.

Bachelor of Liberal Studies Degree
The Bachelor of Liberal Studies degree is designed to serve adults who cannot attend college as full-time on-campus students. Credit toward the degree, which is awarded by the College of Liberal Arts, may be earned through correspondence study, Saturday and evening classes, off-campus courses, and new-assertive, radio, and television courses and two-way audio conferences called telebridge. For information, write to the Center for Credit Programs, W400 Seashore Hall.

Education Tests
Standardized tests and scales developed at The University of Iowa are published and distributed as a non-profit basis to schools, public agencies, and industrial times in Iowa and throughout the nation. For a catalog, write to Education Tests, W316 Seashore Hall.

Center for Conferences and Institutes
The center serves as the principal agency of the University for developing, coordinating, and conducting noncredit continuing education programs for
nonresident adults and for administering the University's Continuing Education Unit (CEU) program. The center's primary goal is to enhance the usefulness of the University as a center of learning and to provide educational opportunities for people who are no longer full-time students but who seek new knowledge related to their jobs, professions, or special interests.

Each year more than 30,000 adults receive training in the center's varied programs, which represent a cooperative endeavor between the center and the various colleges, departments, and disciplines within the University. The marshaling of appropriate programs, coupled with the professional planning and execution of conferences and other on-campus training programs, helps to ensure the achievement of the educational objectives specified for each program.

The director of conferences is responsible for approving and conducting or coordinating all conferences, institutes, short courses, and other academically continuing education offerings held in the Iowa Memorial Union for other than on-campus student groups. All members of the faculty and staff who plan University conferences and other University-related group functions to be held on campus (or in the Iowa City-Coralville community) are expected to schedule these activities through the conference center office and to utilize the conference facilities, dining services, and other accommodations at the Iowa Memorial Union, to the extent they are available and appropriate.

Adult Education Noncredit Program

This open enrollment program provides a wide variety of noncredit courses of special interest to adults. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing education units are awarded for course completion. For current offerings, contact the Office of Conferences and Institutes.

Radio Broadcasting Services

WSUI and KSUI-FM serve the needs and interests of the people of eastern Iowa with 18 hours of daily broadcasting which extends the resources and activities of the University. The broadcast schedule consists of educational, informational, and musical programming not available elsewhere. As an affiliate of National Public Radio (NPR), WSUI contributes program materials and produces programs for more than 200 non-commercial radio stations. The main studios and offices are located in 3300 Engineering Building, and a free copy of the stations' Program Guide may be obtained by writing to the address.

Institute of Public Affairs

The mission of the institute is to help improve state, city, and county governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the Institute are available to state and local government agencies and to citizen groups interested in civic affairs.

The institute has a full-time research and training staff. Through the institute, other resources of the University are applied to problems faced by Iowa public officials. The institute also works in close cooperation with organizations of public officials such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The institute provides:

In-service training and continuing education services to public personnel; primarily managers and supervisors, offering a wide variety of courses and programs aimed at meeting individual and organization needs as well as professional goals; Research services, informational resources, and publications ranging from practical handbooks to issue papers; and Consultation services, ranging from answering "how-to" questions to advising on statewide government committees dealing with major concerns of state and local governments.

Office of Community College Affairs

The Office of Community College Affairs (OCCA), which is closely aligned with the College of Education, is the liaison office between the University and Iowa's area community and technical colleges. In activities involving discipline articulation and student services, OCCA extends its services to the private two- and four-year colleges in the State. The office serves these educational systems and their respective personnel in these ways:

Provides a liaison service between the University and the statewide professional educator associations as well as selected regional and national organizations, and conducts relevant research; Facilitates university-community college faculty relations; Coordinates articulation of university-community college institutional policy and curricula; and Provides in-service training and development opportunities for community college personnel, and assists the College of Education and other University colleges and departments in providing degree programs for community college personnel leading to state certification; Participates in state, regional, and national approval, accreditation, and certurbation activities; Provides regular information, consultation, and coordination services for specialized groups of community college personnel and students; Provides peer counseling outreach programs to prospective community college transfer students; and Coordinates consultation and information services for community college transfer students who enroll in the University.

