General Catalog

The University of Iowa

82-84
The University of Iowa
General Catalog 1982-84

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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.
Replicas of individual sections of the
Catalog are available without charge.

This Catalog is published for
informational purposes only 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 the 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, residence, and student personnel
services.
# University Calendar

## First Semester
- Registration begins: August 23, 1982; August 22, 1983
- Classes begin: August 23, 1982; August 25, 1983
- University holiday: September 8, 1982; September 5, 1983
- Homecoming: October 2, 1982; November 23, 1983
- Thanksgiving recess: November 24, 1982; November 24-25, 1983
- University holidays: November 25-26, 1982; November 24-25, 1983
- Classes resume: November 29, 1982; November 29, 1983
- Classes end: December 10, 1982; December 9, 1983
- Examination week: December 13-17, 1982; December 12-16, 1983
- Commencement: December 18, 1982; December 17, 1983
- University holidays: December 23-24, 1982; December 26-27, 1983

## Second Semester
- Registration begins: January 13, 1983; January 12, 1984
- Classes begin: January 17, 1983; January 16, 1984
- Foundation Day: February 25, 1983; February 25, 1984
- Spring vacation begins: March 16, 1983; March 17, 1984
- Saturday classes only: March 16-29, 1983; March 17-28, 1984
- Classes resume: May 6, 1983; May 4, 1984
- Classes end: May 9-13, 1983; May 7-11, 1984
- Examination week: May 14, 1983; May 12, 1984
- University holiday: May 30, 1983; May 28, 1984

## Summer Session
- Registration: June 6, 1983; June 11, 1984
- Classes begin: June 7, 1983; June 12, 1984
- Session ends: July 29, 1983; August 3, 1984
- Commencement: July 29, 1983; August 3, 1984
- Independent Study Unit opens for law and graduate students: August 1, 1983; August 6, 1984
- Close of Independent Study Unit: August 10, 1983; August 24, 1984
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General information

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 many schools: 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 University enrollment during 1961-62 was about 26,400 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 men 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 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 faculty 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 composition, to cite just a few recent examples.

The UI faculty includes some 3,500 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 traditionally equal, between men and women students. Approximately four out of five undergraduates are Iowa residents. The rest are studying 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 68 percent ranked in the upper half of their high school classes and about 39 percent ranked in the upper tenth.

The University of Iowa offers a comprehensive program of academic financial aids. Half of the University's students have some form of employment. One-fifth have education loans. One of ten undergraduates and one 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 scholastic 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 specifically 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 Chemical Engineering, 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, and Doctor of Philosophy.
Accreditation and Affiliation

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 affiliated 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
Dentistry—American Dental Association
Engineering—The Accreditation Board for Engineering and Technology (ABET) of the American Association of Engineering Societies (AAES)
Law—American Bar Association
Medicine—Liaison Committee on Medical Education, representing the American Medical Association (AMA) and the Association of American Medical Colleges (AAMC)
Nursing—National League for Nursing
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

Computer Science—American Classical Society
Dental Hygiene—American Dental Association Commission on Dental Accreditation
Dentistry—American Dental 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 Physician
Physical Therapy—American Medical Association Committee on Allied Health Education Accreditation and the American Physical Therapy Association
Nuclear Medical 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 sessions of approximately 17 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 to learn are inseparable facets of academic freedom. The freedom to learn depends upon appropriate opportunities and conditions in the classrooms, 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, that equal opportunity 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 ombudsman 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 20.205 of the University's Student Handbook. A description of these formal procedures can be obtained from each college dean's office, collegiate ombudsman, the Liberal Arts Advisory Office, the Undergraduate Advising Center, or the office of the College's Associate Dean. Council.
Policy on Sexual Harassment

Under the vague Policy of Personal Conduct, the University of Iowa's Human Rights Policy, Faculty, staff, and students have a right to be free from sexual harassment by colleagues, employees, or teachers. The University will not condone actions and 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 until the complainant's permission;
- That if permission were 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 of 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 dismissal where the case is in other instances of violation of University policy.

University Marking System

<table>
<thead>
<tr>
<th>Type</th>
<th>Letter Grade</th>
<th>Grade Points</th>
<th>Semesters that apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>superior</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>average</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>average</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>average</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>failing</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>M*</td>
<td>incomplete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K*</td>
<td>incomplete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O*</td>
<td>no grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P*</td>
<td>passing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T*</td>
<td>transfer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B*</td>
<td>satisfactory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U*</td>
<td>unsatisfactory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N*</td>
<td>(Dropout Core only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X*</td>
<td>(*not used in computing grade-point averages)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recognition of High Scholastic Achievement

The University recognizes high scholastic achievement by awarding degrees "with distinction," "with high distinction," and "with highest distinction," on the basis of criteria shown below.

<table>
<thead>
<tr>
<th>Highest</th>
<th>GPA</th>
<th>Highest 2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest</td>
<td>3.75</td>
<td>Highest</td>
</tr>
<tr>
<td>High</td>
<td>3.00 - 3.74</td>
<td>Highest</td>
</tr>
<tr>
<td>Distinction</td>
<td>2.50 - 2.99</td>
<td>Highest</td>
</tr>
<tr>
<td>Distinction</td>
<td>2.00 - 2.49</td>
<td>Highest</td>
</tr>
</tbody>
</table>

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 Debonair Delta Kappa are strong 64 national 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, 105 College Hall, The University of Iowa, Iowa City, Iowa 52242. The first letter should request an application for admission, 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 he or she expects to major. All applicants for admission to all colleges of the University must submit fill-in applications to the Admissions Office and must furnish current transcripts and other supporting material as specified.

Application Fee

A $10 application fee must accompany all 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 — all sessions |
| College of Business Administration | April 1 for summer session, March 1 for fall semester, September 1 for spring semester |
| College of Dentistry | November 50, fall semester only |
| College of Engineering | Ten days before classes begin — all sessions |

Graduate Course—The general Graduate College deadlines: May 1 for the summer session, July 15 for the fall semester, and December 1 for the spring semester. Some departments may have earlier deadlines. Early submission of materials is advisable. 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 16 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

Physical Assistant Program | January 15, spring semester

Teaching Education Program | June 1, joining 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 applying for admission at least twelve months prior to matriculation. The applicant should review the application procedures and submit his or her completed application file to the Admissions Office by the date given.

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

Graduates 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 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 advisers, graduate students determine whether or not they should enroll in English as a Foreign Language (EFL) course work.

Undergraduate applicants to all colleges, except the College of Engineering, must submit TOEFL scores of at least 480 prior to the initial registration. The College of Engineering requires TOEFL scores of at least 520 for admission.

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

**ACT Test Scores**

The University of Iowa requires all entering undergraduate transfer students to complete the American College Testing (ACT) Assessment Program and have their test scores reported to the University before they register.

The University of Iowa uses ACT scores for:

- **Admissions**—as a criterion for admitting in-state students unconditionally by achieving a minimum score on the composite exam, and for denying admission to applicants who do not meet minimal standards.
- **Placement**—as a basis for selecting incoming students for specific course requirements in English and for placing others in sections designated to meet individual needs; and for advising students concerning their programs of study and future educational plans.
- **Scholarship**—as a criterion for awarding need-based and merit-based scholarships and loans.

Scholastic Aptitude Test (SAT) scores may be submitted in lieu of ACT or undergraduate transfer admission applications and will be used for admission evaluation. However, ACT scores must be submitted prior to registration.

Anyone interested in applying for undergraduate admission at the University of Iowa should consult the ACT testing dates prior to his or her anticipated registration.

Applicants who have completed the tests but did not have their scores backgrounded by the University should request this reporting from the Records Office, American College Testing Program, Box 451, Iowa City, Iowa 52240. Further information, including testing dates and location, may be obtained from the office of school or college counselors, or from the ACT Program.

**Graduate and Professional College Examinations**

Prospective Graduate College applicants should take the Graduate Record Examination (GRE) Aptitude Test or, if applying for admission to a department of the College of Business Administration other than Economics, the Graduate Management Admission Test (GMAT). Prospective students of the colleges of Dentistry, Law, or Medicine are required to take admission tests of the respective colleges.

**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 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 under "Iowa Administrative Code: Board of Regents" at the back of the catalog.

**Tuition and Fees**

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

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduates</th>
<th>Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>hours</td>
<td>res. fees</td>
<td>non-res. fees</td>
</tr>
<tr>
<td>0.5-9.0</td>
<td>$ 55</td>
<td>$ 124</td>
</tr>
<tr>
<td>5.1-6.0</td>
<td>$ 86</td>
<td>$ 134</td>
</tr>
<tr>
<td>6.1-7.0</td>
<td>$ 117</td>
<td>$ 154</td>
</tr>
<tr>
<td>7.1-8.0</td>
<td>$ 132</td>
<td>$ 170</td>
</tr>
<tr>
<td>8.1-9.0</td>
<td>$ 151</td>
<td>$ 185</td>
</tr>
<tr>
<td>9.1-10.0</td>
<td>$ 193</td>
<td>$ 220</td>
</tr>
<tr>
<td>10.1-11.0</td>
<td>$ 201</td>
<td>$ 228</td>
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<tr>
<td>11.1-12.0</td>
<td>$ 209</td>
<td>$ 236</td>
</tr>
<tr>
<td>12.1-13.0</td>
<td>$ 217</td>
<td>$ 244</td>
</tr>
<tr>
<td>13.1-14.0</td>
<td>$ 225</td>
<td>$ 252</td>
</tr>
<tr>
<td>14.1-15.0</td>
<td>$ 233</td>
<td>$ 260</td>
</tr>
<tr>
<td>15.1-16.0</td>
<td>$ 241</td>
<td>$ 268</td>
</tr>
</tbody>
</table>

**Additional Information**

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<tr>
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<td>13.1-14.0</td>
<td>$ 225</td>
<td>$ 252</td>
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<tr>
<td>14.1-15.0</td>
<td>$ 233</td>
<td>$ 260</td>
</tr>
<tr>
<td>15.1-16.0</td>
<td>$ 241</td>
<td>$ 268</td>
</tr>
</tbody>
</table>

**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 fees, are payable on an installment basis, with billing the first of September, October, November, and December for the fall semester, and the first of February, March, and April for the spring.
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 have 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 deans 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 advising office. These offices are available to all students to assist with questions concerning admissions, academic majors and concentration requirements, grading 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.

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

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; refere 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 (OCP/SA) 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 OCP/SA 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 OCP/SA 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 Rivalry Week, as well as new campus programs.

OCP/SA 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.
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.

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 files of community college courses that have been approved by academic departments as meeting the requirements of various baccalaureate majors.

Counseling Service
The University Counseling Service of professional psychologists and advanced doctoral students offers vocational, educational, and personal counseling and therapy in individual or 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 plans extended by the University. Fees are established for all treatment rendered, and patients are to pay cash.

Evaluation and Examination Service
Evaluation and Examination Service duplicates, scores, and analyzes 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 counseling services on questionnaires and survey design; administers many of the University's required and optional tests for entering students; and in a center for many national testing programs, including the American College Testing (ACT), Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admission Test (GMAT), Graduate School Foreign Language Test (GSFLT), Law School Admission Test (LSAT), Test of English as a Foreign Language (TOEFL), Miller Analogies Test (MAT), and College-Level Examination Program (CLEP).

Health Service
The Student Health Service is located in the Children's Hospital in the University medical complex. All registered students at the University, except those registered in off-campus courses, are eligible for outpatient care at the Student Health Clinic. There are charges for laboratory procedures, X-rays, occasional examinations, minor surgery, and some special procedures. All students are advised to have health and accident insurance. A University-sponsored group insurance is available for students in individual or family plans.

High School-College Relations
Administered as a part of the Office of Admissions, the High School-College Relations Office coordinates and implements all scheduled relations with secondary schools and institutions of higher education.

Intercollegiate Athletics for Men
The University is a member of the Western Intercollegiate Conference (Big Ten), and has athletic programs in football, basketball, track, baseball, swimming, golf, wrestling, tennis, cross-country, and gymnastics. Operating policies are determined by the Board in Control of Athletics, which is composed of twelve members from the University's teaching and administrative staff, two University alumni, one representative of the University Staff Council, and two students.

Intercollegiate Athletics for Women
Women's intercollegiate athletics programs include basketball, cross-country, field hockey, golf, gymnastics, softball, swimming, tennis, track and field, and volleyball.

In 1981 Women's Athletics became an official member of the Western Intercollegiate Conference (Big Ten), participating in eleven of twelve championship sports. To date, women's athletics was included under the University Board in Control of Athletics.
Athletic scholarships are available to qualified athletes in all sports.

**Inttramural Sports and Recreational Activities**
Through the University’s Division of Recreational Services, all interested students have opportunities to participate in more than 20 different intermural 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 topics for study in other countries, including some information about foreign universities and study-abroad programs open to all students. The office helps students acquire study-abroad programs to complement their on-campus academic programs and to assure that students receive the correct credit. Students may also obtain information and applications for the Fulbright, Marshall, and Tubingen awards at the OIES.

Foreign student advisors in the OIES provide information, counseling, and services in the areas of orientation, immigration regulations, financial aid, and liaison with foreign governments and sponsoring agencies. Advisers help with problems related to personal, social, and academic aspects of campus life. 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, with facilities including the Campus Information Center, the University Box Office and check-cashing service, the Office of Campus Programs and Student Union Information, the coffeehouses with live entertainment, the Bijou Theatre, a variety of food services, a recreation area with bowling, billiards, and electronic games, a barber 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 Service, Career Services and Placement Center, the Center for Conferences and Institutes, and a copy center.

**Orientation Services**
With the aid of a representative student, faculty, and staff 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 student who wishes to improve their reading and critical thinking skills. Students are asked to specify what reading problems they have, to read a selection of materials and methods to help remedy those 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 time during that time if they feel they need reading help. The lab service course carries no credit and assigns 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-week modular courses for one semester hour of credit each.

**Registrar**
The Office of the Registrar determines the residence status of each student, issues driver’s licenses, identification cards, supervises registration procedures, assesses fees, 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 and career counseling, academic and career support, physical services, housing, transportation, special needs, and community service activities. 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 fitness to bowling and wheelchair basketball, and offers workshops and activities designed to improve career exploration to social skills. The office helps students meet the requirements of the U.S. Department of Education’s student organization Restrict Us Not (R.U.N.) and sponsors activities to meet the needs of the handicapped student population. The office also administers the Special Support Services program for students with disabilities.

**Special Support Services**
The Office of Special Support Services (SSS) was established to make it possible for more students, academically and educationally disadvantaged or culturally 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 Woodward Bound 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 of 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 servicewomen 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 Lunches program; offers evening and weekend workshops, lectures, films, and classes; provides a wide variety of support groups for women; offers workshops one-to-one problem solving session; and publishes a newsletter nine times a year. The WRAC houses the Sojourner 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 workshops for 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 households shall 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." The City of Iowa City has a fair housing ordinance providing for equal opportunity to secure housing without discrimination due to race, religion, or ancestry, except in certain instances involving owner-operator dwelling units. A Human Relations Commission is responsible for the observation of this ordinance and the initiation of redress for violations of it.

University Residence Halls
Residence hall 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 Hillcrest, Quadrangle, Westtown, 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 full 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 $30 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 the $30 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 $30 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 $1,853 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 799 University-operated apartments available to married students or legally defined family units in the Hewesky Drive, Hewesky Court, Hewesky Park, and Parkawn complexes.

Rents for 1981-82 range from $296 to $317.50 per month for one-bedroom units (there are only 41 available at the lower rate) to $377 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 $300 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 Acacia, Alpha Epsilon Pi, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Kappa Sigma, Pi Kappa Alpha, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, 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 Phi 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, 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 380, 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 Freshman 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 of 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 for the college of Business Administration, Liberal Arts, Nursing, and Pharmacy, are available to United States citizens directly descended from army or navy veterans of World War II. Awards are based on need and scholastic achievement. Special application forms are available from the Office of Student Financial Aid.
Pell Grants

Undergraduate students applying for University financial aid must also apply for entitlement to federal Pell Grant assistance. The United States Department of Education determines eligibility for a Pell Grant award. The maximum award is $1,900 per academic year, minus the amount of the applicant's computed family contribution. The student may use his or her CSS or ACT financial statement to apply for Pell Grant eligibility, or may obtain a Pell Grant application form from any high school or from any college or university financial aid office.

Supplemental Educational Opportunity Grants (SEOG)

The SEOG program provides federal aid to students with exceptional financial need. The maximum grant is $900 per academic year or one-half of the student's annual expenses, whichever is less. There are no specific academic requirements for an SEOG award, but the applicant must show academic or creative promise and must be enrolled at least half-time. No special application is required.

National Direct Student Loans (NDSL)

The NDSL program is the University's largest source of long-term student loans. Undergraduates may borrow up to $1,000 a year and $8,000 overall; graduate students up to $1,800 a year and $12,000 overall. NDSL assistance is available to students who are citizens or permanent residents of the United States and who are enrolled at least half-time. Repayment, at 6 percent interest, begins six months after the recipient ceases to be at least half-time student.

Guaranteed Student Loans

Under either the Iowa Guaranteed Student Loan Program or the Federal Family Federal Direct Student Loan program, undergraduate students may borrow up to $2,500 a year, graduate students up to $8,000 per year. The student negotiates the loan directly with a commercial bank, credit union, savings and loan association, or other eligible lending institution, and begins repayment, at 6 percent interest, when he or she ceases to be at least half-time student.

Health Professions Nursing Loans

This program assists United States citizens and national who are enrolled full time in programs that prepare them to be doctors of medicine or dentistry, or studying full-time 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 full-time registration. The interest rate is 5 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 employment 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 resources of the University of Iowa'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 aid 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 Education Aid to War Orphans is available from the Iowa Bonus Board (State House, Des Moines, IA 50319).

As listed on 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. In its Health Center are found the academic programs, clinical facilities, and service agencies involved in preparing 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 teaching and of service. It is one of the most advanced, comprehensive health science 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 "refresher." Programs, facilities, are courses of the colleges of Dentistry, Medicine, Nursing, and Pharmacy are described elsewhere in this Catalog. Other health center units and related programs are described below.

The University of Iowa Hospitals and Clinics

Director and assistant to the president for statewide health services: John W. Cofston
Deputy director: Clifford W. Chilcak
Special assistant to the director: Douglas R. Willeman
Senior Assistant director: Richard M. Harlot, John H. Swenberg
Assistant directors: Mary A. Bach, Cole E. Eaton, Joe B. Tyke
Assistant to the director for legal services: Robert S. Miller

Clinical service heads: Dr. Peter J.K. Jahn
Obstetrics, Anesthesiology: Dr. Donald B. Colbert, Secretary
Dr. John E. Breslow, Gastroenterology; Dr. Robert J. Kuhlow, General Surgery
Dr. Paul H. Proctor, Pediatrics; Dr. Frank Ahlborn, Internal Medicine
Dr. Roy M. Pitcher, Dentistry; Dr. H. S. Rege, Ophthalmology
Dr. F. C. Root, Ophthalmology; Dr. Raymond Clopper, Orthopedics
Dr. Alen McCann, Otolaryngology and Maxillofacial Surgery
Dr. Richard G. Lynch, Pathology
Dr. Fred Smith, Pediatrics; Dr. George Winter, Psychiatry
Dr. Edward A. Friedlander, Radiology; Dr. Robert Carey, 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 undergraduate and graduate study 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 1,051 beds in the hospital complex, accommodating more than 40,000 admissions annually. In addition, 131 specialty clinics accommodate another 330,000 ambulatory patients each year. Nearly 15,000 major surgical procedures are performed annually in the hospitals' 20 major operating rooms. Approximately 3,000 interns are delivered every year.

Highly specialized health services—for example, the burn unit, heart catheterization facilities, neonatal intensive care unit—are easily accessible to lowans who reside in communities without such resources. The hospitals' transportation fleet of 15 vehicles travels nearly two million passenger-miles each year, transporting 9,500 lowans. The Air-Care Emergency Helicopter Service carries specially trained medical and nursing teams to and from...
(SCHS) provides Iowa residents under age 19 with diagnosis and evaluation services in pediatrics, orthopaedics, ophthalmology, 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 disabilities.

University Hospital School

A university-affiliated program deals 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 Psychiatry. 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, prevocational and vocational activities.

Outpatient service provides 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 provided. 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 this unit.