Iowa Lakeside Laboratory

The Division of Continuing Education has general administrative supervision of the Iowa Lakeside Laboratory, a summer facility for the biological sciences on Lake Okoboji, where a cooperative program in teaching and research is carried on under the auspices of Iowa State University, University of Northern Iowa, and The University of Iowa. Two terms of five weeks each are held during June, July, and August. Facilities for study and research are available. For information, write to the Division of Continuing Education.

McBride Field Campus

The University maintains a lease from the U.S. Army Corps of Engineers on two tracts of land in the Coralville Reservoir area north of Iowa City. The two tracts total approximately 820 acres. One tract is reserved for biological research, the other for University-wide activities. Developments in the near future include provision of an all-access road, water supply, electric power, maintenance storage facilities, a boathouse and sailing facilities, field archery course, facilities for handicapped persons, and picnic areas. A small nature lodge is available to school groups.

Audiovisual Center

The mission of the Audiovisual Center is to assist the faculty and students in the improvement of the teaching-learning process through the effective use of educational media. To accomplish this objective, the Audiovisual Center provides a full range of services in
Instructional Development

The Audiovisual Center staff is able to assist faculty and staff in the designing and planning of learning facilities and media, in locating materials for specific disciplines, and in developing strategies for utilizing media.

Media Services

The Audiovisual Center Media Library provides a major collection of 16mm instructional films, available on campus without charge for instruction and curriculum-related activities, and for rental to off-campus requestors. Smaller collections of audio and video recordings, filmsstrips, and slides, plus facilities for student or faculty utilization, are also available. Catalogs of these collections are available upon request. The library also maintains a reference collection of materials from other sources.

Equipment Services makes available without charge for instructional use film, slides, filmsstrip, opaque, and overhead projectors; portable projection screens; audio tape recorders; record players; portable public-address systems; and display devices (exhibits, easel, boards). There is a nominal charge for projectionist service and for equipment requested for conferences and/or off-campus use. Repair service is available at a nominal charge for all AV equipment, including TV systems.

Media Production

Professional services, facilities, and equipment are available to produce original software in all media: Graphics—design, layout, paste-up, illustrations, charts, graphs, lettering, etc.

Audio—recording, editing, duplication, transcription services

Motion picture—scripts, cinematography, editing, and printing laboratory

Photography—portraiture, passports, slides shows, filmsstrips, 35mm slide duplication, printing and processing services

Televised—video production, color and black-and-white (1-inch, 2-inch, and cassette); systems design; equipment maintenance; portapak rental

Fabrication—design and construction of displays, specialization audiovisual equipment and furniture

Marketing—an, distribution, second marketing of University-originated products and services.

Satellite Centers

Satellite centers are established, as needs arise, through cooperative arrangements between the Audiovisual Center and departments, schools, colleges, and other service agencies.
Administrative Officers

State Board of Regents
The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa Braille and Sight-Saving School, and the Iowa School for the Deaf are governed by the State Board of Regents, consisting of nine members. The board membership is as follows:

President: S.J. Brownlee, Emmetsburg
Peg Anderson, Bettendorf
Pam G. Harris, Cedar Rapids
Ann Jorgensen, Garriston
John McDonald, Dales Center
June Murphy, Des Moines
Arthur Nies, Carroll
Fred W. Nolling, Waterloo
Peter J. Westerlund, Ames
Executive secretary: R. Wayne Richey

Central Administration
President: James O. Freedman
Vice-President for Academic Affairs and Dean of Faculties: Richard D. Remington
Vice-President for Educational Development and Research, Dean of the Graduate College: Duane C. Sprinkersbach
Vice-President for Finance and University Services: Randall F. Bezanson
Vice-President for Student Services and Dean of Academic Affairs: Philip D. Hubbard

Academic Affairs
Vice-President and Dean of Faculties: Richard D. Remington
College of Business Administration
Acting Dean: Emmett J. Vaughan
Industrial Relations Institute Director: Anthony J. Sitoski
Institute of Accounting Research Director: William R. Kinley
Institute for Economic Research Director: Jerant Bazarsad
Institute for Insurance Education and Research Director: Emmett J. Vaughan
Institute for Entrepreneurial Management: Emmett J. Vaughan
Labor Center: Emmett J. Vaughan
Management Center: Emmett J. Vaughan

College of Dentistry
Dean: James H. McLaran
Dows Institute for Dental Research Director: Ian Macmillan

College of Education
Dean: Charles W. Case
Iowa Institute for School Executives Director: George A. Chambers

College of Engineering
Dean: Robert G. Herling
Institute of Hydraulic Research Director: John P. Kennedy

Graduate College
Dean: Duane C. Sprinkersbach
Dean of Advanced Studies: Randolph W. Rohula

College of Law
Dean: M. William Hoss
College of Liberal Arts
Dean: Howard Leather
School of Art and Art History Director: Wallace J. Tomasini
School of Journalism and Mass Communication Director: Kenneth Breach
School of Letters Acting Director: Richard Lloyd-Jones
School of Library Science Director: Carl F. Organ
School of Music Director: Marilyn F. Bonville
School of Religion Director: John P. Boyle
School of Social Work Director: Ralph E. Anderson

College of Medicine
Dean: John W. Eckstein

College of Nursing
Dean: Gaudensia Forten

College of Pharmacy
Dean: Dale E. Wurster

Division of Continuing Education
Dean: Robert F. Ray
Audiovisual Center Director: William Oglesby
Center for Conferences and Institutes Director: Russell A. Mays
Center for Credit Programs Acting Director: M. Dean Tomoe
Community College Affairs Director: Duane G. Anderson
Institute of Public Affairs Director: Clayton Ringgenberg
Iowa Lakeside Laboratory Director: Richard V. Stovall
MacBride Field Campus Director: N.R. Hotspeil
Radio Stations WSVG-KSUI Director: George S. Klingsor

Iowa Center for the Arts
Chair: Philip G. Hubbard

Libraries
University Librarian: Dale M. Bentz
Museum of Art
Director: Margaret Keyes

Old Capitol
Director: Philip G. Hubbard

Summer Session
Director: Philip G. Hubbard

Educational Development and Research
Vice-President: Duane C. Spristerrech
Division of Sponsored Programs
Director: Margaret E. Hopp
Office of Project Development
Director: Jay Semel
Institute for Child Behavior and Development
Director: Gerald S. Solomon
Health Services Research Center
Director: Samuel Lewey
Office of International Education and Services
Director: Stephen M. Anum
Weeg Computing Center
Director: James W. Junson

Public Information and University Relations
Director: Dwight E. Jones
Environmental Health and Safety
Director: David W. Drummond
Radiation Protection
Director: William E. Tewar
State Archaeologist
Duane C. Anderson
University House
Acting Director: William J. Farrell
University Press
Director: John Simmons
Institute of Urban and Regional Research
Director: John W. Fults

Student Services
Vice-President: Philip G. Hubbard
Admissions
Director: John O. Moore
Registrar
Dean of Convocations and Records: W. Albert Cox
Registrar: Jerold W. Dallum
Residence Services
Director: George L. Droll

Hancher Auditorium
Director: James H. Wackenhuss

Iowa Memorial Union
Director: Jean Kendall
Career Services and Placement
Director:
University Counseling Service
Director: Ursula DeWorth
Special Student Support Services
Director: Paul Sheng
Student Financial Aid
Director: John E. Moyle
University Examination and Evaluation Services
Director: T. Anne Cleary
Orientation
Director: Emil Rinderachter
Campus Programs and Student Activities
Coordinator: Kevin Taylor
Services for Handicapped
Coordinator: Sharon Van Meter
Women's Resource and Action Center
Coordinator: Patricia Dowst

Finance and University Services
Vice-President: Randall S. Schooler
Business Office
Business Manager and Treasurer: Ray B. Mosher
Controller and Secretary: Leonard R. Bude
Director of Purchasing: Wayne F. Chaudin

Physical Plant
Director: Duane A. Nollach

University Personnel Service
Director: Fred H. Inderer

Facilities Planning and Utilization
Director: Richard E. Olsens

University Architect
Richard R. Jordan

Intercollegiate Athletics for Men
Director: Greiner W. Elliott

Intercollegiate Athletics for Women
Director: Christine D'Andrea

Recreational Services
Director: Harry R. Gerdes

University Health Services
Assistant to the President for Health Services: John W. Colloton