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

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 out-clinic evaluation and consultation for individuals with speech, language, and hearing problems. Day-clinic 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 and learning. The University holds that the term "research" applies to creativity in all fields, imaginative originality, whether in the fine arts or in the sciences, 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 committees 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 a 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, travel, 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 Si(Li) solid state detection system and an automatic
system (PD-11 compound with floppy disk storage). The primary application of the instrument is to analyze chemically, usually in a nondestructive manner, materials of small dimensions (1-10 cubic micrometers). The collection of the sample for identification, concentration, and detection produces on-line quantitative results within a few minutes for 10-12 elements per sample point. Software exists for routine quantitation of minor and trace elements 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, inclusions in metals, and mineral particulate analysis in coal or ore samples. Demonstration of image quality on demand is 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 to researchers interested in the use of scanning and transmission electron microscopy. Equipment includes a JEOLO-1010, a JEOL JEM-100CX electron microscope equipped with STEM and a Jeol X-ray microanalysis system, a Bal-Tec Desk III LE-10 electron microprobe, an automatic microprobe, a Hitachi H-600 transmission electron microscope equipped with STEM and a Kevex X-ray microanalysis system, a Bal-Tec Desk III LE-10 electron microscope, an automatic microprobe, a Hitachi H-600 transmission electron microscope equipped with STEM, and a Jeol X-ray microanalysis system. The facility also provides all solutions and supplies necessary for investigations involving ultramicroscopy, including specialized staining and embedding techniques, microscope and microtome staining, metal-coating, autoradiography, emzymocytochemistry, immunocytochemistry, rhodophosphorylation, sample preparation for SEM and TEM samples, and other procedures. A modern library contains selected reviews of various applications of TEM and SEM is also available. The facility is intended 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 short-term, non-commercial, short-term basis. The laboratory is located in the Bowen Science Building.

**Flow Cytometry Facility**

The University of Iowa Flow Cytometry Facility provides facilities, technical personnel, and consultation services 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 FACSCalibur) 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, to generate population distributions. Up to five parameters may be concurrently evaluated per cell. A variety of cellular macromolecules can be thus quantitated. Detectable parameters include two spectral regions of fluorescence, size, and the angle and width of angle scatter, and fluorescence polarization anisotropy. Optimal excitation is done with an argon ion laser with ultra-violet capability. The instrument will physically isolate any identified cell population to yield viable cells for subsequent experimental use. The facility provides all necessary supporting equipment for staining cells with fluorochromes and for fluorescence and phase microscopy. It is housed in the Immunological Laboratory of the College of Medicine. Educational tours are conducted upon request.

**Laser Facility**

The Iowa Laser Facility consists of a wide variety of modern instrumentation, including state-of-the-art Ar-ion and Krypton ion lasers (with ultraviolet capability), and a Tunable Dye Laser System. The facility also includes a variety of other systems for the visible and the infrared regions of the spectrum. Each laser is independently operated in a single longitudinal mode with a linewidth of one part in 10^6. The laser is used in a single newly remodeled laboratory which occupies the entire first floor of the southeast wing of the Chemistry-Botany building. It includes a mechanically and thermally stable 40-foot long enclosed optical bench with a variety of work stations for user use.

**High Field Nuclear Magnetic Resonance (NMR) Facility**

The High Field NMR Facility is housed on a recently acquired superconducting Bruker 300 MHz spectrometer. The instrument provides very high spectral resolution and sensitivity for study of complex molecules. Architecture, local variables, temperature, and selective pulse experiments are possible. Both 5 and 10 mm sample tubes may be accommodated. For the usual user, spectra are recorded by a technician, whereas hands-on use is encouraged for the frequent user. The facility is located in the northwest ground floor area of the Chemistry-Botany building.

**Computing Center**

The University of Iowa Computing Center provides research and instructional computing facilities to all university faculty and staff of the University. Located in the Lindquist Center, the Computing Center is accessible through the main terminals, both batch and interactive, conveniently distributed around the campus. The center maintains systems capable of an 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 microcomputer-quality printed and graphic output. The center provides users with non-commercial educational services and instructional services on general computer use. Specialized consultation is also provided for equipment selection, laboratory support, data base, and instructional projects. Detailed information on competing facilities is available on request. The center's user is located in the Lindquist Center for Measurement.

**Video Center**

The University of Iowa Video Center provides high-quality video services and facilities, including video production, video editing, and promy production. It is also responsible for video recording and production of University University Center for campus video. Toward this end, the center has the personnel and facility resource to excel in its area of expertise, including equipment and supplies, and in production and programming. Additionally, the center provides central production and maintenance 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. Full members are available to locate potential funding agencies, assist in the preparation of proposals, and provide material, and give editorial assistance to scholars using a variety of technical correctness in an application. The staff also assist 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 to the donor and others other than expenditure accounting.

University House

University House began in 1977 as a program of the deanship. It was separate but related missions. The first and most important is faculty development. In general, to help faculty in their professional growth and advancement, University House provides, on the Odessa 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 the area.

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

University House has nearly six thousand square feet of furnished space in the Odessa Hospitals, including private faculty 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 computer center, a batch 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 available from 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 Geriatric 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

Dow Institute for Dental Research

Contact the College of Dentistry for information.

Industries 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.

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 on 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 " Counseling 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.

Clinics
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. Meade 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 environment and educational/cultural offerings of the Iowa Center for the Arts. In addition to resources 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 1936. Major additions were added in 1968-69, greatly extending 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 Drewello, who in 1924 became the first resident of the Master of Arts degree in studio art at the University of Iowa.

The school's Corboree 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 an 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 nineteenth- and twentieth-century prints, posters, antique silver, and rare jade, provided 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 1968 and quickly earned recognition as one of the nation's finest university museums.

A gift from industrialist Roy Carver of Muncie, Indiana, made possible the construction of a major addition opened in 1975. With the Carver Wing, the museum has 46,000 square feet of exhibition space in 16 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, photographs, 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 Mecosta, Michigan. 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, sponsors public lectures, exhibits, and an active print and drawing study club.

University Theatre

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

Four additional theatre spaces in other parts of the campus greatly extend the range of University Theatre productions. Old Armour Theatre features three stages and seats an audience of 200. MacLean 301 Theatre is used for original works by students. Studio II is the Old Armour is used for student-produced works, often as an extension of course requirements.

Theatre Auditorium provides a vast stage and high-sophisticated technical equipment to the wide range of University opportunities in stage production.

The aesthetic division in the Department of Communication and Theatre Arts provides production management, design, and technical training for 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 audibility and convenience. Its broad corridors lead from rehearsal rooms to two recital halls and the stage of Hancher Auditorium.

In a given year, faculty artists and the many performing ensembles of the school present about 100 major concerts, plus an additional 370 to 380 student vocal and instrumental recitals.

Chep Reuter Hall, with its hand-crafted Casavant tracker organ, seats 720 for public concerts. The 200-seat Harper Hall is both a recital hall and the setting for many recitals. The school's largest ensembles, such as orchestra, bands, and choirs, perform regularly in Hancher Auditorium.

The school has produced operas since 1938. Like other major stage presentations, operas are interdepartmental in their opportunities for educational and performance experience, utilizing the talents and resources of other departments, such as 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 a variety of new forms. Its Center for New Music, funded originally by the Rockefeller Foundation, is a laboratory and extension of the composition faculty. Elektron, a student body of the Center for New Music, as a research, development, and performance ensemble, is a repertoire ensemble to the performance of new music.

Two electronic music studios provide a wide range of technical facilities for experimental, creative, audio-musical forms. In Video/Laser II, the school has the most advanced laser detection system of any university, utilizing laser beams in brilliant colors to produce visual analogues to sound. Outstanding recording facilities (one) the various performance spaces 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 2,694. 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 around the world appear on the Hancher stage—symphony, ensembles, theater and dance companies, major orchestral and artistic companies from other nations and cultures. For example, the new Contra_cycles, a contemporary dance troupe, co-presented by the Iowa City Arts Center, across state her audience are students of the University, who have priority of purchase of tickets, at reduced prices. Non-student patrons regularly attend auditorium events from a wide range in Iowa and western Illinois.

The auditorium has become a Midwestern showcase. Handsome lobbies, excellent acoustics, and a surprising intimacy make the interior design make it one of the foremost concert halls in America. More than 200,000 people a 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 from this and other countries. The professional visitors come not only to perform but also to provide lecture demonstrations and classes.

The University of Iowa Dance Program is centered in the dance division of the Department of Physical Education and Dance. Dance faculty and students perform throughout the 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 from this and other countries. The professional visitors come not only to perform but also to provide lecture demonstrations and classes.

Broadcasting and Film

The Telecommunications Center and the studios of KXKO radio; the experimental WAIP-FM radio, KSJO television, and two classrooms and laboratories for broadcasting and film in the broadening and contracting division of the Department of Communication and Theatre Arts. The entire community services as the "on-the-air" 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 new writing and translating their works into English and other languages.

These writing programs are renowned in many countries, and have wide 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.
Children's Reading Clinic

The Children's Reading Clinic is housed in the Williams Hall. It provides a variety of services to the students of the University of Iowa, including classroom teachers, school psychologists, and counselors. The clinic offers diagnostic and treatment services for children of all ages, and recommends and uses instructional materials which are suited to their needs and interests.

During the academic year the clinic operates on a regular schedule. It is open to all students of the University of Iowa, and offers a range of services, including reading, writing, and math instruction. The clinic is staffed by experienced and qualified professionals, including licensed psychologists and certified teachers.

International Education and Services

The Office of International Education and Services (OIES) is the focal point for University international education activities. It is responsible for the development and implementation of policies and programs that support the internationalization of the University's academic, research, and service missions. The OIES also works to promote goodwill and understanding between the University and the international community.

The OIES administers a range of programs and services, including international student recruitment, exchange programs, and study abroad opportunities. It also provides academic advising and support to international students, and offers a variety of resources to help them succeed at the University.

The OIES also provides support to the University's faculty and staff, helping them to develop partnerships and collaborations with institutions and organizations around the world. This includes providing funding support for faculty and student travel, and organizing cultural exchange programs.

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 Boren awards.

The International Center, a faculty and student-operated organization, 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 at the University of Iowa provides a variety of services to the University community, including academic advising, career development, and support for students with disabilities.

The center offers a range of services, including academic advising to help students plan their coursework and career development to help students explore their interests and identify appropriate career paths. The center also provides support for students with disabilities, including accommodations for students with learning disabilities and information on disability accommodations at the University.

The center is located in the James B. Stroud Educational Services Center and is open to all University students.

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 wide range of programs and activities, including guided tours, lectures, and workshops. The museum also offers a comprehensive collection of natural history specimens, including birds, mammals, reptiles, and insects from around the world.

The museum is located on the University of Iowa campus and is open to the public. It is dedicated to preserving and interpreting the natural history of the region, and to promoting a greater understanding of the natural world. The museum is supported by the University and is funded by grants and donations.
The Leyden Island Cycltextus is a large and well-known bird habitat located in the United States, comprising a complete representation of a bird island of the Newellian group. Other habitat exhibits include the Sering Sea, Louisiana Swamp, Fall Migration, and Crease on the South Dakota Prairie. The crime exhibit includes both the sandhill crane and the whooping crane species as they appear on the prairie during migration.

The major vertebrate phyle are represented in several exhibits and include such familiar groups as insects and crustaceans, enulea and clams, sea stars, and seaweed.

Ethological exhibits in the museum present artifacts from many parts of the world, including Eskimo materials, as well as a display featuring replicas of fossil remains from Africa, Asia, and Europe. Several displays relate to the geology of Iowa and include typical taxidermy specimens.

Old Capitol
Old Capitol is the central landmark of the University. It was the capital of the Territory of Iowa from 1842 until 1848 and the capital of the State of Iowa from 1848 until 1886. The present building moved to Des Moines and gives the "old" capitol to the University as its first permanent home. Various University offices and departments are located in Old Capitol through the years, and it housed the office of the University president continuously from 1860 to 1976 when the president's office was relocated to make way for the restoration of Old Capitol as a historic site. Most of the rooms were restored to the 1840s and 1850s. Two were restored to the 1920s to represent the University years. Old Capitol was reopened in 1978 as a "living museum." Guided tours are conducted daily without charge.

Public Information and University Relations
The Office of Public Information and University Relations (OPI) works to promote understanding of, participation in, and support of the University's mission and activities both within the University community and among the general public. It seeks to maintain an effective information program through the use of internal and external media; encourage with the University administration on matters involving public information and University relations; and provides 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 OPI's individual units on campus, including Art Center Relations, Broadcast News Service, Health Center Information and Communication, Humanities/Science News Service, OPI Photo Unit, and Women in Sports Relations, as well as a Man's Sports Information. These include supply news, photos, and information to print and electronic media; gather and present information material for specialized and general interest publications; and 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 alumni 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 center is located about the campus provide quick, inexpensive duplication services. The department also operates Campus Stores, which produces and sells such lines as textbooks, lab notebooks, 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 and dean for University development and research.

Recreational Services
The Division of Recreational Services administers a program of more than 23 intramural sports and recreational activities for all interested University students; offers a wide range of recreational lesson programs in such activities as swimming, horseback riding, yoga, aerobics, racquetball, skids, 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, tennis, weight training, billiards, tennis, and jogging. The Division's "Truth the Earth Outdoor Program" includes such activities as rafting, paragliding, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles, camping equipment, telephones, and cross-country skiing equipment are also available for a minimal renting 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 organized in 1924, with the incorporation of The Magazine of the University of Iowa as the official publication of the association and as the "official organ" of the Alumni Association. The University of Iowa Alumni Association publishes The Iowa Alumni Review, a bimonthly magazine for association members.

The University of Iowa Foundation
The University of Iowa Foundation was organized 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 established to solicit and receive gifts and bequests, to accept gifts 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 benefits 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. The Library contains approximately 56,000 volumes: Botany, Chemistry, 63,000; Business Administration, 20,000; Engineering, 54,000; Geology, 28,000; Health Sciences, 173,000; Library Science, 11,000; Mathematics, 25,000; Music, 58,000; Physics, 34,000; Psychology, 38,000; and Zoology, 26,000.

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

Special Resources
Main Library facilities include microform reading room, 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 most distinguished in existence. It contains nearly 2,000 manuscripts and manuscript letters written by Hunt or to him by many famous literary figures, 100 association volumes, and 80 volumes of Hunt's writings.

The Mark Ranney Memorial Collection is one of the country's finest, particularly in rich deluxe editions, including many superb bindings made especially for Mrs. Ranney.

The French Revolution Collection contains more than 8,000 political pamphlets, chiefly from the years 1788-1798, 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 "Joe" Darrel Collection comprises the original of nearly six thousand caricatures in which, for more than 40 years, Dag 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. The subject index to the collection enhances its usefulness for reference and research.

The Boltinger-Lincoln Collection, gathered by Judge James W. Boltinger 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 felow conspirators. Another large group contains reminiscences of people who knew Lincoln. Lincoln, broadsides relating to Iowa and the Civil War period have been added.

The "Old" Collection is a gathering of early, rare, or special collections on major subject areas, including books of the fifteenth and sixteenth centuries, early Americas, Rabelaisian Critic Publications, private press books, and selected modern first editions.

The Mencken 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 inventories collected letters, papers, diaries, and correspondence files relating to midwestern economic, political, and social history.

Other special collections include the Harvey Dwight Collection of manuscripts and documents, and the Blum Collection with its rich material relating to railroad in the Midwest; the History of Hydraulics Collection; the Edes and Piper Collection of ballets and inns; and the Shakespeare Collection, which contains several thousand letters and through documents descriptive of the Chaucerian movement; the Blland Collection of poetry, literature, and biographical and literary criticism, manuscripts, and letters relating to the contemporary islam poet,; Edmund Blunden; the Iowa Aurora Collection, the Map Collection, containing more than 179,000 maps and indexed aerial photographs and nearly 9,000 atlases, gazetteers, and related reference items; and the University Archives.

The John C. Murray 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
donated to the University Libraries by
Dr. John Martin, a neurosurgeon from
Clarens, Iowa.
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 wide 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. As a result, the danger that a graduate may become "locked" into a single unsatisfactory job is reduced.

The kinds 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 around 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 vigorously, unexpectedly, and unsystematically. 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 Departments 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 unit 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 Transatlantic and Writers' Workshops, and the Windsor 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 lists 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 Training; 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 Media 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 programs 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 nursing. Medical technology students seek 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 advisors from the appropriate professional areas. Students should go to the Liberal Arts Advisory Office to change academic advisors, to declare or change majors, and 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, second-grade-only options, 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., B.S.
Classics—B.A.
Communication and Theatre Arts—B.A.
Computer Studies—B.A., B.S.
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 Studies—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.
Hons 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.

Ecology—B.A., B.S.
The B.G.S. 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 major concentrations 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 Africanists 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 African-Americans. Since then, those courses have been organized into a curriculum that includes a program leading to an undergraduate minor and a major, a Master of Arts degree in Afro-American studies, and concentration of Afro-American studies in programs leading to a B.A., M.A., or Ph.D. in American Studies.

Aging Studies

The Afro-American 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 studies which have been coordinated and recognized 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
examine these problems and their interrelationships, and to focus on one set of problems for more detailed analysis. The four problem areas are: war, peace; economics; development; environments; and global responsibilities. This 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/bilingual 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 seminar-lecture discussion courses on fundamental human interactions which seek to explore and evaluate important contemporary issues on the basis of their reading in outstanding works. They learn to draw upon their readings and discussions to define issues and problems and work them through. An A.B. major provides a strong background for graduate study in an 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 fostering inclusivity that knowledge within the University community. The term "women’s studies" refers to education for women and men about the teaching and research about women which is of intrinsic interest to scholars. This major academic dimension in education forms a cumulative pattern in learning about women and supplements mandated 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 department, 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.

- A minor of 16 semester hours must be taken in the minor area;
- All courses toward the minor must be passed with a grade of "C" or better.
- A student must have at least a 2.0 grade-point average on all work attempted in the minor department;
- The minor is awarded only at the time the student receives the bachelor’s degree, or later.
- Students may apply for minors at any time that they apply for a bachelor’s degree. If eligible, the notation of the minor is placed on the student’s grade report.
- If a student, who already has a bachelor’s degree from The University of Iowa and is still in undergraduate status, completes the requirements for a minor, or she or he may apply to the registrar to have the notation regarding the minor placed on the permanent record.
- When a student applies for a minor, the application-for-degree form filled with the registrar needs the signature of the major adviser.
- The degree-granting programs in early childhood education, secondary education, health occupations education, special education, and dental hygiene, do not offer minors.
- Students in the Bachelor of General Studies program and the Bachelor of Liberal Studies program are not eligible to earn minors, since these are programs without majors.
- Some programs in the college which do not offer undergraduate degrees have been permitted by the educational policy committee to offer minors. Information about program approvals is available in departments.
- Students who earn bachelor's degrees in interdepartmental programs, such as general science or biology, cannot earn minors in areas falling within the major degree field.
- The decision of what an advanced course is left up to the minor department. Many departments have prepared lists of advanced courses.
- Students seeking information about courses acceptable for minors should contact the minor departmental office or college with their major adviser. If departments have not designated any courses as advanced courses, all 100-level courses will be accepted as advanced courses.
- The minor may support or relate directly to the student’s major. In other cases, the minor may allow a student to follow an entirely different and separate interest from his or her major. Students should seek help from their major advisers in planning minor programs.
- For further information about the minor program in the College of Liberal Arts, contact the Liberal Arts Advising Office.

Minor in Business Administration
Students in the College of Liberal Arts may seek a minor in business administration. Requirements include proof of successful as well as business courses. The courses listed below satisfy all requirements. Interested students should complete or be registered for the first semester of those courses before applying for admission to the minor program.

Computer programming course 3 s.h.
Courses in mathematics numbered 22M:7 or higher 3 s.h.
Courses in statistics numbered 225:8 or higher 3 s.h.
651:2 Principles of Economics 3 s.h.
651:1 Introduction to Financial Accounting 3 s.h.
8A:2 Introduction to Managerial Accounting 3 s.h.
*651:1 Marketing 3 s.h.
*617:500 Financial Management 3 s.h.
61:100 Administrative Management 3 s.h.
61:8 Introduction to Law 3 s.h.
*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 (see "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 chains of the various language departments serve as advisers to students 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 coursework 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 is prepared for graduate study of the area.

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 sections. Many departments offer honors seminars, independent research, and the opportunity to write a senior thesis under a faculty member’s guidance. Successful completion of such work may lead to a baccalaureate degree “with honors” in the major. The program maintains an Honors House as a study and social center for the Honors College. Freshmen eligible for the Honors Program are encouraged to take the Program’s entrance exam in September. Students not selected for the Honors Program are eligible for admission to the Associate Honors Program.

Specializations within Degree Programs

Almost every degree-granting unit in the college offers internal 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 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, performance emphasis, and art education: music education, independent study, composition/theory major, and applied music.

Other specializations can be developed 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 Mass Communication, and the School of Journalism and Mass Communication; photography and graphic design 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 sciences departments. Further information on specializations within and between programs can be found in the program descriptions in this Catalog and in advisories in the appropriate departments.

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, any accredited medical or dental college in the United States which offers advanced degrees.

To be eligible to use a joint program with the appropriate college 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; all the requirement for the major; and satisfied the resident 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 ingraded elective credit which may be applied toward a degree.

No more than 32 semester hours earned in the professional 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.