University Hospitals and Clinics
Director: John W. Colloton

Psychiatric Hospital
Director: George Windy

State Hygienic Laboratory
Director: William J. Haufer

University Hospital School
Director: Alfred Healy

Student Health
Director: Harley G. Fielding

Iowa Specialized Child Health Services
Director: John C. MacQueen

General University
Alumni Association
Executive Director: Thomas Brown

University of Iowa Foundation
Executive Director: Darrell D. Wyntick
Clark, Edward B., B.S. Union 1946, M.D. 1953, associate professor, Pathology, 1984
Clayre, Steans, S. S. Dundee (Scotland) 1973, Ph.D. 1979, assistant professor, Microbiology, 1984
Colby, Effie D., M.A. Union 1917; B.S. Southern University; School of Social Work 1920, professor, Social Work, 1962 (1966)
Cori, Charles, B.A., M.D. California 1915, B.S. City College 1938, professor, Microbiology, 1962 (1966)
Corliss, John S., B.S. Bates 1939, M.D. 1943, assistant professor, Pathology, 1964 (1964)
Corliss, John, M.R.C.P. Great Britain 1948, associate professor, Pathology, 1964 (1964)
Collins, Mary J., B.A. Vanderbilt 1851, M.A. 1852, Ph.D. 1907, professor; assistant professor, Speech Pathology and Audiology 1969
Collins, Betty, B.S. Iowa 1950, M.S. 1951; Ph.D. 1957; assistant dean, School of Education 1951 (1951)
Conner, Basil, B.S. Paul 1953, M.W. Washington State University; B.S. Washington State University 1958; assistant instructor, School of Social Work 1961
Cook, Robert T., B.S. Kansas 1956, M.D. 1962, Ph.D. 1967; associate professor, Pathology, 1977
Cooksey, Earl M., M.D. Missouri 1898, M.B. 1899; B.S. Washington State University 1902
Zepl, Milton, M.A. Iowa 1936, Ph.D. 1941, associate professor emeritus, German, 1968

Zeppala, Donald C., S.S. Wayzata 1844, M.D. 

Ziefert, John, Ph.D. 1970, professor, Internal Medicine, 1980


Zinnblatt, Hans, M.D. Zurich (Switzerland) 1924, professor emeritus, Pediatrics, 1957


Zimmermann, Gerald K., B.A. Bowdoin 1953, M.S. Southern Illinois 1957, Ph.D. Iowa 1972, clinical assistant professor, Speech Pathology and Audiology, 1977

Ziesar, James W., B.S. Cartage of St. Thomas 1923, M.D. Iowa 1927, clinical assistant professor, Pediatrics, 1974

Zizmorohs, Vadjko K., M.D. Belgrade (Yugoslavia) 1945, clinical assistant professor, Pediatrics, 1973


The following is extracted from the Board of Regents section of the Iowa Administrative Code as of March 4, 1981.

Residence

720—1.4(262)
Classification of residents and nonresidents for admission and fee purposes.

1.4(1) General.

a. A person enrolling at one of the three state universitie's shall be classified as a resident or nonresident for admission, fee and tuition purposes by the registrar or someone designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information. The registrar, or designee, is authorized to require such written documents, affidavits, verifications, or other evidence deemed necessary to determine the domicile of a student. The burden of establishing that a student is domiciled in Iowa is upon the student.

b. In determining residence or nonresidence classification, the date is essentially the same domicile. Inpractice, the domicile of a person is that person's home, the permanent home and place of habitation. It is the home to which, whenever the person is absent, the person has the intention of returning.

c. Under these regulations, a resident student is defined as one who is domiciled in the state of Iowa. A nonresident student is defined as one whose domicile is elsewhere. A student shall not be considered domiciled in Iowa unless the student is a continuous physical presence in this state and intends to make a permanent home in Iowa.

d. A person who comes to Iowa from another state and enrolls in any institution of the community college system or in the University of Iowa system or in any other educational institution in Iowa is domiciled in Iowa immediately upon the beginning of the term for which he enrolled.

e. A student who comes to Iowa from another state and enrolls in any institution of the community college system or in the University of Iowa system or in any other educational institution in Iowa is domiciled in Iowa immediately upon the beginning of the term for which he enrolled.