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, must secure the written consent of the professional college to apply to the graduation analysis section of the college for the verification necessary 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 to proceed towards applying for a University of Iowa degree.

Combined Degree Program between College of Liberal Arts and College of Engineering

Students may earn two University of Iowa 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

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program should declare their interest by contacting a representative of the Dart'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 adviser 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 lesacscience 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 requirements in the College of Liberal Arts. The required engineering courses taken by the student will vary, according to the engineering specialty selected. Since the course in science, mathematics, and the social-humanities are regularly accepted for credit 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 college 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 hold the high school from which he or she graduated provide a certified high school transcript, including a complete statement of grades, 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 matriculation will not be final until receipt of the final transcript and certification of high school graduation.

A graduate of an approved Iowa high school who has the proper high school background, is in the upper one-half of his or her graduating class, and meets special 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 at the discretion of the admission officer, may 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 options 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, and take examinations which demonstrate his or her general competence to do college-level work.

An applicant who is not a high school graduate must submit all data required above, take examinations to demonstrate general competence to do college work. and provide evidence of specific competence for admission to a given curriculum.

Undergraduate Transfer Students

Transcripts of records are given full value if they come from colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or similar regional associations. The recommendations contained in the current issue of the Report of Credit Shales by Educational Institutions published by the American Association of Collegiate Registrars and Admissions Officers will be followed for schools not regionally accredited.

Each applicant must submit an official transcript bearing the official seal and signature of the official in charge of records from each other 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 4.0 point system) for all college work attempted, and must not be under suspension from the last college attended. Transfer 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 removed for an indefinite period, will not be considered until six months have passed since the last date of attendance. When eligible for recommendation, 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 suspension are filed from the previous college. When it becomes proper to consider an application from a student under suspension, the college must first 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 to the student the terms of the validation process at the time of 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 nonimmigrant status), whether U.S. high school graduates or not, may be required to meet higher standards for admission than those described above for a resident graduate of an Iowa high school.

Applicants whose native or official language is not English must provide a statement that they have studied English as a Foreign Language (TOEFL) before admission may be granted. Although TOEFL scores are used by some colleges or schools, they are required to take an English proficiency examination by the University's Department of Linguistics prior to registration.

Freshmen evaluated as proficient must enroll in 101-111 English. If not proficient, the student must enroll in the ESL course recommended by the linguistics department. The student must continue to enroll in ESL, courses until the student can present a 550 TOEFL score or until the student has taken all of the core requirements by the linguistics department.

The Department of Linguistics offers six ESL courses (153, 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 linguistic 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 admissions may be for certain sessions or unlimited in length. Reenrollment 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 for beginning freshmen, as indicated on their admission statements for transfer students.

Residence
Minimum credit to be earned in residence at the University consists of 60 semester hours, 45 of the last 60 semester hours, or a total of 90 semester hours. Nonresident enrollment includes work at other colleges (not The University of Iowa), in other undergraduate colleges at The University of Iowa, and in The University of Iowa 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 16 semester hours of credit with a grade of "P" (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 "P" grades are not eligible to take any more. (See following section for more details about the usage for pass-nondequate grades.) Students may earn up to 32 semester hours of credit by examination from all sources.

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

Semester hours for courses completed with nonpass marks 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 registration priority in 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 low "Tier Mar 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 the "old system," requirements, goes into effect in June 1982. A description of the core requirements of the "old system" follows immediately, along a description of the "new" general education requirements follows after that.

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

Basic skills (historio, mathematics, and physical education skills); Core courses (historical-cultural, literature, natural science, and social science); and Physical Education

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 rhetoric course, a student cannot drop the course. Students enrolled in 10:5 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 eight.

Transfer Students
Transfer students fulfill the course requirement in rhetoric by submitting at the time of entrance 8 semester hours of course work from another institution of good standing comparable to the rhetoric course at The University of Iowa, or by transferring 8 semester hours of credit in English composition and 8 semester hours of credit in speech from another accredited institution by transferring 8 semester hours in English composition and eight semester hours of credit in speech (100C-25) at this University or separately passing the speech test. A student who transfers less than 6 semester hours in composition must register for the first Registration for rhetoric as 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 tests; or by completing 22M.1 Basic Mathematical Techniques; or by satisfactorily completing a college-level course in mathematics, computer science, or statistics in courses satisfying the examination in 22M.1.

Physical Education Skills All Students
Students fulfill the physical education skills requirement by satisfactorily completing four semester-hour courses in physical education skills to
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 incompleted 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 repeated the same course or takes a more elementary one, the registrar will assess a fee 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. At maximum a 4 semester hours 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 examinations, 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 twelfth birthday prior to the day of their graduation, are excused from the requirement.

Veterans

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

Transfer Students

Transfer students may fulfill the physical education skills requirement by transferring 2 semester hours of college physical education, or by transferring 40 semester hours of advanced standing; or by transferring aces from 4 semester hours of college physical education and by earning enough credit 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 Science, and Social Science Core

Eight semester hours are required in each of the four core areas for the B.A., B.S., B.ED., and B.F.A. degrees. However, with the approval of the department, it is possible to be used from the core requirement in the area 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 (nonduplucating) of the following courses totaling 8 semester hours.

11/21-30 Problems in Human History
11/31-32 Western Civilization
11/32-34 Philosophy and Human Nature
11/37 Understanding the Visual Arts (formerly Form and Theory in the Visual Arts)
11/38 Western Art and Culture before 1400
11/38-40 Masterpieces of Music
11/41 Western Art and Culture after 1400
11/43 Art of the Theatre (formerly Drama and Western Civilizations)
11/46 Civilizations of Asia
11/61 Judeo-Christian Tradition
11/62 Religion and Society (formerly 11/38 Religion in Human Culture)
11/63 Quest for Human Destiny (formerly 11/38 Religion in Human Culture)

Literature

All students must complete 11/1 The Interpretation of Literature, followed by any other literature core courses. Satisfactory performance in the prerequisite, English majors are exempt from fulfilling the literature core requirement.

11/1 The Interpretation of Literature
11/2 Biblical and Classical Literature
11/3 Medieval and Renaissance Literature
11/4 Idea of Tragedy
11/5 Idea of Comedy
11/6 Narrative Literature
11/7 Lyric Poetry
11/8 Literature of the Theater
11/9 American Lives
11/13 The Classical Views
11/14 Literature of the African Peoples
11/15 The Literary Presentation of Women
11/17 German Heric and Erotic Literature of the Middle Ages
11/18 Contemporary Latin American Narrative
11/19 Asian Humanities
11/20 Asian Humanities

Natural Science

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

2.1, 2.11, 2.13 Botany
4.7 or 4.8, 4.9, 4.13, 4.14, 4.16 Chemistry
11/21 Human Biology
11/22 Ecology and Evolution
11/23 Earth History and Resources (may not be combined with 12/5)
11/24 Men and His Physical Environment
11/35 Chemistry and Physics of the Environment (also 29/5; offered for 3 s.h. credit only)
11/38 Technology and Society
12/5 Introduction to Geology (may not be combined with 11/23)
29/11 or 29/17, 29/12 or 29/18, or 29/8 Physics
29/81 and 29/62, or 29/30, or 29/15 Astronomy
(Translated of Physics and Astronomy)
37/3 Principles of Animal Biology
97/35, 97/35 and 224/30 Science Foundations
(For majors in elementary, special education, and early childhood education only with no college science)
97/104 and 224/30 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 (nonduplucating) of the following courses totaling 8 semester hours.

52/1 and 52/2 Economics
30/1 or 30/10, 32/2, 39/30, 50/30,
39/30 or 31/1 or 31/3 Psychology
34/1, 34/2 Sociology
44/1, 44/2, 44/11, 44/19, 44/30, 44/35
genetics
102/11 Language and Society

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 from the departments listed in each core area listed below.

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

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

c. Social science—anthropology, economics, geography, linguistics,
political science, psychology, and sociology
2. A transfer student with zero hours in a core area must complete 8 semester hours of approved core courses at The University of Iowa.
3. Literature core—By submitting at the time of entrance 6 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 degree.
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 sequential semesters of college-level study must be completed in any one of the foreign languages which are offered by the University.
The requirements may also be satisfied by:
a. Completion of four years of high school study in one language;
b. Completion of a combination of high school and college study in one language which would be the equivalent of two semesters of study on the college level;
c. 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:
a. Completion of two years of high school study in one language;
b. Completion of a combination of high school and college study in one language which would be the equivalent of two semesters of study on the college level;
c. Satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study in one foreign language.
3. If you are taking French, the foreign language requirements for the B.A. degree may be fulfilled by taking a sequence of courses culminating in 5:12 Intermediate French, or 9:28 Second-Year Composition and Conversation, or a combination of 9:27 Second-Year Composition and Conversation and 9:28 French Conversation First Level. 9:28 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, 8 semester hours each, for a total of 12 semester hours will meet the foreign language requirements for the B.A. degree. One semester, 8 semester hours, of these languages will meet the foreign language requirements for the B.F.A., B.S., 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 counted as meeting half of the core requirement for students continuing under the 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 will be determined by courses approved for general education and designated as 3 semester hours which would count as only 3 semester hours taken by students meeting 8 semester-hour core requirements.
General Education Requirements
All students who registered for the first time at Iowa for any semester after May 1982 must complete the following general education requirements for the degrees of B.A., B.S., B.S.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 requirement (which includes research and writing) as stipulated on 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. Students must register for 10:3 Rhetoric. Exemption based on test score will be granted for the general education requirements for rhetoric. Mathematics
The college requirement in mathematics may be met in any of the following ways:
1. By scoring 26 or above on the mathematics subscore of the ACT general test battery; or
2. By completing one year of high school algebra and one year of high school geometry or their equivalent; or
3. By successfully passing a basic mathematics techniques proficiency test at Iowa. The passing score will be equivalent to a score of 26 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 mathematics or one year of high school mathematics and two years of high school algebra or 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. degrees.

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. (Academic credit will not be given for passing the proficiency tests.)

Additional Comments
No foreign language course may be taken for non-transferable credit. If 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.S. degree may be fulfilled by taking a sequence of courses culminating in 9:12 Intermediate French, or 9:28 Second-Year Composition and Conversation, or a combination of 6:27 Second-Year Composition and Conversation and 9:28 French Conversation First Level. 9:28 alone is not sufficient for fourth semester requirement. Other combinations are possible. Check with the French department office, 10 Scheffer Hall (phone 353-4087).

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-P grading procedure. Only courses 10:12, 10:22, 10:32, 10:53, and 10:55 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 incoherent courses, students must only opt 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 at the end of the 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 senior standing (having served 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 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-first birthday prior to the date of their enrollment at the University, as well as those who have passed their twenty-eighth birthday prior to the day of their...
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 receive credit toward general education requirements (acceptance of these courses will be determined by 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 counted toward general education requirements, except those taken to meet the foreign language or the fine arts, civilization and culture requirement, b) the foreign language requirement, of the physical education requirement, or d) 23M1 Basic Mathematical Techniques, or d) 1111 interpretation of Literature. However, each department may waive 4 semester hours of general education requirements for its B.S. 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 of criteria, which will be 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 offered to students with maximum flexibility in planning their educational programs. Candidates for this degree should have clear educational goals with specific courses and areas 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 rhetoric requirement must enroll for a rhetoric course. 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 major advisors to determine where it seems in their best interests to do so. In working out so 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 who 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 courses 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. A minimum of 10 hours is required in The College of Liberal Arts.
Enrollment for at least one semester of rhetoric.
Achievement of at least a 2.0 grade-point average in all college 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 70) are considered to be in one department, all College of Business Administration courses (prefix 20) are considered to be in one department, excepting those in economics (prefix 6E), 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, extracurricular activities, and good standing policies apply to B.G.S. students in the same way as to all other undergraduate students in the college.

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 on-going series 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 theRegistro 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.
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 history and sociology. No double majors can be earned unless both are in degree-granting departments or programs of 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.

Sociology
Sociology, as approved by the degree-granting institution
Of which 36 semester hours, 34 must be in upper-level courses, and of these 34, at least 16 must be in each of the three selected divisions of sociology. Credits applied to the general education requirements may not be used to meet the distribution area requirements. Sociology

Graduation requires a minimum grade-point average of 2.00 on 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 may be eligible 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.

To apply for admission to the TEP, complete application forms in the Liberal Arts Arts, and submit to the Admissions Office. Students admitted will be notified in writing prior to the fall term. College of Education section is the Catalog.)

Collegiate Policies

Deadlines

Add
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.

Drop
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 advisor 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 not listed in the Schedule of Classes, 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 proportions may apply for the usual eighth-week summer session and for other special instruction 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/nonpass and Audit
Pass-nonpass registrations or revocations of pass-nonpass 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).

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. on 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: repeated, no credit
I: incomplete
C: no report
W: withdrawn

Incomplete

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) will result 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 incomplete has been changed to F. In such cases, special report to the registrar 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 above rules for Incompletes minus the "incompletes." Failure to remove the O 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 they drop after the first week. Undergraduates in other colleges will receive a No Report 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 authorized courses 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 F and P 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 96 semester hours may earn a maximum of 18 semester hours of P grades. Those who bring in more than 96 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 cognate or related areas may be taken on a P-N basis, if available, 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 (end of the first week and a half of a summer session). Any change from P-N to grade status to P-N status must be made by submitting a properly completed P-N form to the registrar before the end of the third week of classes (end 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 course and during the first one-fifth of the duration of the course.

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:

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. Not more than 16 semester hours of S grades will be accepted toward the bachelor's degree of any student. S grades may be earned in the major. No forms will be needed to register for a satisfactory-fail course. All students in such courses will receive either an S or an F.

The grade of F under the satisfactory-fail usage 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 hours in conjunction with the special permission signature of the instructor of the course. To add a course for audit (zero credit) after 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 (first week 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 students registered for the course for zero credit if the student's attendance and performance are satisfactory. 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 hours of credit earned by the appropriate grade points; (2) totalling 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 the 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 as accurate, 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 may consult with his or her adviser in outlining plans for a major.

Maximum Credit in One Department
No more than 30 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 15-16 semester hours for a semester, 9-10 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 earns from course work taken 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. This includes the 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 to 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 whose option is the second-grade-only option is involved, and have only the grade of P recorded on the permanent registration used in calculating The University of Iowa's grade point or the 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 evaluated. If the course is not offered, or if the student wishes to take the course for a grade the second time, he or she may take it pass-no pass or for a grade the second time.

Classification
Freshman: less than 29 semester hours of credit earned Sophomore: 29 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 repeat cases cancel the student's registration for the course if attendance is unsatisfactory.

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

Excused Absences
For permission to be absent from class to participate in a 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 individual specifying exactly the dates and times 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. Excused absences for this purpose are available in each department under the direction of the Liberal Arts Advisory Office. Students should not be asked to obtain excusal 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 be present at final 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 adjusted.

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 advisors 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
All cases of cheating at the college and cheating in the College of Liberal Arts should be reported for action to the Office of the Dean of the college. All departments communicate through the dean of the college or the dean of students.

Probation and Dismissal
Students who fail to attain the following minimum cumulative grade-point averages (3.0 and above) for their class are placed (or continued) on scholastic probation:
Freshman (less than 26 semester hours): 1.60
Sophomore (26 to 55 semester hours): 1.50
Juniors (56 to 89 semester hours): 1.50
Seniors (90 or more semester hours): 1.90

The violations of the preceding paragraph (minimum grade-point averages needed in order to be in good academic standing) do not apply to any student who enrolls at Iowa for the first time for any session after May 1900 and who has not graduated by May 1906. The minimum grade-point averages for good standing for these people are:
Freshman: 1.90
Sophomore: 1.75
Juniors: 1.90
Seniors and unclassified: 2.00

Students on probation whose cumulative (all 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 an additional semester of probation at the close of the spring semester will not have their cases reviewed if they enroll in the summer session at The University of Iowa and achieve good standing at the close of the session.

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 indicates improvement of success in college work. A student granted permission to register under the paragraph 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 register.

A record of each student's scholastic performance is kept in the Office of the Registrar and in the Liberal Arts Advisory Office. Students placed on probation, continued on probation, or
Information and diverse points of view, evaluate and recognize significance of evidence, recognize interdependence of substantive matters; contrast in conducting research and speeches, and research paper. Prerequisite: 101 or equivalent course.

123 Research 4.5h
Instruction and practice in assessing, writing, and critical reading with the 102, as an extension, utilizing testing, research and argumentation. Development of research and argumentation skills is necessary for the student to be able to conduct research in his major area of study. Emphasis placed on the student's ability to employ relevant research and support his argument. Prerequisite: 102 or equivalent course.

124 Research and Practice in Written Communication 3.0h
Sophomore. See 103 for topic and expectations.

125 Research 4.5h
- Students having major difficulties with college-level writing to improve reading proficiency; require assignment confers the use of reading aid materials, laboratory from current University courses, and library resources. Students are encouraged to work with their peers on the assignments. This course is recommended for those enrolled in the early writing comprehension, enhancing skills, and empathy of reading. Open to any student not enrolled in another similar course.

126 Research 3.0h
After an initial selection of writings, instruction focuses on the particular theme and interest of the writer. Open to any student not accepted in another thematic course.

127 Practical Education Skills 1.5h
Basic techniques in student's choice among weekly variety of tasks and individual assignment and laboratory assignments. See current schedule of distinctive courses for courses offered.

128 Practical Education Skills 1.5h
- Description same as for 127.

129 Practical Education Skills 1.5h
- Description same as for 127.

130 Practical Education Skills 1.5h
- Description same as for 127.

131 The Literature of the University 3.0h
- Literature in student's choice among a wide variety of tasks and individual assignment and laboratory assignments. See current schedule of distinctive courses for courses offered.

132 Biblical and Classical Literature 3.0h
- Selections from Old and New Testament literatures, and others, mainly English and American. Prerequisite: a good background in either discipline.

133 Medieval and Renaissance Literature 3.0h
Selections from Medieval, Chaucer, Shakespeare, Hellen, and others, mainly Latin. Prerequisite: a good background in either discipline.

134 Modern and Renaissance Literature 3.0h
- Literature in student's choice among a wide variety of tasks and individual assignment and laboratory assignments. See current schedule of distinctive courses for courses offered.

135 Northwest Literature 3.0h
- Selections from local and national literatures, and others, mainly Latin. Prerequisite: a good background in either discipline.

136 Mexican Literature 3.0h
- Varieties of exotic view of the past and present, histories, modernities, and novels, and prose and verse. Prerequisite: 111.

137 Nordic Literature 3.0h
- Selections from local and national literatures, and others, mainly Latin. Prerequisite: a good background in either discipline.

138 Poetry 3.0h
- Poems from major periods of development. Each essay is required to complete a poem and essay with emphasis on traditionalism and major trends of poetry. Prerequisite: 111.

139 Literature of the Theater 3.0h
- Placement from Shakespeare's time to present, with some consideration of dramatic genre and form in our ages. Prerequisite: 111.

140 American Ethics 4.5h
Major works of American, ethnography. Prerequisite: 111.

111 The Twentieth Phase 3.0h
- Prerequisites: 110 or equivalent course.

112 The Classical World 3.0h
- Prerequisites: 110 or equivalent course.

113 The Romantic Phase 3.0h
- Prerequisites: 110 or equivalent course.

114 The Literary Production of Women 3.0h
- Prerequisites: 110 or equivalent course.

115 The Early Woman's Premonition 3.0h
- Prerequisites: 110 or equivalent course.

116 The Germanic World and Ethnic Literature of the Middle Ages 3.0h
- Prerequisites: 110 or equivalent course.

117 The Literary Review of China in English Translation. 3.0h
- Prerequisites: 110 or equivalent course.

118 Japanese Literature 3.0h
- Prerequisites: 110 or equivalent course.

119 Hebrew Literature 3.0h
- Prerequisites: 110 or equivalent course.

120 Medieval and Renaissance Literature 3.0h
- Prerequisites: 110 or equivalent course.

121 The Enlightenment 3.0h
- Prerequisites: 110 or equivalent course.

122 Eclectic and Exclusive Styles 3.0h
- Prerequisites: 110 or equivalent course.

123 Chinese and Oriental Literature 3.0h
- Prerequisites: 110 or equivalent course.

124 History of Nature and Science 3.0h
- Prerequisites: 110 or equivalent course.

125 The History of Mankind 3.0h
- Prerequisites: 110 or equivalent course.

126 Chemistry and Physics of the Environment 3.0h
- Prerequisites: 110 or equivalent course.

127 Environmental Engineering 3.0h
- Prerequisites: 110 or equivalent course.

128 Environmental Chemistry 3.0h
- Prerequisites: 110 or equivalent course.

129 Environmental Protection and Pollution 3.0h
- Prerequisites: 110 or equivalent course.

130 Environmental Science 3.0h
- Prerequisites: 110 or equivalent course.

131 Environmental Economics 3.0h
- Prerequisites: 110 or equivalent course.

132 Environmental Policy 3.0h
- Prerequisites: 110 or equivalent course.

133 Environmental Assessment 3.0h
- Prerequisites: 110 or equivalent course.

134 Environmental Impact 3.0h
- Prerequisites: 110 or equivalent course.

135 Environmental Management 3.0h
- Prerequisites: 110 or equivalent course.

136 Environmental Law 3.0h
- Prerequisites: 110 or equivalent course.

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162 Environmental Policy 3.0h
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163 Environmental Assessment 3.0h
- Prerequisites: 110 or equivalent course.

164 Environmental Impact 3.0h
- Prerequisites: 110 or equivalent course.
Aerospace Military Studies

Department head: Lt. Col. Michael P. Nolan
Faculty: Professors: M. J. Armstrong, Capt. Thomas G. Brenner, Capt. James W. King

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. These 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 contract at AFROTC in the 11th semester. Books and uniforms for AFROTC programs are provided.

The GMC consists of one four-credit AFROTC courses and the leadership laboratory, becoming a freshman, a student takes 23A:1-12 The Air Force Today and 23B:1-2 The Development of Air Power. To be considered an AFROTC cadet, a student must also take 23A:26-97 Leadership Laboratory.

The professor of aerospace studies may grant credit 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 last freshman and sophomore sequence simultaneously. This results in two-semester hours of AFROTC plus 23A:96-97 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 aerospace 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 (AFQT), 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 aerospace 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 direct 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 program. Freshmen and sophomores learn drill and ceremonies, small unit formation, usage, and execution of the Manual of Compilation, small arms training, and small unit leadership. 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
334/41 The Air Force Today 1.5
334/42 The Space Force Today 1.5
335/51 The Development of Air Warfare 1.5
335/52 The Development of Air Power 1.5
335/53 The Air Force Today 1.5
335/54 Leadership in Contemporary American Society 1.5
336/54 Military History and Leadership 1.5
336/55 Military History 1.5

Financial Assistance
AFROTC scholarships are available for 4, 3, 2, 1, 2/2, and 2/3 years. In addition, 3- and 2-year pre-health professional students in nursing scholarships are offered. All scholarships are based on merit and provide full tuition, books, laboratory fees, and $100 a month tax-free subsistence allowance. Applicants are selected using 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.

Afro-American Studies
Program Chair: Daniel T. Turner
Faculty: Charles D. Turner (English/African-American Studies)
associate professor of History (English/African-American Studies)
Professors of English/African-American Studies
Professors of English/African-American Studies
Professors of English/African-American Studies
Professors of English/African-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 relationship of African-Americans to Africa in other lands. Because the understanding of Afro-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 1966 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. degree programs in other fields to design coursework in Afro-American literature or Afro-American history into a special field or concentration.

Although most of the students in the Ph.D. program are preparing to work in colleges and universities as teachers and researchers, Afro-American Studies programs provide valuable backgrounds for many other students seeking careers in cultural work, journalism, teaching, religion, government, and political activism, a short, the Afro-American Studies Program offers training to the growing number of professionals whose career will require understanding and knowledge of Black Americans.
a program leading to the B.A. degree in American studies. Such a concentration would include among its courses a survey of African People. 
4.20 Introduction to Afro-American Literature and History: 4.20.1 Introduction to Afro-American Culture, and 4.20.2 Afro-American literature. The course is numbered 45.10 through 45.157. Also recommended as background for more advanced courses in Afro-American literature and history are 45.116-117 Afro-American Literature I-II and the following: 45.185 Afro-American History: 1890-1930, 45.188 Afro-American History: 1930-1914, and 45.189 Afro-American History: 1914 to the Present.

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 Afro-American culture and experience. Such a program expects to benefit 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 is in Afro-American studies. The program requires 45 semester hours, normally completed within three years. Requirements include 45.211 Introduction to Research in Afro-American Culture, 45.312 Advanced Research in Afro-American Culture, and 12 semester hours of elective courses in Afro-American studies. 

Most students will be permitted to earn 8 semester hours in literature/history by taking one of the following: 45.180 Afro-American History 1860-1890, 45.188 Afro-American History 1890-1930, 45.189 Afro-American History 1930-1914, 45.188 Afro-American History 1914-Present. Students who have earned undergraduate or graduate credit for a year-long survey of either American Literature or Afro-American Literature will satisfy the literature/history requirement by studying the area in which they have no credit. Students who have earned identical undergraduate or graduate credit in Afro-American literature and Afro-American history may be required to complete both 45.116-117 Afro-American Literature I-II and two of the following: 45.185 Afro-American History 1860-1890, 45.188 Afro-American History 1890-1930, 45.189 Afro-American History 1930-1914, 45.188 Afro-American History 1914-Present. Students who have earned identical undergraduate or graduate credit in Afro-American literature and Afro-American history may be required to complete both 45.116-117 Afro-American Literature I-II and two of the following: 45.185 Afro-American History 1860-1890, 45.188 Afro-American History 1890-1930, 45.189 Afro-American History 1930-1914, and two of the following: 45.188 Afro-American History 1890-1930, 45.188 Afro-American History 1930-1914, 45.189 Afro-American History 1914-Present.

Thesis/Project Requirements

A thesis is not required for a Master of Arts degree in Afro-American studies. A student who elects to write a thesis, the thesis must be related to the discipline of Afro-American culture and/or experience and must utilize research from more than one discipline. The maximum credit for such a thesis is 6 semester hours, and election of a thesis eliminates the requirement of 45.312 Advanced Research in Afro-American culture. A student who does not elect to prepare a thesis is required to develop a course of study with an advisor, a project related to Afro-American culture and/or experience. When completed, this project must be defended in a seminar and defended before an advisory committee in Afro-American studies.

Admission Requirements

In addition to the general requirements of the Graduate College, unconditional candidates applying to the Afro-American Studies Program require that a student have an appropriate educational background in literature and the social sciences, at least 8 semester hours of college credit in Afro-American literature and/or history courses, and a minimum grade-point average of 2.7 in previous college coursework in Afro-American studies. A student may be asked to take, without credit towards the master's degree, courses needed to remedy any deficiencies in undergraduate preparation.

As an applicant for admission will be expected to provide three letters of recommendation from former professors and a sample of his or her scholarly writing. Recommendations for admission will be made by the committee of the Afro-American studies steering committee.

Concentration within M.A. Program in American Studies

Generally, a student seeking a concentration in Afro-American studies within a Master of Arts 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 American Studies. Of the 36 post-baccalaureate semester hours required for the Master of Arts degree, 24 must be taken in Afro-American Studies. Since the Afro-American Studies Program is interdisciplinary, students taking 12 hours in Afro-American studies are required to complete 24 hours of coursework in American Studies, 45.116-117 Afro-American Literature I-II, and two of the following: 45.185 Afro-American History 1860-1890, 45.188 Afro-American History 1890-1930, 45.189 Afro-American History 1914-Present, except when they have taken equivalent courses at the undergraduate level. Specific requirements, please see the program for a Master of Arts in American studies, described in the following departmental section of the Catalog.

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 be a teacher or research scholar at the college/university level. In the minimum 72 post-baccalaureate semester hours required for the degree, at least 30 semester hours (not including the thesis) must be courses in Afro-American studies, including 45.211 Introduction to Research in Afro-American Culture, 45.116-117 Afro-American Literature I-II, and two of the
following—45:165 Afro-American History 1850-1860, 45:166 Afro-American History 1860-1914, 45:168 Afro-American History 1814-1914—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 Catalogue.

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 with an advisor in Afro-American studies.

Cocurricular 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 institutes, 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 theater, and slave narratives. Although students in residence at the University are not eligible to be official members of the institutes, they are 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 educational and cultural artifacts and exhibits of Black culture. Thus, it provides cultural enrichment for Black people of the University who are interested in Afro-American culture and history. 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 catalog and library of educational and cultural artifacts of Afro-American Studies Program, the following are recommended for students interested in this area. For course descriptions, see appropriate sections of the Catalogue.

Business Administration
66:102 Employment Relations and Public Policy
3 s.h.

Economics
66:137 Population in Urban Economics
3 s.h.

Education
76:104 Education in the Third World
2-3 s.h.
76:106 Educational Sociology
2-3 s.h.
76:300 Seminar: Value Problems in the Administration of American Education
3 s.h.
76:106 Socialization of the School-Age Child
2-3 s.h.
76:123 The Culturally Different in Educational Settings
3 s.h.

History
180:1 American History, 1492-1877
3 s.h.
180:2 American History, 1877-Present
3 s.h.
180:3 United States in the Early Republic
3 s.h.
180:4 Civil War and Reconstruction
3 s.h.
180:5 The Gilded Age in America
3 s.h.
180:6 The Progressive Era in America
3 s.h.
180:7 The New Era and The New Deal (1920-1945)
3 s.h.
180:8 The Contemporary United States (1940-Present)
3 s.h.
180:9 The Revolutionary Generation in America
3 s.h.
180:10 American Thought and Civilization, 1492-Present
3 s.h.

Courses

Afro-American Studies and Related Areas

For Undergraduates Only
467 Sex, Race, and Society
3 s.h.
468 Literature of African People
Introduction to selected works of twentieth-century Black writers in the United States, the Caribbean, and Africa. Prerequisite: 11:1. Same as 11:14.
469 Black Poetry Workshop
Survey of Black American poetry, from its roots in folk songs and spirituals to the Black Arts Movement. Open to all students. Non-English Majors can take this course for advanced placement credit.
461:1 Contemporary Black Experience
Reading of short stories of several writers of poems submitted by students in the class.
461:2 Contemporary Black Experience
Focus on short stories of several writers of poems submitted by students in the class.
461:3 Afro-American Fiction
Selections from short stories by Afro-American authors, chosen on the basis of their general interest to contemporary fiction.
4625 Introduction to Afro-American Society
Course works in autobiography, novels, and films. Open to all students, especially those interested in the social and cultural history of Afro-Americans. Prerequisite: 46:10. Same as 46:15.
4635 Introduction to Afro-American Culture
Course works in autobiography, novels, and films. Open to all students, especially those interested in the social and cultural history of Afro-Americans. Prerequisite: 46:10. Same as 46:15.
4651 Literature Through a Study of Significant Works in Literature, Film, Drama, and Philosophy, and Their Relationship to the Development of Black Culture
4652 Literature Through a Study of Significant Works in Literature, Film, Drama, and Philosophy, and Their Relationship to the Development of Black Culture
4653 Literature Through a Study of Significant Works in Literature, Film, Drama, and Philosophy, and Their Relationship to the Development of Black Culture

Primarily for Advanced Undergraduates and Graduate Students

480:10 African Studies
An exploration of Africa by an contemporary African; reading list includes plays for staging, one-act plays, radio plays.
480:14 Afro-American Art
Course works in autobiography, novels, and films. Open to all students, especially those interested in the social and cultural history of Afro-Americans. Prerequisite: 46:10. Same as 46:15.
480:15 Black Literature and Afro-American Experience
Course works in autobiography, novels, and films. Open to all students, especially those interested in the social and cultural history of Afro-Americans. Prerequisite: 46:10. Same as 46:15.
480:16 18th-Century and Early American Literature
Same as 48:11.

Liberal Arts/Afro-American Studies
Aging Studies Program/LIBERAL ARTS

45.113 Visions in the New World 2 a.h.
A social and cultural history of Black populations in the New World, with an emphasis on their impact on later civil society. Same as 211.113.

45.143 Race and Other Imagery 2 a.h.
Multi-disciplinary study of inter-group relations: ethnic, religious, historical, and political issues in the study of African-American history.

45.194 18th-Century African Writers 2 a.h.
African-American writers from the eighteenth century to 1865, examined to relate to culture, society, literature, and politics of the time. Same as 211.194.

45.174 African-American Literature II 2 a.h.
Literary developments among African-Americans from 1865 to the present. Writers and women are related to those groups' struggle for freedom and expression within their communities. Same as 211.174.

45.189 African Literature 2 a.h.
Study of literature in African countries. Same as 211.189.

45.190 African Literature 2 a.h.
Study of literature in African countries. Same as 211.190.

45.192 South African Literature 2 a.h.
An introduction to South African literature. Same as 211.192.

45.193 19th-Century African-American Writers 2 a.h.
Critical study of the literature written by African Americans forming the basis for the Black American experience. Examines major African-American authors and their work. Same as 211.193.

45.111 Readings in African-American Literature 2 a.h.
May be repeated as an independent study. Same as 211.111.

45.133 Critical Race Theory 2 a.h.
Theorists and theory courses in addition to assessing how theoretical lenses have been employed in their work. May be repeated as a formal course. Same as 211.133.

45.123 Black Feminist Theory 2 a.h.
Theory/theory courses in addition to assessing how theoretical lenses have been employed in their work. May be repeated as a formal course. Same as 211.123.

45.125 Black Women in America 2 a.h.
History of Black women in the United States. Same as 211.125.

45.128 Women in America 2 a.h.
History of American women, with particular attention to the relationship between African-American women and their society. Primarily for graduate students. Same as 211.128.

45.129 Black Women in America 2 a.h.
History of Black women in the United States. Same as 211.129.

45.120 Women's Rights 2 a.h.
An examination of the history of women's rights movements in the United States. Same as 211.120.

45.142 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.142.

45.143 Race and Other Imagery 2 a.h.
Multi-disciplinary study of inter-group relations: ethnic, religious, historical, and political issues in the study of African-American history. Same as 211.143.

45.145 Black Women in America 2 a.h.
History of Black women in the United States. Same as 211.145.

45.146 Women in America 2 a.h.
History of American women, with particular attention to the relationship between African-American women and their society. Primarily for graduate students. Same as 211.146.

45.132 Black Women in America 2 a.h.
History of Black women in the United States. Same as 211.132.

45.135 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.135.

45.136 The Inner City 2 a.h.
Social, political, economic, and cultural perspectives of the metropolitan area. Also studies the quality of life in city neighborhoods, social aspects of urban life, and the cultural traditions of the various neighborhoods. Open to freshmen. Same as 110.136.

45.137 Black Christianity 2 a.h.
An examination of the black church in the United States. Same as 211.137.

45.140 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.140.

45.141 Women in America 2 a.h.
History of American women, with particular attention to the relationship between African-American women and their society. Primarily for graduate students. Same as 211.141.

45.147 Women in America 2 a.h.
History of American women, with particular attention to the relationship between African-American women and their society. Primarily for graduate students. Same as 211.147.

45.149 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.149.

45.151 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.151.

45.153 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.153.

45.154 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.154.

45.155 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.155.

45.156 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.156.

45.157 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.157.

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Study of literature in African countries. Same as 211.158.

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Study of literature in African countries. Same as 211.159.

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Study of literature in African countries. Same as 211.160.

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Study of literature in African countries. Same as 211.162.

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Study of literature in African countries. Same as 211.163.

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Study of literature in African countries. Same as 211.164.

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Study of literature in African countries. Same as 211.165.

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Study of literature in African countries. Same as 211.166.

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Study of literature in African countries. Same as 211.167.

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Study of literature in African countries. Same as 211.168.

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Study of literature in African countries. Same as 211.169.

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Study of literature in African countries. Same as 211.170.

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Study of literature in African countries. Same as 211.171.

45.172 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.172.

45.173 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.173.

45.174 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.174.

45.175 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.175.

45.176 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.176.

45.177 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.177.

45.178 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.178.

45.179 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.179.

45.180 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.180.

45.181 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.181.

45.182 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.182.

45.183 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.183.

45.184 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.184.

45.185 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.185.

45.186 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.186.

45.187 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.187.

45.188 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.188.

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Study of literature in African countries. Same as 211.190.

45.191 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.191.

45.192 South African Literature 2 a.h.
Study of literature in African countries. Same as 211.192.
Students should take the introductory gerontology course prior to for credit courses in this 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 graduate, upper-level undergraduate (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 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
90:128 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 course 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
90:130 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
6F:123 Public Economic Security Programs

Counselor Education
7C:380 Topical Seminar in Counselor Education

Dentistry
112:145 Introduction to Geriatric Dentistry

Family Practice
118:551 Perspectives on the Process of Aging

Health and Hospital Administration
80:112 Long-Term Care

Home Economics
17:211 Individual and Family Development
Life Span (Partial Credit)

Nutrition
86:104 Nursing IV (partial credit)
96:131 Nutrition 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 124:163)
104:162 Aging and Leisure

Religion
30:193 Death and Dying

Sociology
34:233 Aging and Human Development

Social Work
40:18 Aging and Social Work
42:280 Human Behavior: Selected Aspects of the Elderly

Speech Pathology
53:55 Seminar on Communication and Aging

Zoology
79:27 Seminar in Cell Physiology: Biology of Aging

American Studies Program

Program chair: Albert E. Stone
Faculty: associate professors Wayne Franklin (English), Dorothea (Blair) Norton (History); Albert E. Stone (American Studies/English), Daniel T. Turner (Euro-American Studies/English),

associate professors Richard P. Kavale (American Studies), David C. Mathes (American Studies/English), chaplain. Woodrow (Euro-American Studies/English), associate professors Athanas Y. Pitsos (Euro-American Studies), and Dorothea (Blair) Norton (American Studies)

The American Studies doctoral program emphasizes the study of American culture, focusing on the intellectual, political, and social institutions that have shaped American culture.

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 departmental 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, law, or politics; for advanced studies in the humanities, the social sciences, theology, or business; or for professional studies in law or medicine.

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With his or her adviser's assistance and approval, the student majoring in American studies develops an individual plan of study combining courses from several departments and programs with an integrated American Studies Program courses to explore a common period, topic, theme, or problem in American cultural experience. The major normally consists of 12 courses totaling 36 semester hours and including four courses (12 semester hours) in American and/or Euro-American studies, two courses (6 semester hours) in American history, and six courses (18 semester hours) in complete departments and/or American studies.

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American Studies Program/LIBERAL ARTS

The coucours in American and/or Afro-American studies usually include:

Required courses:
4:17 American Values 3 s.h.
4:50 Turning Points in American Culture 3 s.h.

Two of the following:
4:52 American Issues 3 s.h.
4:53 Women in American Culture 3 s.h.
4:54 Family and Sex Roles: Alternatives to Stereotypes 3 s.h.
4:55 Media Studies 3 s.h.
4:56 Regional Studies: The American West 3 s.h.
4:57 Sex, Race, and Ethnicity 3 s.h.
4:58 American Music 3 s.h.
4:60 Introduction to Afro-American Sociology 3 s.h.
4:61 Introduction to Afro-American Culture 3 s.h.
4:102 Readings in American Studies 3 s.h.
4:103 Childhood and Youth in America 3 s.h.
4:153 Aging in America 3 s.h.
4:158 Visual Arts and American Culture 3 s.h.
4:161 American Institutions: The Business Corporation 3 s.h.
4:163 American Communitary Field Work 3 s.h.
4:186 Auto biography and American Culture 3 s.h.
4:188 Popular Culture 3 s.h.

The history requirement may be met by two of the following:
18:51 Colloquium for History 3 s.h.
18:61 American History 1890-1977 3 s.h.
and/or
18:62 American History 1777-Present 3 s.h.

General education courses in historical perspectives, humanities, literature, and social sciences provide relevant perspectives for American studies major; 11/2 American Lives is especially recommended.

Honors

Honors candidates in American studies must take 4:60 Turning Points in American Culture and 4:69 Honors Project. With his or her advisor's help, the student in 4:69 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:
4:50/200 Theory and Practice in American Studies 4 s.h.
4:50/201 History, Literature, and American Popular Culture 3 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 undergraduate)
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 social or political 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. Similar 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; sub-field course work in a major field or topic; equivalent work in a second major field or topic; course work in other fields, including one in tools of 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 reading, 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 in the candidates' 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 dissertation coursework. The candidate normally takes 4:50/200 Theory and Practice in American Studies and 4:50/201 History, Literature, and American Culture during the first year of graduate study, and may include 4:53/50 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 exam may be based on two or three 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 level course work, at least one 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 special topics in American studies topics outside the major and minor areas may be included in this area.

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

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, auto biography, film—if he or she combines it with a critical analysis of the cultural experiences it reflects.

Internships

Qualified graduate students in American studies can arrange internships with the State Historical Society of Iowa, the Department of Radiological Protection, the U.S. Air Force Museum, the U.S. armed forces, the National Park Service, the Iowa Humanities Board, the Indian Landmarks Foundation, the Herbert Hoover National
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 precludes 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 38 semester hours of graduate work. A 30-hour M.A. degree without thesis is available in conjunction with a minor concentration in museumology.

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
113.286 Seminar: Anthropological Theory and Method
113.285 Seminar: Biological Anthropology
113.102 Anthropological Data Analysis

Two courses from the following subject areas:

Social institutions;
Linguistic (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 partial waiver of the above distribution requirements.