1.4(2) Facts.

a. A person who moved into the state as the result of military or civil service for the government for other than educational purposes, or the dependent of such a person, is treated as a resident status. However, if the arrival of the person under orders is subsequent to the beginning of the term in which the dependent is first enrolled, the resident status will be changed to nonresident status at the beginning of the next term in which the student is enrolled.

b. A person or the dependent of a person whose legal domicile is permanently established in Iowa, who has been classified as a resident for tuition purposes, may continue to be classified as a resident so long as such domicile is maintained, even though circumstances may require extended absences of said person from the state. It is required that a person who claims Iowa domicile while living in another state or country and who provides proof of the continued Iowa domicile as such (e.g., evidence that he or she has not acquired a domicile in another state or country) can continue to be classified as a resident.

c. A person who has been domiciled in Iowa for a term of years, and has become a resident by domicile in Iowa, and has become a resident by domicile in Iowa and has maintained such domicile since the last term in which he was enrolled in Iowa, and has also satisfied all regular financial obligations for the term, is considered to have a domicile in Iowa regardless of the term in which he is enrolled.

1.4(3) Exceptions.

a. A person who was domiciled in Iowa on January 1, 1981, and who has since moved to another state, is considered to have a domicile in Iowa for the purpose of this section.

b. A person who has been domiciled in Iowa for a term of years, and has since moved to another state, is considered to have a domicile in Iowa for the purpose of this section.

1.4(4) Domicile.

a. A person who has been domiciled in Iowa for a term of years, and has since moved to another state, is considered to have a domicile in Iowa for the purpose of this section.

b. A person who has been domiciled in Iowa for a term of years, and has since moved to another state, is considered to have a domicile in Iowa for the purpose of this section.

1.4(5) Permanent.

a. A person who has been domiciled in Iowa for a term of years, and has since moved to another state, is considered to have a domicile in Iowa for the purpose of this section.

b. A person who has been domiciled in Iowa for a term of years, and has since moved to another state, is considered to have a domicile in Iowa for the purpose of this section.
720—1.5(262) Registration and transcripts—general.
A person may not be permitted to register for a course or courses at a state board or reporting institution for which an action as set forth in the above section has been taken. A state board of regents institution may withhold enrollment records of the academic record of a person unless an appeal, as authorized in subsection 2 of section 38 of article II, for which an institution as set forth in the academic record of a person unless an appeal, as authorized in subsection 2 of section 38 of article II, 1.5(262) Registration and transcripts—general.

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IOWA ADMINISTRATIVE CODE: BOARD OF REGENTS

Article IV. Practical instruction under these charters shall be conducted on the following principles:

1.34 (Transfer applicants from colleges and universities not regionally accredited.
Transfer applicants from colleges and universities not regionally accredited shall be considered for admission on the basis of the following:

1.35 (Transfer credit practices.
The Board of Regents endorses the Joint Statement on Transfer and Award of Academic Credit approved in 1985 by the American Council on Education (ACE), the American Association of Colleges Registrars and Admissions Officers (AARCRAO), and the Council on Postsecondary Accreditation (COAPA). The current version of the Practice Guidelines of the Educational Institutional Registrars and Admissions Officers (EIRAO) of the American Association of Colleges Registrars and Admissions Officers (AARCRAO), and the Council on Postsecondary Accreditation (COAPA) are examples of recommendations used by the institutions in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies of the institution.

1.35 (Students from regionally accredited colleges and universities.
Credit earned at regionally accredited colleges and universities is transferable to transfer except that credit is counted toward the requirements of the degree only where it is directly transferred to the same institution or another institution in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted to a limited extent.

Transfer credit from two-year colleges will not reduce the minimum number of credits required for a baccalaureate degree if the credit earned is based on the total number of credits that have been earned at the two-year college.

1.35 (Students from colleges and universities which have curricula status.
Credit earned at colleges and universities which have established curricula status is acceptance for transfer only where the college or university has authorized the transfer of credits.