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 general operation, procedures or small science museums form part of the student's training. Further information on this option may be supplied by 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 competence 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 areas and 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, Mesoamerica, Oceania, Southeast Asia, the Caribbean, Europe), approved by the student's Ph.D. advisory committee;

Approval by the student's Ph.D. advisory committee of a major and minor topical area;

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

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, social organization, ethnography, economic anthropology, language and culture, religions, cultural ecology, and urban anthropology. Examples of possible major topical areas for students in archaeology include settlement archaeology, environmental archaeology, and dating methods.

The comprehensive examination will be held when the student's course work is completed or nearly completed and 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 dissertations; occasionally, however, a research proposal may be carried out using only secondary sources, collections, or other source materials.

All doctoral candidates are required to be the primary author of gathering primary data in archaeological or ethnographic field research.

Graduate Admission

Applicants for admission to the graduate program in anthropology will be considered 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 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.

Applicants for admission to the graduate program must complete the 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 aptitude portion of the Graduate Record Examination, and at least one typewritten example of previous work (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 copies of three chapters completed in 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.
professional artists to its permanent faculty. It was also among the first schools of art to job studio art with an art history studies, reflecting the concept that the living artist will benefit from a formal study of the traditions of art, and a prospective historians from personal experience with the creative process. The emphasis on the breadth and productivity of its faculty reflects an educational philosophy that makes Iowa one of the first universities to accept creative work for academic credit.

The school early established a tradition of selecting and achieved national recognition for presenting large exhibitions of contemporary American painting and sculpture. Its national image and position are maintained not only through The University of Iowa Art Museum, its program of exhibitions, and its growing collection of art works of all periods and nations, but also through its continuing program of employing visiting artists and scholars of both national and international prominence. The fluidity of its undergraduate and graduate programs in art history continues with the support of an excellent art library and a large collection of visual materials. The employment of visiting lecturers for short-term workshops, in addition to the permanent faculty, continues to keep students directly involved with current scholarship.

A number of the school's graduates enjoy success as practicing professional artists. Many have found work as art department administrators, museum directors and curators, free-lance artists, and teachers. Reliance on employment opportunities, grading of the school has traditionally continued to find acceptable training for students outside the area. For this emphasis has always been placed on the fine arts and specifically commercial art courses are not part of the program, many graduates have taken on positions as commercial designers.

As far possible, the design of academic programs is arranged to meet the individual student's needs. It permits the student to choose as specific as well as general programs in studio arts and humanities. The major requirements of the undergraduate program are broad and flexible; specialization is discouraged.

Art History Majors. The major requirements for the B.A. degree with an emphasis in art history are the same as for other courses, except that 18 semester hours of Intermediate and Advanced art history requirement are satisfied.

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 18 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:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediate art history</td>
<td>12 h.</td>
</tr>
<tr>
<td>1A:1-2: Colloquium</td>
<td>2 h.</td>
</tr>
<tr>
<td>1A:3 Basic Drawing</td>
<td>0 h.</td>
</tr>
<tr>
<td>1A:4 Basic Design</td>
<td>2 h.</td>
</tr>
<tr>
<td>Any two of the following courses:</td>
<td></td>
</tr>
<tr>
<td>1C:50 Ceramic I</td>
<td>2 h.</td>
</tr>
<tr>
<td>1C:64 Introduction to Metalworking and Jewelry</td>
<td>2 h.</td>
</tr>
<tr>
<td>1C:80 Multimedia I</td>
<td>2 h.</td>
</tr>
<tr>
<td>1K:15 Undergraduate Sculpture I</td>
<td>2 h.</td>
</tr>
<tr>
<td>One introductory studio course from each of the following studio areas</td>
<td>4 h.</td>
</tr>
<tr>
<td>Design</td>
<td></td>
</tr>
<tr>
<td>Drawing</td>
<td></td>
</tr>
<tr>
<td>Painting</td>
<td></td>
</tr>
<tr>
<td>Photography</td>
<td></td>
</tr>
<tr>
<td>Printmaking</td>
<td></td>
</tr>
<tr>
<td>Textiles (5 cross-listed with an art number)</td>
<td></td>
</tr>
</tbody>
</table>
| Electives to bring the total number of credits in History of Art, Studio, or Art Education to a minimum of 36 semester hours. More than 50 semester hours of credit in art courses the school last 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 of a faculty review committee, which will determine the student's placement in or exclusion from the sequence of basic studio courses.

Art History Emphasis
Major requirements for the B.A. degree with an emphasis in art history are 9-12 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 18 semester hours of intermediate and advanced art history) in a seminar and a written thesis, for 3 semester hours credit each.

Non-art credits must include two or more semesters 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 student's required 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, etc. In addition to the general requirements for teacher certification (see the "College of Education" section of the Catalog), they must satisfy these specific requirements:

1A:15 Concepts in Art Education | 2 h. |
1A:108 Art Education Studio | 3 h. |
1A:143 Methods: Art | 3 h. |
1A:155 Advanced Methods: Art | 3 h. |
1A:187 Seminar: Curriculum and Student Teaching | 3 h. |
1A:124 Practice in Elementary School | 6 h. |
1A:191 Observation and Lab Practice in Secondary School | 6 h. |

The following courses are electives:

1A:144 Aesthetic Education | 2 h. |
1A:230 Art Education and the Museum | 3 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 60 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. candidate with studio emphasis, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental course, and must complete at least the second semester of course work in each
of two additional studio areas. Art education majors in the B.F.A. program must meet the same 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 discipline.

Specific requirements include:

A. B.A. or B.F.A. degree, with at least 18 semester hours of undergraduate work in art history;

B. A minimum of 30 semester hours of graduate-level course work, with a grade-point average of 3.0 or higher;

C. At least one semester intermediate (100-level) course compared with at least a 3.0 grade in each of five of the following areas of art history:

1. Ancient (to 300 A.D.)

2. Medieval (300-1600)

3. Renaissance to Baroque (1500-1700)

4. Nineteenth Century to Modern (1800-)

5. Pre-Colonial and Native American

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

152:224 Seminar: Methodology of Art History and Criticism 3 s.h.

Two other art history seminars (with different instructors) 4-6 s.h.

Additional History courses 14-21 s.h.

Studio courses 0-6 s.h.

 Courses outside the school 0-9 s.h.

Students with little or no undergraduate studio training are 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 12-15 semester hours of course work, with a minimum of 9 semester hours in one subject. In addition to the graduate requirement for a studio major, and will also satisfy the drawing requirement. Studio courses may be taken on a satisfactory/unsatisfactory basis.

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

Within the first 30 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 (GSLFLT), examination by the appropriate University of two language departments, satisfactory completion of the final semester of a P.T.O. language reading course, or satisfactory completion of 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 of major studio subject, a total of at least 21 semester hours in studio courses, 9 semester hours in two history and theory of art, and up to 8 semester hours of courses outside art and art history. Clearance for M.A. candidacy by faculty review, and

Studio and with thesis. Studio majors 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 152:224 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 undergraduate hours must satisfy the distribution requirement for art history.

Master of Arts in Art Education

Requirements for the M.A. in art education are:

The B.A. or B.F.A. in 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 (at least 12 semester hours of graduate credit in both studio and 6 in art history, or 8 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 30 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 6 semester hours in a minor studio subject, and 9 semester hours in art history and theory of art. A student must complete a course originating outside the school: clearance for M.A. candidacy by faculty review and a satisfactory thesis. Thesis 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 the ability 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 conjunction 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. Courses requirements beyond the M.A. program outlined above are:

Two art history seminars with two different instructors 4-6 s.h.
Additional art history courses 16-28 s.h.
Courses outside the school 0-12 s.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 description of the M.A. in art history program.

The student must take a comprehensive examination in one major field (6 semester hours) and two minor fields (3 semester hours each) selected by the student in consultation with the adviser and approved by the art history faculty. At least one minor field must be concerned with a period of art history that is geographically or topically remote from the major field. One minor field may be related to the major; this field may be in a discipline or discipline 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. This topic is formally presented at the oral examination or the dissertation.

Graduate Admission: Studio

Admission procedures for graduate studio programs include a committee review of application materials and, at the applicant's supporting material. Contact the school for more details.

Ceramics, design, decorative arts, 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 in residence at the University may submit original work in these areas. Drawing majors must submit original drawings (include figures drawings). Prisma major must submit from 6 to 20 original prints and drawings. Photography majors must select a selection of original photographs. Sculpture majors should send slides of art and-photographs of slides, and a portfolio of their work in two studio areas. All applicants 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 art history. Applicants in art education must submit both a term paper or other example of ability to write in art history 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 receiving 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 attend for a limited time and then interrupt their studies for two or more years must reapply for admission.

Assistantships and Scholarships

Assistants paying approximately $5,500 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-residence 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 225,000 slides and 80,000 photographs; an in situ printmaking, furnaces 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 type-setting studio; and video equipment.

Courses

Art History

Primarily for Undergraduates

151 Understanding the Visual Arts 4 s.h.

152 Understanding the Visual Arts 4 s.h.

153 History of Art from the Prehistoric to the Early Christian 4 s.h.

154 History of Art from the Prehistoric to the Early Christian 4 s.h.

155 Western Art and Culture before 1000 4 s.h.

156 Western Art and Culture before 1000 4 s.h.

157 Western Art and Culture after 1000 4 s.h.

158 Western Art and Culture after 1000 4 s.h.

159 Introduction to Asian Art 3 s.h.

160 Introduction to Asian Art 3 s.h.

161 Art and Architecture of the Mediterranean Civilizations, 4 s.h.

162 Art and Architecture of the Mediterranean Civilizations, 4 s.h.

163 Introduction to Ancient Art 4 s.h.

164 Introduction to Ancient Art 4 s.h.

165 Understanding the Visual Arts 4 s.h.

166 Understanding the Visual Arts 4 s.h.

167 Introduction to Renaissance Art 4 s.h.

168 Introduction to Renaissance Art 4 s.h.

169 Introduction to European Art 4 s.h.

170 Introduction to European Art 4 s.h.

171 Art and Architecture in Europe from 1900 to 1970 4 s.h.

172 Art and Architecture in Europe from 1900 to 1970 4 s.h.
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 focus.

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.
or 36:10-11 Second Year Japanese 12 s.h.
or 36:20–22 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.
36:134 Imperialism and Modern India 3 s.h.
36:153 Traditional China 3 s.h.
36:154 China: Opium War to Mao 3 s.h.
36:155 Modern Japan 3 s.h.
36:154 Modern Japan 3 s.h.
36:193 Aesthetics: East and West 3 s.h.

Other courses on Asia 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 to be conveniently combined with a major in history, political science, art and 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.
36:126–128 Third Year Japanese 12 s.h.
36:141–142 Japanese Poetry 3 s.h.
36:142 Japanese Fiction 3 s.h.

For students of Sanskrit:
36:23–24 Second Year Sanskrit* 8 s.h.
36:155–157 Third Year Sanskrit 6 s.h.
36:156–158 Indian Theology 8 s.h.
36:163 Indian Religious Texts 5 s.h.

*With the approval of the departmental adviser, students may substitute two of the following courses for Third Year Sanskrit:
36:123 History of Ancient and Traditional India 3 s.h.
36:134 Imperialism and Modern India 3 s.h.
36:156 Painting of India 3 s.h.
36:181 Art of India 3 s.h.

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

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 humanities.

Honors

Students with junior status who maintain a 3.5 grade-point average or above are encouraged to enroll in the Honors Program. With the permission of the departmental chair and a faculty sponsor selected from among Asian specialists in any department, the student will register for 36:191 Honors Tutorial and 36:195 Senior Honors Thesis. To receive a B.A. with honors, the student must complete an acceptable thesis based on original research in an appropriate area of Asian Studies.

Master of Asian Studies

Graduate study in Asian civilization is designed to prepare students for careers in high school teaching, government service, or commerce, in which a knowledge of an Asian language and culture would be helpful, or to provide excellent preparation for advanced study on the doctoral level. All students are required to write an M.A. thesis in English using Chinese, Japanese, or Indian language sources. The thesis must count for 4 semester hours of the 30 required. All students must maintain a 3.0 grade-point average.

Students will be required to demonstrate language competence by passing a departmental examination at the conclusion of the program. Language competence for students of Chinese and Japanese will be at the level of the completion of fourth-year modern and first-year classical language; for students of modern South Asia, at the level of the completion of third-year Sanskrit; for students of modern South Asia, at the level of the completion of second-year Sanskrit.

In addition, students will be examined on the history of China, Japan, or South Asia, and in two appropriate areas from among Chinese, Japanese, or South Asian art history, literature, art, or religion; Chinese linguistics, or philosophy; the Japanese anthropological, linguistics, or politics; or South Asian social sciences. The department can accommodate native speakers of Chinese or Japanese who wish to work toward professional competence in Asian civilization. A curriculum for such a student would exclude any modern language work, and would include 28 semester hours of content courses on Asia, as well as 4 semester hours for the M.A. thesis. All candidates are expected to fulfill the general requirements of the Graduate College.

Graduate Admission

Applicants for admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 2.75 is required for conditional admission, 3.0 for regular admission. In addition, applicants must submit a specimen of their writing—such as a term paper, seminar paper, or graduation thesis—to the Department of Asian Languages and Literature.

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. For the spring semester, the earliest date on which an admission decision cannot be made is March 30.

Library Facilities

Since 1960 the university library has been the owner of more than 250,000 books on Asian topics issued by major publishers in Western languages. The library also contains a collection of the Chinese and Japanese languages in more than adequate for basic research; it includes such works as 30,000 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 microforms necessary for research on contemporary society. The library regularly purchases books for the South Asian Institute in Sanskrit and English.
Biochemistry

Astronomy

See "Physics and Astronomy."

Biochemistry

Department head: Edward C. Hatch
Degree officer: 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 for 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 the health sciences.

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

- 26M 22-26 Calculus I
- 22M 25-36 Engineering Calculus I
- 29M 17-18 Introductory Physics I
- 37M 3 Principles of Animal Biology
- 61M 187 Survey of Immunology
- 11A 1 Survey of Microbiology
- 114 1 Survey of Microbiology
- 142 1 Survey of Microbiology
- 144 1 Survey of Microbiology

Bachelor of Arts

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

- 22M 15 Mathematics for the Biological Sciences
- 22M 16 Calculus for the Biological Sciences
- 22M 17 College Physics
- 37M 3 Principles of Astral Biology
- 81M 1 Introduction to Botany
- 61M 157 General Microbiology

Other biological area

- 418 3 Principles of Chemistry I
- 419 3 Principles of Chemistry II
- 419 3 Principles of Chemistry
- 419 3 Principles of Chemistry I

- 500 100 Seminar
- Undergraduate
- 99M 100 The Chemistry of Biological Materials
- 100 100 Metabolism
- 100 100 Experimental
- 100 100 Biochemistry of Informational
- 100 100 Microorganisms
- 100 100 Advanced science electives

Additionally, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include four semester hours of senior research among their electives.

Biochemistry majors, especially in the B.A. program, may qualify for teacher certification by taking 24 semester hours of courses in teacher education. For details consult with an Advisor in the College of Education.

Honors Program

Qualified students may earn an honors degree by doing special work in 99M 110 Experimental Biochemistry or more usually in 99M 155 Research: Independent Study. The student prepares a report written in the form of a journal article and in an oral report in 99M 100 Seminar. Undergraduate, or to a departmental general seminar.

Other Combined Programs

It is possible, especially in the B.A. program, to include special courses in other disciplines, such as pre-law, pre-pharmacy or journalism, permitting individualization of the curriculum as a means of adapting it to one of the growing variety of vocations in which biochemistry is having an impact.

It is also possible for a B.A. student in biochemistry to complete the specified course requirements in three years and satisfy the requirements for remaining advanced science electives during the first year of dental or medical school.

Graduate Programs, Facilities, Courses

See "Biochemistry" in the College of Liberal Arts section of the Catalog for descriptions of the department's graduate programs and facilities, and for the 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 species or 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, organic, and population levels. Later, through appropriate selection of elective courses, students may follow their own interests by concentrating in such areas as genetics, development, physiology, ecology, molecular biology, 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 in use of the Madrille 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 degree of Bachelor of Science and Bachelor of Science degree with a major in biology. They total 34 semester hours, as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1 Introduction to Botany</td>
<td>4 h.</td>
</tr>
<tr>
<td>37:3 Principles of Animal Biology</td>
<td>3 h.</td>
</tr>
<tr>
<td>37:128 Fundamental Genetics</td>
<td>3 h.</td>
</tr>
<tr>
<td>or 37:128 Fundamental Genetics Laboratory</td>
<td>2 h.</td>
</tr>
<tr>
<td>or 37:129 Fundamental Genetics Laboratory</td>
<td>2 h.</td>
</tr>
<tr>
<td>37:131 Evolution</td>
<td>4 h.</td>
</tr>
<tr>
<td>37:131 Evolution</td>
<td>4 h.</td>
</tr>
<tr>
<td>37:100 Cell Physiology</td>
<td>4 h.</td>
</tr>
<tr>
<td>37:125 A Plan in Crisis</td>
<td>6 h.</td>
</tr>
<tr>
<td>37:141 Organic Chemistry I</td>
<td>3 h.</td>
</tr>
<tr>
<td>30:120 The Chemistry of Biological Materials I</td>
<td>3 h.</td>
</tr>
<tr>
<td>20:1:12 College Physics</td>
<td>3 h.</td>
</tr>
<tr>
<td>20:17:18 Introductory Physics I-II</td>
<td>8 h.</td>
</tr>
<tr>
<td>22:32:16 Calculus I</td>
<td>4 h.</td>
</tr>
<tr>
<td>or 22:32:16 Calculus for the Biological Sciences</td>
<td>3 h.</td>
</tr>
<tr>
<td>or 22:34:36 Engineering Calculus I</td>
<td>4 h.</td>
</tr>
<tr>
<td>8W:10 Expository Writing</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Biology students planning to apply for admission to the University of Iowa College of Medicine must take a comprehensive course in organic chemistry, with laboratory. This requirement may be satisfied by taking 4:121 Organic Chemistry I and 4:129 Organic Chemistry II plus 4:141 Intermediate Chemistry Laboratory I or by taking 4:151 and 98:120 The Chemistry of Biological Materials plus 98:140 Biochemical 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, and/or geology, and includes courses taken at The University of Iowa and including at least 12 semester hours in 100-level courses, excluding those designated 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 pursuits of practicing scientists— experimental, discussions of current research, with an specialized topics, attendance at research lectures.

Students in the College of Liberal Arts and Honors Program may earn an honors degree in biology by completing at least 6 semester hours of honors coursework in the departments of Botany and Zoology, including at least 2 semester hours in 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 37:308 Honors Seminar in Zoology or a graduate-level seminar. An honors thesis in biology must show at least a 3.5 grade-point average overall and at least a 3.3 average in the biological sciences, and 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: Jeff T. Schaeffer
Facilitator: professors Robert W. Crumle, Robert M. Matt, Jeff T. Schaeffer

Associate professor: Michael C. Kohler
Assistant professor: Dr. Robert M. Seager, Dr. Stephen D. Heinke, Dr. Thomas E. Eigenthaler

Assistant professor Emeritus: Henry L. Dus
Assistant professor Emeritus: Jonathan F. Comstock
Associate professor: Dr. Nathan E. Schaefer

Bachelor of Arts

In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take: 2113: Introduction to Botany 4 s.h.
3733: Principles of Animal Biology 5 s.h.
1288: Fundamental Genetics 3 s.h.

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

Structural Botany
2113: Introduction to Botany 4 s.h.

Physiology and Cell Biology
2109: Plant Physiology 4 s.h.
2110: Plant Physiology 4 s.h.
2114: Cellular Plant Physiology 3 s.h.
2116: Plant Physiology 4 s.h.
3710: Cell Physiology 4 s.h.

Vascular Plant Diversity
2111: Plant Diversity 5 s.h.
2133: Biology of Local Flora 4 s.h.
2181: Plant Taxonomy 4 s.h.
2182: Field Botany 3 s.h.
2120: Paleobotany 4 s.h.
1215: Plant Taxonomy 5 s.h.

Exposure and Evolution
2111: Plant Biology 4 s.h.
2116: Field Ecology 4 s.h.
2151: Evolution 4 s.h.
2132: Ecology 4 s.h.

Biological of Non-Vascular Plants
2105: Physiology 4 s.h.
2106: Bryology 4 s.h.
2107: Mycology 4 s.h.

One level course in Botany or a related science.

Chemistry
4114: Principles of Chemistry I 3 s.h.
4114: Principles of Chemistry II 3 s.h.
4118: Principles of Chemistry Lab 2 s.h.
4121: Organic Chemistry I 3 s.h.
4122: Organic Chemistry II 3 s.h.
4910: Chemistry of Biological Materials 3 s.h.

Mathematics
2201: Discrete Mathematics 3 s.h.
2220: Calulus for the Biological Sciences 3 s.h.
2220: Differential Equations 3 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 the 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 subspecialties. Graduate training frequently involves interdisciplinary study, and is aimed at research areas, offering graduate students the opportunity to work in cooperation.