Transfer credit earned at the junior and senior level from an accredited junior college which has not established curricula status may be considered for transfer as long as the student has a 2.0 grade point average.

1.35 (Students from colleges and universities not regionally accredited.
When students are admitted from colleges and universities not regionally accredited, they may transfer credits from these institutions on the following basis:

If the student's college or university has established curricula status, they may transfer credits from these institutions on the following basis:

1.34 (Transfer applicants from colleges and universities not regionally accredited will be considered for admission on the basis of the following:

1.34 (Transfer credit practices.
The Board of Regents endorses the Joint Statement on Transfer and Award of Academic Credit approved in 1985 by the American Council on Education (ACE), the American Association of Colleges Registrars and Admissions Officers (AARCRAO), and the Council on Postsecondary Accreditation (COAPA). The current version of the Practice Guidelines of the Educational Institutional Registrars and Admissions Officers (EIRAO) of the American Association of Colleges Registrars and Admissions Officers (AARCRAO), and the Council on Postsecondary Accreditation (COAPA) are examples of recommendations used by the institutions in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies of the institution.

1.35 (Students from regionally accredited colleges and universities.
Credit earned at regionally accredited colleges and universities is transferable to transfer except that credit is counted toward the requirements of the degree only where it is directly transferred to the same institution or another institution in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted to a limited extent.

Transfer credit from two-year colleges will not reduce the minimum number of credits required for a baccalaureate degree if the credit earned is earned after the total number of credits required by the student has been achieved.

1.35 (Students from colleges and universities which have curricula status.
Credit earned at colleges and universities which have established curricula status is acceptance for transfer only where the college or university has authorized the transfer of credits.

Transfer credit earned at the junior and senior level from an accredited junior college which has not established curricula status may be considered for transfer as long as the student has a 2.0 grade point average.

1.35 (Students from colleges and universities not regionally accredited.
When students are admitted from colleges and universities not regionally accredited, they may transfer credits from these institutions on the following basis:

If the student's college or university has established curricula status, they may transfer credits from these institutions on the following basis:
IOWA ADMINISTRATIVE CODE: BOARD OF REGENTS

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3. Maintained a satisfactory cumulative grade-point average on all college work attempted.
From applicants who do not meet these requirements, the director of admissions will review individual records and may offer probationary admission.

2.720—2.6(262) Graduate College.

Grades of any college or university accredited by regional accrediting associations may be accepted by the Graduate College. Admission to the Graduate College is the exclusive responsibility of the dean of the Graduate College. The acceptance of a student as a degree candidate is determined upon evaluation of merits of each candidate.

A student who is in their semester hours of residency satisfied all the requirements for the baccalaureate degree at the University of Iowa may be given a tentative admission to the Graduate College.

2.720—2.7(262) College of Law.

2.71(1) Application for admission.

Address all inquiries concerning admission to the Director of Admissions, The University of Iowa, Iowa City, Iowa.

Beginning students may enter the College of Law only in the spring session or the fall semester. Making plans for freshman applications will be accomplished well in advance of the opening date of each enrollment year.

The completed application, as well as all other requirements, must be submitted on or before the day set for the fall semester. The student's academic record is based upon the University's ranking system in which a grade of A is equivalent to four points. Other ranking systems will be evaluated by the offer of admission.

Applicants who are entering the University for the first time are eligible for the Law School's entrance program or university prior to commencing work in the College of Law.

Each applicant's admission must be confirmed in writing prior to attendance in the College of Law. The letter must be received within thirty days of the date of graduation. Failure to receive the letter within thirty days of the date of graduation will result in the cancellation of the applicant's admission.

Fullfilment of the specific requirements for admission listed above does not assure admission to the College of Law. From the applicants meeting the general requirements, the admissions committee of the College of Law will select those applicants who meet the university's standards and are prepared to meet the academic requirements of the College of Law.

The college's curriculum must include at least three years (seventy-two semester hours) of credit in the following areas as prescribed by the faculty of the college:

1. Students planning to study medicine should bear in mind that other college work, required in addition to the premedical requirements, is essential as preparation for medical school.