Each graduate student is therefore assigned a faculty guidance committee to help him or her select educational goals and plan the course requirements necessary to meet them.

Master of Science in Botany

The department offers the degree with emphasis in anatomy, bryology, cell biology, ecology, genetics, development and morphogenesis, myology, plant physiology, physiology, plant biochemistry, or taxonomy. The degree requires at least 30 semester hours of graduate study, including 6 semester hours in 2220: Research in Botany. Preparation of a thesis is required.

Each student must:

Submit a program of study to be approved by a guidance committee composed of three members of the graduate faculty, at least two of whom may be from outside the department. Normally, the program should be prepared during the first semester in residence as a regular graduate student.

Complete at least 9 semester hours of graduate courses in botany, as prescribed by the guidance committee. No more than six semester hours of 2225: Research Botany and 2229: 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 course 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 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 34 hours of graduate study without thesis, or 30 hours with thesis. Candidates for the degree without thesis must earn 4-6 semester hours of credit in research. Candidates for the degree with thesis must complete 36 semester hours of credit in research. Students can earn research credit for up to 12 semester hours of 2225: Research Botany, 3719: Introduction to Research, and or 3710: Independent Study in Zoology.

Each student must submit a program of study to be approved by the department in which the student is enrolled. The program must include at least 6 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 thesis. Students meeting the requirements of the final examination, and pass a written 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 same as for the master's degree, as 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 Council. Applicants should submit Graduate Record Examination (GRE) Aptitude Test scores with their applications.

If the evening 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 work. These 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 or better 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 equal to 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 advanced academic achievement and outstanding GRE aptitude may 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 culture of plants have access to greenhouses and special culture rooms with controlled environments. A plant physiology laboratory is available, with associated greenhouse facilities. 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, pollen biology, morphology, and cell biology. There are two transmission and electron microscopes in a special laboratory. Students and staff may use the Scanning Electron Microscope Laboratory in the Bowen Science Building.

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

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 Laboratory" in this section of the Catalog) on West Lake Okoboji in northwestern Iowa affords excellent conditions for summer study in field biology, taxonomy, botany, and limnology. Studies frequently participate in field expeditions in Mexico, and Central America. Qualified graduate students may use the University computing center in their research projects.

Courses

For Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisite(s)</th>
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</thead>
<tbody>
<tr>
<td>3.2</td>
<td>Intro to Botany</td>
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requirements in chemistry. These are the major requirements for the B.A. degree:
4.15:14 Principles of Chemistry I-1
4.15 Principles of Chemistry Lab I
4.17 Basic Measurement
4.20 Chemistry Orientation
4.121-126 Organic Chemistry I-1-6
4.111-112 Analytical Chemistry I-1
4.131-132 Analytical Chemistry II
4.141 Intermediate Chemistry Laboratory
4.142 Advanced Chemistry Laboratory I
4.147-148 Calculus (22M:33-34 recommended, 22M:25-26 Calculus I-II accepted)

Introductory physics (22S:17-18 recommended; 21S:11-12 College Physics accepted)
A minimum of four semesters in one language, either German, French, or Russian

Advanced courses in chemistry, biology, mathematics, physics, or other scientific areas 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. It is available in 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
4.175 Advanced Physical Chemistry

Entering students will be given the opportunity to take examination equivalents to demonstrate competence in the areas listed above.

A minimum grade-point average of 2.5 is required as an admission requirement 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. The department includes the courses required for the M.S. degree and courses in the major field of interest. The student 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 3.5. 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 opportunities and other admissions for the following academic year are available 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 seminar rooms.

The department’s excellent library facilities are available to all students.

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 4.12.

6000 Cooperative Education Internship

6.7 General Chemistry

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

6.8 General Chemistry I

Introduction to chemistry and elementary concepts for students who do not plan to take more advanced courses in chemistry. Prerequisites: 4.7 or High School chemistry.

6.9 General Chemistry Laboratory

Introduction to laboratory techniques for students taking 4.8. Prerequisites or corequisites: 4.8.

6.10 Principles of Chemistry

Introduction to basic principles of chemical bonding and chemical reactions. Prerequisites: 22M:33-34 or High School equivalent.

6.11 Principles of Chemistry Lab

Introduction to laboratory techniques for students taking 4.10. Prerequisite or corequisite: 4.10.

6.17 NMR Measurements

Chemistry courses include topics of study, analytical techniques, kinetic study, and analysis. Prerequisites: 4.17 or 4.7.

6.19 Principles of Chemistry Lab

Introduction to laboratory techniques for students taking 4.19. Prerequisite: 4.19.

6.19 Spectroscopic Measurements

Principles of Fourier transform analysis. Two lectures and one two-hour, one-semester course. Prerequisites: 4.19.

6.11 Analytical Chemistry

Principles of modern analytical chemistry with emphasis on instrumental analysis and applications. Prerequisites or corequisites: 4.15 and 4.19.

6.112 Analytical Chemistry II

Principles of modern analytical chemistry with emphasis on instrumental analysis and applications. Prerequisites or corequisites: 4.15 and 4.19.

6.12 Organic Chemistry I

Principles of modern analytical chemistry with emphasis on instrumental analysis and applications. Prerequisites: 4.10, 4.8, or 4.12.

6.121 Organic Chemistry II

Principles of modern analytical chemistry with emphasis on instrumental analysis and applications. Prerequisites: 4.10, 4.8, or 4.12.

6.13 Physical Chemistry I

Principles of modern analytical chemistry with emphasis on instrumental analysis and applications. Prerequisites: 4.10, 4.8, or 4.12.

6.131 Physical Chemistry I

Principles of modern analytical chemistry with emphasis on instrumental analysis and applications. Prerequisites: 4.10, 4.8, or 4.12.

6.132 Physical Chemistry II

Principles of modern analytical chemistry with emphasis on instrumental analysis and applications. Prerequisites: 4.10, 4.8, or 4.12.

6.135 Introduction to Spectroscopy in Gordon Chemistry

Introduction to general methods for recording infrared, ultraviolet, visible, and mass spectrometry. Prerequisite: 4.11.

6.136 Introduction to Spectroscopy in Gordon Chemistry

Introduction to general methods for recording infrared, ultraviolet, visible, and mass spectrometry. Prerequisite: 4.11.
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.
or
20:15 Latin Review 4 s.h.
20:16-17 Intermediate Latin I-II 6 s.h.
20:21 Age of Cicero 2 s.h.
20:23 Age of Augustus 3 s.h.
20:171 Elementary Latin Composition 3 s.h.
20:20 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 6 s.h.
14:11-12 Second-Year Greek 6 s.h.
20:12 Elementary Latin 6 s.h.
20:19-17 Intermediate Latin I-II 6 s.h.
14:121-122 Homer and Hesiod I-II 6 s.h.
or
20:21 Age of Cicero 3 s.h.
and
20:23 Age of Augustus 3 s.h.
14:171 Elementary Greek Composition 3 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 civilizations 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 test 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 6 s.h.
Ancient history 6 s.h.
Ancient philosophy or religion 6 s.h.
Classics—or "Classics in English" courses, or Latin or Greek language courses 6 s.h.

Appropriate courses in art, history, philosophy, religion, or
"Classics" 6 s.h.
14:194 Senior Seminar in Ancient Civilization 3 s.h.

Honors
For exceptional seniors who attained a 3.5 grade-point average in their first three years of classics courses, 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 fall 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 Latin Review, and 20:19-17 Intermediate Latin I-II.

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 Roman civilization. The candidate must earn a minimum of 30 semester hours of major credit in courses numbered 101 and above. Normaly, 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 in ancient history, ancient literature, and a special field or author, together with a one-hour general oral 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.
14:172 Advanced Greek Composition 3 s.h.
20:172 Advanced Latin Composition 3 s.h.
Ancient art above 200 level 3 s.h.
20:266 Sanskrit I 3 s.h.
14:203 Intro-European Philology 3 s.h.
14:208 Greek Paleography and Arch 3 s.h.
14:281-282 Greek Seminar 6 s.h.
20:281-282 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 library 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 faubiclons from brionce from Mycenae, Aegina, and Herculaneum.

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
161 Elementary Greek 4 s.h.
Fundamentals of New-Testament Greek and basic concepts of Greek civilization.
163 Greek Grammar 4 s.h.
Selections from Greek authors. Continuation of 161, which is prerequisite.
165 New Testament Greek 3 s.h.
Fundamentals of New Testament Greek. Practice knowledge of Greek is not expected, nor is facility with any other foreign language. Offered summer sessions.
Communication and Theatre Arts

Department chair: John W. Sours


Adjunct faculty Jennifer Martin, James Wunderbauer; Degrees offered B.A., M.A., M.F.A., G.S.O., M.A.T., Ph.D.

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 their society to themselves; with communication as the essential process for the operation of any society, especially the highly technological society; and with artistic 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 actors 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," "Rhetorical 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 cited in the division sections.

Master of Arts

A student can earn a general 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 are:

A minimum of 30 semester hours, including 3000 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 is good standing in 2.2.

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 3000 Introduction to Research; a course in the teaching of communication; an approved seminar; and at least 19 semester hours completed in the College of Education. The degree is in higher education; successful completion of a research report.

A semester's internship in an assigned teaching position is required; 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 requirements as are specified by the departmental division in which the student's work is concentrated.
Doctor of Philosophy

The program leading to the Ph.D. degree in rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives embraced in the division and to develop research competencies essential to a life of productive scholarship.

Work in related departments—often, in political science, history, sociology, English, comparative literature, American studies, philosophy, and journalism—complements rhetorical studies' course offerings. Many Ph.D. candidates also do extensive work in "Communication Research" and "Broadcasting and Film" to improve their range of teaching opportunities and their research skills.

For basic requirements, see the initial sections of this department's description. Teaching and research assistantships are available; evaluation of these applications begins February 16 each year.

Courses

3953137 Greek and Roman Public Address 3-4 hr.

3953239 Historical and critical study of public and written communication from the fifth century B.C. to the fourteenth century A.D.; study of relevant social, philosophical, and educational practices as reflected in the discourses of each era; consideration of historical, classical, and modern attitudes toward public speaking; and modern techniques.

3953338 British Public Address 3-4 hr.

3953437 Contemporary approaches to the study of rhetorical theory and practice, with attention to the major traditions of oratory and public address.

3953536 Rhetoric in Oral and Written Communication 3-4 hr.

3954146 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3954245 History of Speech Communication 3-4 hr.

3954344 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3954447 Theories and principles of public speaking; development of public speaking as a discipline.

3954546 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3954647 Theories and principles of public speaking; development of public speaking as a discipline.

3954748 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3954849 Theories and principles of public speaking; development of public speaking as a discipline.

3954950 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3955051 Theories and principles of public speaking; development of public speaking as a discipline.

3955152 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3955253 Theories and principles of public speaking; development of public speaking as a discipline.

3955354 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3955455 Theories and principles of public speaking; development of public speaking as a discipline.

3955556 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3955657 Theories and principles of public speaking; development of public speaking as a discipline.

3955758 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3955859 Theories and principles of public speaking; development of public speaking as a discipline.

3955960 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3956061 Theories and principles of public speaking; development of public speaking as a discipline.

3956162 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3956263 Theories and principles of public speaking; development of public speaking as a discipline.

3956364 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3956465 Theories and principles of public speaking; development of public speaking as a discipline.

3956566 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3956667 Theories and principles of public speaking; development of public speaking as a discipline.

3956768 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3956869 Theories and principles of public speaking; development of public speaking as a discipline.

3956970 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3957071 Theories and principles of public speaking; development of public speaking as a discipline.

3957172 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3957273 Theories and principles of public speaking; development of public speaking as a discipline.

3957374 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3957475 Theories and principles of public speaking; development of public speaking as a discipline.

3957576 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3957677 Theories and principles of public speaking; development of public speaking as a discipline.

3957778 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3957879 Theories and principles of public speaking; development of public speaking as a discipline.

3957980 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3958081 Theories and principles of public speaking; development of public speaking as a discipline.

3958182 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3958283 Theories and principles of public speaking; development of public speaking as a discipline.

3958384 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3958485 Theories and principles of public speaking; development of public speaking as a discipline.

3958586 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3958687 Theories and principles of public speaking; development of public speaking as a discipline.

3958788 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.

3958889 Theories and principles of public speaking; development of public speaking as a discipline.

3958990 American and European public address; emphasis on rhetorical theory and practice as reflected in the discourses of each era; consideration of the role of public speaking in society and the development of public address as a discipline.
380.335 Social Impact of Mass Communication 3 sh.
Current theories and research on the loci and impact of mass communication for individuals and societies; discussion of potentially fruitful directions for research.

380.337 New Communication Processes and Media 3 sh.
Examination of research and theory which help to explain the processes by which information is transmitted and received in the mass media and in "our hands" and the functions and effects of that received media.

380.400 Senior: American Film and American Culture 3-3 sh.
Selected American films as they reflect, shape, or are influenced by American culture. Same as 24-400.

380.401 Senior: National Modes 14 sh.
Emphasis on Great Britain, Italy, Sweden, Russia, or Japan, as appropriate.

380.402 Senior: Film Aesthetics and Criticism 14-1.5 sh.
380.403 Senior: Film Theory 14.5-1.5 sh.
380.404 Senior: Film History 14.5-1.5 sh.

380.405 Senior: Broadcasting 24 sh.
Emphasis on history of broadcasting, political communication, interpersonal communication, and communication in modern society. Review of basic communication, or public broadcasting.

380.623 Senior Seminar in Communication Research 3 sh.
Critical review of theories and studies on various aspects of mass communications, including communication and political processes, audience behavior, and methods for studying mass communication processes.

Theatre Arts

Professor in charge: Robert Hedley Degrees offered S.A., M.A., M.F.A.

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 participation in workshops and activities. Students demonstrating special aptitude may participate in special emphasis programs in acting, directing, design, or theatre history and criticism.

Advising

Baccalaureate degree programs are handled by the undergraduate program chair. If a student has selected an area of interest, the undergraduate program chair will assign the student a faculty adviser in that area. Although an adviser is necessary for enrollment, no student is required to accept any adviser, and may request a change at any time by consulting with the professor in charge of theatre arts. Faculty advisers also have the right to resign their positions.

Pre-enrollment in many theatre arts courses requires special permission.
Programs are required and students must register for admission each year. Substantial creative work of high quality is expected of all candidates.

**Facilities**

The division's commitment to an extensive and varied production program is reflected in its use of four quite different theater spaces. Studio 2 is a large, flexible space in which plays, musicals, and other projects are produced. The Old Army Theatre is a 200-seat house with a large thrust stage. Newscasts are produced in a converted lecture hall in MacLean Hall. The E.C. Mable Theatre is an excellently equipped proscenium theatre which offers seating for almost 800 patrons.

The division also stages productions in the Auditorium, Stein 2800, this facility is used by the numerous professional touring shows that perform in Iowa City, and also by the latest and most sophisticated stage machinery available.

To support its continuous production schedule and to provide its students with an appropriate range of experiences, the division maintains several shops for the building, maintenance, and storage of its scenery, costumes, and properties. Using the three scene shops, students can learn to work in metal and plastics as well as canvas and wood. In lighting and sound, students are exposed to a range of equipment from the manual resistance lighting control and the two-channel sound systems of the Old Army Theatre to the fully computer-controlled lighting and the two-channel sound system used in the Auditorium.

**Courses**

**For Undergraduates**

315:30 Arts Admission

315:48 Theater

315:55 Stagecraft

315:65 Technical Design

315:75 Production Management

315:85 Directing

315:95 Acting

315:100 Stage Management

315:105 Costume Design

315:110 Lighting

315:115 Sound

315:120 Stage Management and Business

315:125 Stage Management and Business Systems

315:130 Acting

315:135 Directing

315:140 Stage Management and Business

315:145 Stage Management and Business Systems

315:150 Acting

315:155 Directing

315:160 Stage Management and Business

315:165 Stage Management and Business Systems

315:170 Acting

315:175 Directing

315:180 Stage Management and Business

315:185 Stage Management and Business Systems

315:190 Acting

315:195 Directing

315:200 Stage Management and Business

315:205 Stage Management and Business Systems

315:210 Acting

315:215 Directing

315:220 Stage Management and Business

315:225 Stage Management and Business Systems

315:230 Acting

315:235 Directing

315:240 Stage Management and Business

315:245 Stage Management and Business Systems

315:250 Acting

315:255 Directing

315:260 Stage Management and Business

315:265 Stage Management and Business Systems

315:270 Acting

315:275 Directing

315:280 Stage Management and Business

315:285 Stage Management and Business Systems

315:290 Acting

315:295 Directing

315:300 Stage Management and Business

315:305 Stage Management and Business Systems

315:310 Acting

315:315 Directing

315:320 Stage Management and Business

315:325 Stage Management and Business Systems

315:330 Acting

315:335 Directing

315:340 Stage Management and Business

315:345 Stage Management and Business Systems

315:350 Acting

315:355 Directing

315:360 Stage Management and Business

315:365 Stage Management and Business Systems

315:370 Acting

315:375 Directing

315:380 Stage Management and Business

315:385 Stage Management and Business Systems

315:390 Acting

315:395 Directing

315:400 Stage Management and Business

315:405 Stage Management and Business Systems

315:410 Acting

315:415 Directing

315:420 Stage Management and Business

315:425 Stage Management and Business Systems

315:430 Acting

315:435 Directing

315:440 Stage Management and Business

315:445 Stage Management and Business Systems

315:450 Acting

315:455 Directing

315:460 Stage Management and Business

315:465 Stage Management and Business Systems

315:470 Acting

315:475 Directing

315:480 Stage Management and Business

315:485 Stage Management and Business Systems

315:490 Acting

315:495 Directing

315:500 Stage Management and Business

315:505 Stage Management and Business Systems

315:510 Acting

315:515 Directing

315:520 Stage Management and Business

315:525 Stage Management and Business Systems

315:530 Acting

315:535 Directing

315:540 Stage Management and Business

315:545 Stage Management and Business Systems

315:550 Acting

315:555 Directing

315:560 Stage Management and Business

315:565 Stage Management and Business Systems

315:570 Acting

315:575 Directing

315:580 Stage Management and Business

315:585 Stage Management and Business Systems

315:590 Acting

315:595 Directing

315:600 Stage Management and Business

315:605 Stage Management and Business Systems

315:610 Acting

315:615 Directing

315:620 Stage Management and Business

315:625 Stage Management and Business Systems

315:630 Acting

315:635 Directing

315:640 Stage Management and Business

315:645 Stage Management and Business Systems

315:650 Acting

315:655 Directing

315:660 Stage Management and Business

315:665 Stage Management and Business Systems

315:670 Acting

315:675 Directing

315:680 Stage Management and Business

315:685 Stage Management and Business Systems

315:690 Acting

315:695 Directing

315:700 Stage Management and Business

315:705 Stage Management and Business Systems

315:710 Acting

315:715 Directing

315:720 Stage Management and Business

315:725 Stage Management and Business Systems

315:730 Acting

315:735 Directing

315:740 Stage Management and Business

315:745 Stage Management and Business Systems

315:750 Acting

315:755 Directing

315:760 Stage Management and Business

315:765 Stage Management and Business Systems

315:770 Acting

315:775 Directing

315:780 Stage Management and Business

315:785 Stage Management and Business Systems

315:790 Acting

315:795 Directing

315:800 Stage Management and Business

315:805 Stage Management and Business Systems

315:810 Acting

315:815 Directing

315:820 Stage Management and Business

315:825 Stage Management and Business Systems

315:830 Acting

315:835 Directing

315:840 Stage Management and Business

315:845 Stage Management and Business Systems

315:850 Acting

315:855 Directing

315:860 Stage Management and Business

315:865 Stage Management and Business Systems

315:870 Acting

315:875 Directing

315:880 Stage Management and Business

315:885 Stage Management and Business Systems

315:890 Acting

315:895 Directing

315:900 Stage Management and Business

315:905 Stage Management and Business Systems

315:910 Acting

315:915 Directing

315:920 Stage Management and Business

315:925 Stage Management and Business Systems

315:930 Acting

315:935 Directing

315:940 Stage Management and Business

315:945 Stage Management and Business Systems

315:950 Acting

315:955 Directing

315:960 Stage Management and Business

315:965 Stage Management and Business Systems

315:970 Acting

315:975 Directing

315:980 Stage Management and Business

315:985 Stage Management and Business Systems

315:990 Acting

315:995 Directing
Courses for Undergraduates and Graduates

305.206 Senior Seminar
A faculty-organized project on a student's interest area, reported at the seminar's conclusion.

305.208 Special Study
Organization and operation of the American Theatre from its beginning to the present, emphasizing developments from 1865 to present.

305.211 Practices of the Twentieth Century
An examination of the drama, theatre, and society in two particular centuries, chosen to provide a context for plays produced in the University Theatre's season.

305.114 Contemporary Theatre
Study of and discussion of recent plays.

305.115 View for the Actor
Introduction in basic voice for the actor: relaxation, breath support, focus, and delivery. Prerequisite: 305.114 or 305.115.

305.116 Movement for the Actor
Identification of physical movement problems, development of physical exercise, and movement exploration through structural and improvisational exercises. Prerequisite: 305.114 or 305.115.

305.127 Actor's Technique
Technique classes in specific skills: voice, swallowing, movement, and physicality. An intensive two-week area covered over two sessions. Why be restricted for credit? Prerequisite: consent of instructor.

305.128 Advanced Acting I
Stage aces for graduate actors and directors. Includes vocal work in phonetics/drama; movement; and improvisational. Prerequisite: consent of instructor.

305.131 Advanced Acting II
Prerequisite: 305.128. Preprofessional training in scene-study method. Emphasis on realistic drama. Prerequisite: consent of instructor.

305.134 Advanced Acting & Directing
Preprofessional training in scene-study method. Emphasis on realistic drama. Some improvisational training. Prerequisite: 305.128.

305.135 Acting Enrichment
Preprofessional training in scene-study method. Emphasis on realistic drama. Some improvisational training. Prerequisite: 305.128.

305.136 Acting Enrichment & Directing
Preprofessional training in scene-study method. Emphasis on realistic drama. Some improvisational training. Prerequisite: 305.128.

305.140 Musical Theatre
Introduction to musical theatre, clothing, and dance, and a beginners' review of the standard repertoire. Emphasis on methods of research and analysis for stage design.

305.141 Musical Theatre
Introduction to musical theatre, clothing, and dance, and a beginners' review of the standard repertoire. Emphasis on methods of research and analysis for stage design.

305.142 Stage Design
Prerequisite: consent of instructor.

305.143 Stage Design
Prerequisite: consent of instructor.

305.144 Scene Design
Prerequisite: consent of instructor.

305.145 Scene Design for Theatre Design
Prerequisite: consent of instructor.

305.146 Scene Design for Theatre Design
Prerequisite: consent of instructor.

305.148 Lighting Design
Prerequisite: consent of instructor.

305.149 Lighting Design
Prerequisite: consent of instructor.

305.150 Lighting Design
Prerequisite: consent of instructor.

305.151 Lighting Design
Prerequisite: consent of instructor.

305.152 Stage Makeup
Application and rehearsal of stage makeup.

305.153 Stage Makeup
Application and rehearsal of stage makeup.

305.154 Stage Makeup
Application and rehearsal of stage makeup.

305.155 Technical Surgery
Production organization and techniques in theatre for design and technical drawing.

305.156 Technical Production
Production organization and techniques in theatre for design and technical drawing.

305.157 Technical Production
Production organization and techniques in theatre for design and technical drawing.

305.158 Technical Production
Production organization and techniques in theatre for design and technical drawing.

305.160 Technical Production
Production organization and techniques in theatre for design and technical drawing.

305.162 Technical Production II
Production organization and techniques in theatre for design and technical drawing, including design of and staging of one-act play, and special problems. Prerequisite: 305.157.

305.163 Technical Production II
Production organization and techniques in theatre for design and technical drawing, including design of and staging of one-act play, and special problems. Prerequisite: 305.157.

305.164 Advanced Scenic Construction
Production of a multi-scene setting to include stage machinery and scenic properties. Prerequisite: 305.158.

305.165 Model Shop Practice
Production of models of one-act play to include stage machinery, stage properties, and scenic properties. Prerequisite: 305.158.

305.166 Professional and Special Effects
Production of models of one-act play to include stage machinery, stage properties, and scenic properties. Prerequisite: 305.165.

305.167 Costume Drafting and Draping
Planning and constructing costumes for theatrical properties; development and control of special effects. Prerequisite: 305.158.

305.168 Costume Drafting and Draping
Planning and constructing costumes for theatrical properties; development and control of special effects. Prerequisite: 305.158.

305.169 Costume Drafting and Draping
Planning and constructing costumes for theatrical properties; development and control of special effects. Prerequisite: 305.158.

305.170 Costume Drafting and Draping
Planning and constructing costumes for theatrical properties; development and control of special effects. Prerequisite: 305.158.

305.171 Costume Drafting and Draping
Planning and constructing costumes for theatrical properties; development and control of special effects. Prerequisite: 305.158.

305.172 Costume Accessories
Construction of personal and costume properties, costumes, wigs, makeup, and related items. Prerequisite: 305.169.

305.173 Practical Control in the Theatre
Analysis of scenery for control of sound, lights, and movement in the theatre. Prerequisite: 305.168.

305.174 Practical Control in the Theatre
Analysis of scenery for control of sound, lights, and movement in the theatre. Prerequisite: 305.168.

305.175 Advanced Scene Design
Analysis of scenery, theatrical research, and development of production concepts for scenery and properties for modern construction. Prerequisites: 305.167 and 305.168.

305.176 Advanced Scene Design
Analysis of scenery, theatrical research, and development of production concepts for scenery and properties for modern construction. Prerequisites: 305.167 and 305.168.

305.177 Advanced Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.178 Advanced Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.179 Advanced Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.180 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.181 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.182 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.183 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.184 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.185 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.186 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.187 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.188 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.189 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.190 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.191 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.192 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.193 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.194 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.195 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.196 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.

305.197 Lighting Design
Analysis and interpretation of stage lighting, stage properties, and scenic properties. Prerequisite: 305.167.
Subcultures? How are linguistic and nonlinguistic symbols expressed in various media? What are the effects of linguistic and nonlinguistic symbols on attitudes and behavior? What evaluative criteria are appropriate for various classes of symbol using behavior? Diverse methods are appropriate for the study of communication. The scientific approach includes hypothesis generation, theory development, measurement, and other standard features of social science. Communication can also be studied with the critical and speculative tools of historians and philosophers.

The undergraduate program requires a minimum of 27 semester hours of major credit to be presented 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 a.h.
122:80 Communication and Contemporary Culture 3 a.h.
122:81 Mass Media and Mass Society 3 a.h.
122:82 Communication Theory in Everyday Life 3 a.h.
122:100 Cultural and Historical Foundations of Communication 3 a.h.
122:99 Senior Seminar 1-3 a.h.

Courses

120:00 Communication and Contemporary Culture 3 cr. 3 a.h.
120:81 Mass Media and Mass Society 3 cr. 3 a.h.
120:82 Communication Theory in Everyday Life 3 cr. 3 a.h.
120:83 Foundations in Communication Studies 3 cr.
120:88 Senior Seminar 3 cr.
120:85 Seminar, Directed 3 cr.
120:86 Seminar, Directed And Independent Study 3 cr.

Communication Studies

Program chair: John W. Swede
Faculty: John W. Swede, Robert M. Prud’homme

In communication studies, the phenomenon of primary interest is interpretive, symbol interactionism, behavioristic and functionalist. How do we learn to use symbols? How does symbol usage differ across cultures and subclasses? How are linguistic and nonlinguistic symbols expressed in various media? What are the effects of linguistic and nonlinguistic symbols on attitudes and behavior? What evaluative criteria are appropriate for various classes of symbol using behavior? Diverse methods are appropriate for the study of communication. The scientific approach includes hypothesis generation, theory development, measurement, and other standard features of social science. Communication can also be studied with the critical and speculative tools of historians and philosophers.

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Courses

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120:82 Communication Theory in Everyday Life 3 cr. 3 a.h.
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Courses

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120:81 Mass Media and Mass Society 3 cr. 3 a.h.
120:82 Communication Theory in Everyday Life 3 cr. 3 a.h.
120:83 Foundations in Communication Studies 3 cr.
120:88 Senior Seminar 3 cr.
120:85 Seminar, Directed 3 cr.
120:86 Seminar, Directed And Independent Study 3 cr.
36 semester hours in courses distributed as follows:

**Comparative Literature**
48:40-41 Major Texts of World Literature 3 h.
48:95 Seminar in Comparative Literature 3 h.
48:100 Introduction to Critical Problems 3 h.
Two elective comparative literature courses at the 200 level 6 h.

**Foreign Literature**
Courses in one foreign literature (read in its original language) beyond those courses taken to satisfy the general education requirement in foreign language: 9 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 h.

**Master of Arts**
The degree of Master of Arts in comparative literature requires 36 semester hours of study in a major in an international context, concentrating on two or more national literatures 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 3.35, 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, one in each area, and 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 the three principal areas of study by the student is consultation with appropriate faculty members.

Some typical critical and comparative areas are:

- European Renaissance
- Romanic
- Structuralism and post-Structuralism
- Narrative theory
- Symbolist poetics and modern literature
- Post-Kantian philosophy and literature
- Satire, rhetoric, and the theory of social interaction
- Literary history, and criticism

The Ph.D. dissertation should demonstrate the candidate's ability to write a substantial piece of scholarship in the field of comparative literature. The dissertation should be based on original research, and may take the form of a critical study, a new approach to a traditional area of study, or an extended critical commentary on existing work.

**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 Literatures I 3 h.
Reading and analysis of major literary texts from the Renaissance to modern. Emphasis on the importance of literature and history. Same as 48:95.
48:41 Major Texts of World Literatures II 3 h.
Reading and analysis of major literary texts from the Middle Ages to the 20th century. Emphasis on the development of literature and thought. Same as 48:95.
48:60 Introduction to Film Analysis 3 h.
Methods of analyzing various types of films, with emphasis on "classic" works from the American and European traditions. Films selected include short and feature-length, narrative and experimental, novel and gangsta. Same as art 42.
48:95 Seminar in Comparative Literature 3 h.
Seminar with focus on a single text or critical problem; course content varies to reflect current interests in regular and thematic fashion; students will develop individual research projects.
48:99 Hours Undated 3 h.
48:98 Individual Study 3 h.

**Comparative Literature**

48:100 Introduction to Critical Problems 3 h.
An introduction to the major methods courses providing an overview of a variety of critical approaches. Same as A 100.
48:105 European Literature of the Western World 3 h.
Literary development of western Europe from the Middle Ages to the 20th century. Emphasis on international and regional development, and on the importance of the different literary movements, works, and schools before 1900. Same as A 100.
48:107 Major Literary Genres in Comparative Literature 3 h.
Survey of major literary genres and the way in which the traditions of various literary works may deal with one or more general themes, such as memory, historical novel, "blue," and "whitewash."
Economics

Department chair: Donald N. McCloskey


Associate professor: John Batch, Andrew Carpenter, Edward Carlin, Gary C. Parkes, Robert Perrotta, Timothy VR, and Steven Winters.

Professor: Forrest Nelson, Raymond Reisman, Samuel Wilkin.

Assistant professor: Bruce Lapping, Joan A. Pox, Raymond Reisman, John Stonton, Charles Wilder.

Degrees offered: B.A., 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 range of course work to meet the needs of the nonmajor as well as the major.

Undergraduate Programs

The baccalaureate programs in economics provide an excellent background for a variety of positions in business and government. Graduates of business and government agencies, including for 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 graduate study in such fields as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and economics.

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 college 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. Students interested in an economics minor should obtain information concerning course selection from the department office.

Bachelor of Arts

These are the requirements for the B.A. degree with a major in economics:

225:26 Elementary Statistics and

225:7 Quantitative Methods I

225:25 Quantitative Methods II

Twenty semester hours of credit in 100-level economics courses, including 6E:103 Microeconomics and 6E:105 Macroeconomics.

Most 100-level courses in economics have the prerequisites either E1

Principles of Economics and E6:2

Principles of Economics, or senior standing. 6E:1 and 6E:2 satisfy the general education requirement in social sciences.

Credit gained in 6E:10 price, Employment, and Protection Theory cannot be counted toward the 20 semester hour of 100-level economics course credit required for the B.A. degree.

Bachelor of Science

The B.S. program in economics requires these courses and electives:

225:25, 26 Calculus I-III

225:120 Probability and Statistics or

2E:182 Statistical Methods in

Econometrics

Two hundred semester hours of 100-level economics courses, including 6E:103 Microeconomics, 6E:105 Macroeconomics, and 6E:194 Methods of Quantitative Economics.

Credit earned in 6E:100 Price, Employment, and Protection Theory or 6E:185 Statistical Methods in Econometrics cannot be counted toward the required 20 semester hours of 100-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."

LI6ERAL ARTS/Economics
Honors
undergraduate students working toward the B.A. or B.S. degree with a major in economics are eligible to participate in the Honor Program in Economics. The Honor Program offers the high achieving student an opportunity to pursue special research interests. Honors students must complete four 100-level economics courses, including 8E:103 and 8E:165, before the senior year. They must also register for 8E:107 Senior Thesis in Economics for three hours of credit both semesters of the senior year, complete a thesis under direction of an economics faculty member of professional school, 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 8E:1-1 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 limited to major in economics may examine the economics behind legal and social issues in 8E:7 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 8E:133 Economic Growth and Environmental Decay and 8E:103 Microeconomics; political science majors might take 8E:119 Economics of the Government Sector and 8E:141 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 training for employment in business, government, or nonprofit institutions, 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 coursework 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: 8E:1 and 8E:2 may be taken in either order or they may be taken simultaneously; they satisfy the general education requirement in social sciences.

8E:600 Cooperative Education Training Internship 0 sh.
8E:1 Principles of Economics 4 sh.
Organization and operations of market economic systems, role of market forces in determining economic behavior and distribution of income; microeconomic theories on supply, demand, costs, profit maximization, elasticity; international trade; principles of nonmarket allocations of resources; introduction to labor markets. Prerequisite: satisfactory performance on University placement test.
8E:2 Principles of Economic Theory 4 sh.
National income, value added, employment and output; economic growth and government policy; monetary and fiscal policy; household and business behavior; inflation and deflation; principles of international finance. Prerequisite: satisfactory performance on University placement test; satisfactory performance in 8E:1.
8E:7 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 8E:1 or 8E:2.
8E:102 Housing Internship 3 sh.
Open only to students participating in the Housing Internship Center for Learning Internships. Co-taught by regular faculty faculty basic class. Prerequisite: consent of Instructor.
8E:109 Prices, Employment, and Production Theory 3 sh.
Principles and policies determine 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 economics courses. Prerequisite: senior or postgraduate standing.
8E:103 Macroeconomics 3 sh.
Economic theory of consumer behavior, producer behavior, and role of markets in coordinating economic decisions; conditions for efficient resource allocation by the market mechanism. Prerequisite: prior to 8E:110.
8E:110 Microeconomics 3 sh.
Measurement of national product, employment, and income; determination of the price level; analysis of the use of supply and demand; planning and evaluation of the dynamics of inflation and the problem of deflation. Prerequisites: 8E:1 and 8E:2, or senior status.
8E:111 Labor Economics 3 sh.
History, analysis, and appraisal of labor unions and other institutions; labor supply decisions made by workers, labor demand decisions made by firms, and resulting patterns of employment and wage; economic processes of unions, causes of unemployment, and evaluation of major labor market intervention. Prerequisite: 8E:1 or 8E:2, or senior standing.
8E:113 Health Economics 3 sh.
Structure of America's health care industry and applications of economic analysis to its, causes of the high cost of American health care, role of public policies, health insurance and health care, and the role of prices and government policies. Prerequisites: 8E:1 and 8E:2 (or consent of instructor).
8E:117 Money and Banking 3 sh.
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: 8E:1 and 8E:2, or senior standing.
8E:119 Economics of the Government Sector 3 sh.
Economic functions of government in open economy; economic decision-making in government; income and wealth distribution; social security and social programs; government expenditure and taxation; appraisal of role of government in economic growth and stability. Prerequisites: 8E:1 and 8E:2, or consent of instructor.
8E:123 Political Economy of the Military-Industrial Complex 3 sh.
Business literature on theory of the military-industrial complex, contrasts these views with those of the intellectual scholar on national security. Prerequisite: prior to 8E:1 or 8E:2, or senior standing.
8E:126 International Economics 3 sh.
Foreign exchange and balance of payments; international monetary and trade theory of international trade; role of tariffs and non-tariff barriers in the analysis of the role of trade; role of government in international trade. Prerequisites: 8E:1 or 8E:2, or senior standing.
8E:137 Natural Resources in the World Economy and Conflict 3 sh.
Economic issues connected with the "new warfare" over the use of natural resources such as petroleum, minerals, and water; social, political, and economic impacts of the "green" movement. Prerequisites: 8E:1 and 8E:2, or senior standing.
8E:139 Economic Development: International Aspects 3 sh.
An examination of underdeveloped areas in Third World countries; examination of theories and policies of economic development in the 8E:1 and 8E:2, or senior standing.
8E:161 Real Estate and Agricultural Policy 3 sh.
Examination of major elements in the tax policy drains funds to finance public infrastructure. Analysis of the role of government in urban and suburban development, government construction program, income and wealth distribution, social equity, and agricultural policy. Prerequisites: 8E:1 and 8E:2, or senior standing.
8E:163 Economic Growth and Environmental Decay 3 sh.
Growth and consequences of economic growth in developed countries; potential-resource and energy resources and economic growth; measurement of pollution and its economic consequences; measurement and economic consequences of water pollution; policies for environmental protection. Prerequisites: 8E:1 and 8E:2, or senior standing, or consent of instructor.
8E:166 Health Policy 3 sh.
Introduction to health policy analysis in the context of the U.S. health care system, quality, and cost of care, distribution, and access to care. Prerequisites: 8E:1 and 8E:2, or senior standing, or consent of instructor.
8E:181 Theory of Welfare and Regional Development: Issues of Technological Change, City Location and Inequality, Land Use Patterns, and Measurement and...
In confererice with their academic advisors, students work out programs of study designed to satisfy their curricular interests and secure their more distant goals. Normally they begin with courses emphasizing close reading of poetry, fiction, drama, and argumentative prose. Later they study particular literary forms and the literature and culture of selected historical periods.

English majors take courses in such diverse subjects as folklore, literature and film, or printing and book design. They may also study the history and usage of the English language or they may do advanced work in either imaginative writing (poetry, fiction, and drama) or functional writing (exposition or argument in the fields of journalism, business, science, or the arts).

In order to guide the development of students' interests, English majors are encouraged to choose elective courses from such fields as history, classical or modern foreign literatures, 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 select 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 regard to their course of study. In the English office, too, they may obtain various materials appropriate to the study of English, and other printed material concerning English programs, courses, and special events.

Minor

A minor in English requires 16 semester hours, or the equivalent in Department of English courses. Twelve of these hours should be advanced courses (3.0) and at least 9 hours must be English. Students interested in writing programs, English minors, and other material printed literature programs, courses, and special events.

Honors

The English major with honors is designed to encourage talented students to explore a wide range of literary experience and to achieve a mastery of its techniques. Under the guidance of English majors, students who excel in their academic major can earn Honors eligibility. During the junior year, an Honors student takes a special seminar. The Honors seminar is a capstone course designed to deepen study of the English major, the student's needs, and 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 influence of its creative writing program. With the consent of the chair or her advice, any student may elect the creative writing courses in the program. These are BW 23 Creative Writing, BW 151 Fiction Writing, and BW 152 Poetry Writing.

Admission to the undergraduate workshops in fiction in poetry (BW 85 Undergraduate Writers Workshop: Fiction and BW 86 Undergraduate Writers Workshop: Poetry) is by only on the basis of the criteria. Students who wish to participate in these workshops must submit samples of their poetry or fiction to the Writers Workshop 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 or secondary schools should select courses which fulfill the state guidelines for teachers of English. This includes seven hours.

Literary study for students planning to teach English should emphasize a range of close-reading experiences in different kinds of literature in the English language. Students may select literature of the ancient world, Shakespeare, British literature of the nineteenth and twentieth centuries, American literature, literature for adolescents, literature for American ethnic groups, literature by women, folk and popular literature, and a variety of literary, theoretical, and critical methods for analyzing the 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 — all important — because these courses will help students understand and use English, and their students will be on the faculty member and evaluated by the honors committee. Honors study is planned in consultation with and the facilitation of the honors and members of the honors committee. The sequence of courses is designed to adapt 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.

Graduate Programs

This program offers an introduction to the professional study of literature. It provides a general knowledge of the major works of English and American literary history, as well as the ability to analyze and interpret the major works of literature 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:

1. Formal admission to candidacy by a vote of the department;
2. Demonstration of a high level of competence in two foreign languages or mastery of a single foreign language and its literature;
3. Distribution of course work in specified historical areas, two seminars;
4. A part-written, part-oral comprehensive examination in three areas, one of which must be a historical period of English and American literature;
5. A dissertation, which may be either a scholarly work or a piece of imaginative writing;

All doctoral candidates are required to gain a general understanding of the rhetoric and literature core programs of the College of Liberal Arts. Interested students should write to the department’s director of financial aids and personal admissions for more detailed explanations.