2. It is recommended that students prepare themselves for a career in medicine early in their college careers.

3. The college curriculum must include at least three years (seventy-two semester hours) of credit in the following areas as prescribed by the faculty of the college:

4. The college curriculum must include at least three years (seventy-two semester hours) of credit in the following areas as prescribed by the faculty of the college:

5. Students planning to study medicine should bear in mind that other college work, required in addition to the premedical requirements, is essential as preparation for medical school.

6. It is recommended that students prepare themselves for a career in medicine early in their college careers.

7. The college curriculum must include at least three years (seventy-two semester hours) of credit in the following areas as prescribed by the faculty of the college:

8. The college curriculum must include at least three years (seventy-two semester hours) of credit in the following areas as prescribed by the faculty of the college:

9. Students planning to study medicine should bear in mind that other college work, required in addition to the premedical requirements, is essential as preparation for medical school.

10. It is recommended that students prepare themselves for a career in medicine early in their college careers.

11. The college curriculum must include at least three years (seventy-two semester hours) of credit in the following areas as prescribed by the faculty of the college:

12. The college curriculum must include at least three years (seventy-two semester hours) of credit in the following areas as prescribed by the faculty of the college:

13. Students planning to study medicine should bear in mind that other college work, required in addition to the premedical requirements, is essential as preparation for medical school.

14. It is recommended that students prepare themselves for a career in medicine early in their college careers.

15. The college curriculum must include at least three years (seventy-two semester hours) of credit in the following areas as prescribed by the faculty of the college:

16. Students planning to study medicine should bear in mind that other college work, required in addition to the premedical requirements, is essential as preparation for medical school.

17. It is recommended that students prepare themselves for a career in medicine early in their college careers.
admission to the College of Nursing an applicant must have:
1. Completed specific course work as prescribed by the faculty of the college. The director of admissions will provide a list of courses required.
2. Completed the American College Tests.
3. Passed a physical examination as required.
Applicants from states who have minor deficiencies in meeting grade requirements specified above will be reviewed by the admissions committee of the college, and, upon favorable recommendation of the committee, such students may be granted probationary admission.

2.10(2) College of Pharmacy
2.10(1) General basis for admission.
Fullfilment of the specific requirements for admission does not guarantee admission to the College of Pharmacy. From the applicants meeting the specific requirements, the admissions committee will select the applicants who, in their judgment, appear to have the most qualifications.

2.10(2) College work.
The college work as outlined below will meet the minimum academic requirements for admission to the College of Pharmacy. The minimum work should include thirty-two semester hours of college-level units with an average grade of B or better in all college and professional studies. The thirty-two semester hours must include:

- Quantitative skills: Applicants must have demonstrated satisfactory achievement in mathematics skills according to the requirements of the college or liberal arts at The University of Iowa. Applicants from other institutions may meet the requirement for presenting six semester hours of credit in English composition from freshman and two semester hours of credit in speech or eight semester-hour courses in composition/communication skills, language, and mathematics and qualitative analysis, eight semester hours.
- College mathematics, eight semester hours.
- Physics or zoology, eight semester hours.
- Science from other institutions may substitute a comparable eight-semester-hour course in biology or chemistry.

2.10(3) Scholarship and application deadline.
Before admission to the College of Pharmacy, students must have completed a minimum of 30 semester hours of college work with a minimum grade-point average of 2.0 on a four-point scale. Students who are not members of the University of Iowa student body must apply for admission as transfer students and are subject to the requirements for admission as transfer students.

2.10(4) Required tests.
Applicants for admission are required to take the American College Testing Program test.

2.10(5) Current requirements.
Applicants who have completed work in a college of pharmacy accredited by the Interstate Council on Pharmaceutical Education may, if their college academic average is acceptable, be admitted and granted advanced standing toward the degree of bachelor of science in pharmacy.

2.12(262) College of Liberal Arts.
Applicants for admission to the College of Liberal Arts must meet the rules that are common to the three state institutions in Iowa as listed in 1-2800, 1.2.3200 and 1.2600.

2.12(262) College of Education.
Students who are registered in the University of Iowa must meet the rules that are common to the three state institutions in Iowa as listed in 1-2800, 1.2.3200 and 1.2600.
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