Financial Aid

Aid is available to graduate students in the form of graduate assistantships, fellowships, and teaching and research assistantships. It is awarded on a competitive basis. Since sources are limited, usually fewer 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 teaching of writing. In 1902 it became the first institution of higher education to accept creative dissertations for advanced degree programs.

Founded in 1900, 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 1906, brings numbers of prominent foreign writers to campus each year.

The University of Iowa has also been a leader in the development of an English department and a 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 collection of special papers, periodicals, its holdings in nineteenth- and twentieth-century works, including the Lehigh Hunt collection, and its manuscript collections of American authors.

The department provides a wealth of opportunities for student involvement in critical, historical, and creative publications. The Iowa Journal of Literary Studies is a quarterly publication edited by graduate students, which features contemporary creative and scholarly work of students 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 all 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.

1000 Creative Education Internship 3 s.h.

511 Molecular Physics 3 s.h.

513 Molecular Pottery 3 s.h.

514 Molecular Grammar 3 s.h.

601 The Short Story 3 s.h.

603 Children and Medical Literature 3 s.h.

606 Shakespeare 3 s.h.

611 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.

350 Critical Approaches to Literary Works 3 s.h.

351 Reading Poetry 3 s.h.

2110 Major Texts in World Literature I Service on 48-63.

2111 Major Texts in World Literature II Service on 48-64.

445 Survey of British Literature 3 s.h.

446 Survey of British Literature 3 s.h.

40150 Masterpieces of English Literature 3 s.h.

611 Major British and American Poetry 3 s.h.

6112 Major British and American Poetry II 3 s.h.

6115 Selected Fiction 3 s.h.

6116 American Literary Classics 3 s.h.

6119 Selected Works of the Middle Ages 3 s.h.

611 Shakespeare's Sonnets 3 s.h.

6151 Selected Works of the Elizabethan Era 3 s.h.

6150 Major Renaissance-Era British Works 3 s.h.

6154 Selected American Works Before 1900 3 s.h.

6155 Selected Early Modern Works 3 s.h.

6156 Selected Works of the Twentieth Century 3 s.h.

6157 Masterpieces of the Renaissance I 3 s.h.

6158 Masterpieces of the Renaissance II 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 some course number if authors have been changed.

671 Chaucer 3 s.h.

672 Shakespeare 3 s.h.


674 Selected American Authors 3 s.h.

675 The Poet in Person 3 s.h.

676 Selected Modern Authors 3 s.h.

677 Selected Authors 3 s.h.

Seminars for Undergraduate Majors

685 Language, Literature, and Law 3 s.h.

686 Prospective 3 s.h.

Prospective English major or consent of instructor.

689 Undergraduate Seminar 3 s.h.

Prospective 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 majors.

6190 Introduction to Critical Problems 3 s.h.

Service on 48-63.

6191 Literature and Culture of the Middle Ages 3 s.h.

6192 Literature and the Culture of the Renaissance 3 s.h.

6193 Literature and the Culture of the Eighteenth Century 3 s.h.

6194 Literature and the Culture of the Nineteenth Century 3 s.h.

6195 Literature and the Culture of the Twentieth Century 3 s.h.

6196 American Literature and History 3 s.h.

6197 European Literature of the Nineteenth Century 3 s.h.

Service on 48-64.

6198 American Literature and History 3 s.h.

6199 American Folk Literature 3 s.h.

6211 American Folk Literature 3 s.h.
LITERAL ARTS/English

Literary Criticism

0361 History of Criticism: Plato to Troc
Same as 3031, 3037, 117

0362 History of Criticism: 1700 to 1860
Same as 4693, 147, 148

0363 Issues in Contemporary Literary Criticism
Same as 4063

0364 Issues in the History of Criticism
Same as 4064

0367 Classical Analysis
Same as 3067

0368 Methods and Language Theory
Same as 3068

0369 Renaissance and Humanism
Same as 3069

0370 Introduction to Modern Literary Criticism
Same as 3070, 4694

Literary Modes

0374 Modern Poetry
Same as 4674

0375 Narrative Modes
Same as 4675

0377 Historical Modes
Same as 4677

0379 Theory and Techniques of Oral Literature
Same as 4679

Special Period Studies

0380 Renaissance III-4
Same as 4680

0381 Renaissance Studies
Same as 4681

0383 Advanced Readings in Black Culture
Same as 4683, 438

0384 Modern Studies
Same as 4684

0385 Inter-Period Studies
Same as 4685

0386 Literature and Philosophical Thought
Same as 4686

Literary Criticism

0391 Literary Sources and Modes
Same as 4691

0392 Poetry and Criticism
Same as 4692

0393 Theory and Analysis of Literary Forms
Same as 4693

Comparative and European Literature

0393 European Renaissance
Same as 4693

0395 European Romanticism
Same as 4695

0397 Hebrew European Poetry
Same as 4697

0398 Modern Trends of Literary Periods
Same as 4698

0591 Renaissance in European Literature
Same as 4591

0592 Literary Games and Modes
Same as 4592

0595 Patterns of Rhetoric and Literary Forms
Same as 4595

Seminars

These seminars represent the most advanced work in English and American literature and in related disciplines. The concentration of a given seminar may vary from semester to semester. Permission of the instructor is required for registration.

0402 Seminar: Modern Literature
Same as 4042

0403 Seminar: Renaissance/Native-American Literature
Same as 4043

0405 Seminar: Shakespearean Literature
Same as 4045

0406 Seminar: Seventeenth-Century Dramatic Literature
Same as 4046

0407 Seminar: Eighteenth-Century Prose
Same as 4047

0408 Seminar: Eighteenth-Century Poetry
Same as 4048

0409 Seminar: Victorian Literature
Same as 4049

0410 Seminar: Nineteenth-Century British Literature
Same as 4050

0411 Seminar: Twentieth-Century British Literature
Same as 4051

0412 Seminar: Twentieth-Century American Literature
Same as 4052

0413 Seminar: American Transcendentalism
Same as 4053

0414 Seminar: American Romantic Literature of the Nineteenth Century
Same as 4054

0415 Seminar: American Realistic Literature of the Nineteenth Century
Same as 4055

0416 Seminar: Problem in Aesthetics and Literary Theory
Same as 4056

0417 Seminar: Studies in Library History
Same as 4057

0418 Seminar: Literary Relations
Same as 4058

0419 Seminar: Literature and Other Disciplines
Same as 4059

0420 Seminar: American Criticism and Culture
Same as 4060

0421 Seminar: Literature and Communication
Same as 4061

0422 Seminar: Analytical Bibliography and Technical Criticism
Same as 4062

Independent Study

04200 Advanced Study in an Author
Same as 4020

04205 Advanced Study in a Literary Period
Same as 4025

04210 Advanced Study in a Literary Form
Same as 4021

04220 Advanced Study in a Literary Genre
Same as 4022

04230 Advanced Study in a Literary Mode
Same as 4023

04240 Advanced Study in a Literary Movement
Same as 4024

04250 Advanced Study in Literary Criticism
Same as 4025

04260 Advanced Study in a Literary Theme
Same as 4026

04270 Advanced Study in a Literary Text
Same as 4027

04280 Special Project for Graduate Students
Same as 4028

06606 Thesis

Linguistics and Language

05120 Introduction to Linguistics
Same as 4512

05125 Language Data Processing
Same as 4515

05130 Historical and Comparative Linguistics
Same as 4513

05135 Modern English
Same as 4513

05140 The Structure of the English Language
Same as 4514

05145 Modern English Grammar
Same as 4515

05150 Language, Society, and Education
Same as 4515

05155 Historical Linguistics of Modern English
Same as 4515

05165 Linguistic Perspectives
Same as 4516

05170 English Phonetics
Same as 4517

05180 Old Norse
Same as 4518

05190 Middle English
Same as 4519

05200 Advanced Studies in Linguistics
Same as 4520

Professional

Although open to all graduate students, the primary purpose of these courses is to offer theoretical and practical training to those who plan to teach. 

05210 Advanced Reading Comprehension
Same as 4521

05220 Spoken Reading
Same as 4522

05230 Practical Colloquial Vocabulary
Same as 4523

01700 Methods in English
Same as 4524

05240 Standard English
Same as 4525

05250 Practical Teaching of Composition
Same as 4526

05270 Writing for Professional Educators
Same as 4527

05280 Practicum in Teaching Composition
Same as 4528

05290 Practicum in Teaching Literature
Same as 4529

05300 Practicum in Teaching Literature
Same as 4530

05310 Practicum in Teaching Literature
Same as 4531

05320 Colloquium in the Two-Year College Teaching
Same as 4532

05330 Seminar: English in the Two-Year College
Same as 4533

05340 Teaching in a Reading Laboratory
Same as 4534

05350 Teaching in a Writing Laboratory
Same as 4535

05360 S.A. Seminar: English Education
Same as 4536

05370 S.A. Seminar: English Education
Same as 4537

05400 College Composition
Same as 4540

05410 Writing in English Literature
Same as 4541

05420 Writing in English Literature
Same as 4542

05430 Expository Writing
Same as 4543

05440 Expository Writing
Same as 4544

05450 Expository Writing
Same as 4545

05460 Expository Writing
Same as 4546

05470 Expository Writing
Same as 4547

Expository Writing
Same as 4548

Expository Writing
Same as 4549

Expository Writing
Same as 4550

Expository Writing
Same as 4551

Expository Writing
Same as 4552

Expository Writing
Same as 4553

Expository Writing
Same as 4554

Expository Writing
Same as 4555

Expository Writing
Same as 4556

Expository Writing
Same as 4557

Expository Writing
Same as 4558

Expository Writing
Same as 4559

Expository Writing
Same as 4560

Expository Writing
Same as 4561

Expository Writing
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.121 Writing for the Housewife 2 h.
EN.122 Writing for the Diplomat 2 h.
EN.123 Writing for Business and Industry 2 h.
EN.124 Enamored to New Journalism Writing 2 h.
EN.125 Form of Writing 1 h.
EN.126 Form and Genre Workshop 2 h.
EN.127 Free-Form Workshop 2 h.
pr.179 Computer Text Editing 1.5 h.
EN.199 Independent Project in Expository Writing 2 h.
EN.150 Workshop in Expository Writing 3 h.
EN.151 Critical Writing 3 h.
EN.152 Seminar Writing Workshop 3 h.

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 and teachers of expository writing. They combine theory and analysis of expository writing with practical experimentation in writing.

EN.104 The Art of the Essay 3 h.
EN.115 Approaches to the Teaching of High School Writing 3 h.
EN.116 Writing Workshop for Teachers 3 h.
EN.117 History of Rhetoric 3 h.
EN.118 Theory of Style 3 h.
EN.119 Making in Rhetoric 3 h.
EN.122 Philosophy of Language and the Audience at Writing 3 h.
EN.125 Statistical Theory: Analysis and Application 3 h.
EN.126 History of Writing 3 h.
EN.127 Approaches to Teaching College Writing 3 h.
EN.128 Methods in Teaching Freshman Composition 3 h.
EN.129 College Group in Expository Writing 3 h.
EN.122 Supportive Theories of Writing 3 h.
EN.123 Pedagogical Problems in Rhetoric 3 h.
EN.124 and Beyond Project in Expository Writing 3 h.
pr.169 Special Project in Teaching of Writing 3 h.

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 assistants and forms of creative writing.

EN.233 Creative Writing 3 h.
EN.110 History and Theory of Translation 3 h.
EN.111 Fiction Writing 3 h.
EN.122 Poetry Writing 3 h.
EN.123 Basic Playwriting 2 h.
EN.127 Playwriting I 3 h.
EN.161 Advanced Fiction Writing 3 h.

Professional Workshop
These courses are designed to serve special needs and interests of undergraduate 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.121 Workshop in Expository Writing 2 h.
EN.150 Workshop in Expository Writing 2 h.
EN.157 Playwriting Workshop 2 h.
EN.151 Fiction Workshop 2 h.
EN.152 Poetry Workshop 2 h.
EN.120 Translation Workshop 3 h.
EN.161 Fiction Workshop 3 h.
EN.162 Poetry Workshop 3 h.
EN.163 Playwriting Workshop 3 h.
EN.164 Seminar: Problems in Poetry Writing 3 h.

Independent Study
Courses are available for students who are interested in French literature or in combining the study of French literature with a major in another field, such as English, comparative literature, cinema, or art history. For the literature track, a minimum of 36 semester hours of credit in French is required.

French and Italian
Department chair: Jean L. Torrez

French:

EN.195 Independent Project in Creative Writing 3 h.
EN.196 Student Project in Creative Writing 3 h.
EN.260 B.A. Thesis in Expository Writing 3 h.
EN.196 B.A. Thesis 3 h.

Undergraduate Programs
The department's purpose is to introduce students to the cultures of France and Italy, provide an understanding of three countries' 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 wishing to concentrate on the written or verbal expression of a competency in French or Italian, and offers a minor for students of other languages and cultures who seek to broaden their cultural experiences.

Students majoring in French or Italian may make their courses with courses in education (see the "College of Education" section of the Catalog) to prepare for jobs in high school teaching. They may also take 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 as credit toward the French major; nor do more than 30 of 60 required French course.

Literature Track

Department's purpose: to introduce students who are interested in French literature or in combining the study of French literature with a major in another field, such as English, comparative literature, cinema, or art history. For the literature track, a minimum of 36 semester hours of credit in French is required.

9:27-28 2nd-Year Composition and Conversations 8 s.h.
9:11-11:22 Third-Year Composition 8 s.h.
9:12-12:22 Conversations: Third-Year Level 8 s.h.
9:12-19 French Conversation: Fourth-Year Level 8 s.h.
9:17-18 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 is a choice of literature, advanced language, or civilization, totaling 15 semester hours.

Civilization Track

Department's purpose: to introduce students interested in French culture, politics and culture, and recommended for students wishing to expand their 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:
- 0:175 Advanced French Pronunciation
- 9:209 Advanced Grammar and Lexicology
- 9:210 Comparative Stylistics, and at least four graduate-level (200 and above) literature courses. With the permission of the departmental chairman, the candidate may take up to 6 of the required 30 hours outside the department.

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 39 semester hours of graduate credit. Of this total, it must be in educational courses, and at least 9 must be in grades (200 level) courses in French literature.

The following courses are also suggested:
- 9:163 Stylistics: Analysis and Application
- 9:164 Textual Analysis
- 9:182 Historical Grammar and Lexicology
- 9:184 Comparative Stylistics
- 9:115-114 French Civilization
- 9:150 Methods: Foreign Language
- 9:161 Language Laboratory Equipment Procedures
- 9:162 Contemporary France
- 9:175 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 9:251 Introduction to Old French Grammar, and four semesters of college study or equivalent proficiency in a foreign language other than French.
For Undergraduates and Graduates

5.10 Seminar French
For students who have no knowledge of French. 4.4 A

5.10 Elementary French
Prerequisite: 5.10 or equivalent. 4.4 A

5.10 Elementary French Literacy Course
First-year French in one semester.

5.10 French for Travellers
Basic conversational French for the traveler. Given in Saturday and evening class programs.

5.10 French for Travellers I
Continuation of 5.10, with emphasis on practical vocabulary. Given in Saturday and evening class programs.

5.10 French for Travellers II
Continuation of 5.10 I, with emphasis on practical vocabulary. Given in Saturday and evening class programs.

5.10 French for Travellers III
Continuation of 5.10 II, with emphasis on practical vocabulary. Given in Saturday and evening class programs.

5.11 Intermediate French
For students who do not plan to continue the study of French after the second year. Not for majors. Prerequisite: 5.10 or equivalent.

5.12 Intermediate French
Continuation of 5.11 I for majors. Prerequisite: 5.11 I or equivalent.

5.20 French Pronunciation
May be taken in conjunction with 6.27, 6.28, 8.11, or 8.15.

5.20 French Conversation: First Level
May be taken independently or in conjunction with 6.11, 6.12, 9.27, 9.28. Prerequisite: 5.20 or equivalent.

5.21 Second Year French Composition and Conversation
A four-credit course for students who intend to continue their study of French or who want to improve their active command of the language. Prerequisite: 5.20 or equivalent.

5.22 Second Year French Composition and Conversation
Continuation of 5.21. Prerequisite: 5.21 or equivalent.

5.27 French Composition: Second Level
Prerequisite: 5.26 or equivalent.

5.28 French I
Essential vocabulary and phrases in all departments which are used to facilitate the purposes of research.

5.29 French II
Essential vocabulary and phrases in all departments which are used to facilitate the purposes of research.

5.30 French III
Prerequisite: 5.29 or equivalent.

5.31 French IV
Prerequisite: 5.30 or equivalent.

5.32 French V
Prerequisite: 5.31 or equivalent.

5.33 French VI
Prerequisite: 5.32 or equivalent.

5.34 French VII
Prerequisite: 5.33 or equivalent.

5.35 French VIII
Prerequisite: 5.34 or equivalent.

5.36 Introduction to Commercial and Technical Translation
Prerequisite: 5.27 or 5.28 or equivalent.

5.37 Introduction to French Business World
Prerequisite: 5.36 or equivalent.

5.38 Special Topic
Prerequisite: 5.37 or equivalent.

5.39 French Literature
Prerequisite: 5.38 or equivalent.

5.40 French Civilization
Prerequisite: 5.39 or equivalent.

5.41 History of France
Prerequisite: 5.40 or equivalent.

5.42 History of France
Prerequisite: 5.41 or equivalent.

5.43 History of France
Prerequisite: 5.42 or equivalent.

5.44 History of France
Prerequisite: 5.43 or equivalent.

5.45 History of France
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5.87 History of France
Prerequisite: 5.86 or equivalent.

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Prerequisite: 5.87 or equivalent.

5.89 History of France
Prerequisite: 5.88 or equivalent.

5.90 History of France
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Prerequisite: 5.90 or equivalent.

5.92 History of France
Prerequisite: 5.91 or equivalent.

5.93 History of France
Prerequisite: 5.92 or equivalent.

5.94 History of France
Prerequisite: 5.93 or equivalent.

5.95 History of France
Prerequisite: 5.94 or equivalent.

5.96 History of France
Prerequisite: 5.95 or equivalent.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1015 Commercial and Technical Translation</td>
<td>3.00</td>
</tr>
<tr>
<td>Methodology of translation with practical exercises in translating offspring and scientific texts. Prerequisite: 8110 or 91-12 or consent of instructor. Pre-requisite: 8110 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1021 Fundamentals</td>
<td>3.00</td>
</tr>
<tr>
<td>The social theory of translation, induction, and perjury.</td>
<td></td>
</tr>
<tr>
<td>1015 Topics in French Civilization</td>
<td>3.00</td>
</tr>
<tr>
<td>varieties of African and Caribbean literature written in French. Prerequisite: 1101 or equivalent. Same as 45-75.</td>
<td></td>
</tr>
<tr>
<td>1025 Contemporary French</td>
<td>3.00</td>
</tr>
<tr>
<td>Classic study of major aspects of the Fifth Republic. Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1030 French Language of the African Diaspora</td>
<td>3.00</td>
</tr>
<tr>
<td>Early French and Caribbean Literature written in French. Prerequisite: 1101 or equivalent. Same as 30-302.</td>
<td></td>
</tr>
<tr>
<td>1040 Critical Essays in French Literature</td>
<td>3.00</td>
</tr>
<tr>
<td>Required for teachers. Prerequisite: 8110 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1077 The French Writer and Social Criticism</td>
<td>3.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1078 Critical Approaches to French Literature</td>
<td>3.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1079 Twentieth-Century French Poetry</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1081 Aspects of Poetry</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1082 Twentieth-Century French Drama</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1090 The Novel</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
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</tr>
<tr>
<td>1094 Concordance and Streamers</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1095 Scenes and Recitations: Undergraduate Readership and Recitations</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
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</tr>
<tr>
<td>1099 French Literature of the Eighteenth Century</td>
<td>3.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
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</tr>
<tr>
<td>1101 Elementary French</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 8110 or equivalent.</td>
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</tr>
<tr>
<td>1102 Intermediate French</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1103 Advanced French</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1104 French Civilization</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
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</tr>
<tr>
<td>1105 French Literature of the Enlightenment</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1106 Twentieth-Century French Period</td>
<td>3.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1109 Special Work</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1103 or 1104 or 1105 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>1110 French Grammar</td>
<td>3.00</td>
</tr>
<tr>
<td>Prerequisite: consent of major advisor.</td>
<td></td>
</tr>
<tr>
<td>1112 French Grammar</td>
<td>3.00</td>
</tr>
<tr>
<td>Prerequisite: consent of major advisor.</td>
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</table>

**Italian Courses**

**Primary for Undergraduates**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1011 Elementary Italian</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1101 Elementary Italian</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1102 Intermediate Italian</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1103 Advanced Italian</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1104 Italian Civilization</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1105 Pen and Conversation Italian</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1102 or 1103 or 1104</td>
<td></td>
</tr>
<tr>
<td>1106 Commercial and Conversation Italian</td>
<td>2.00</td>
</tr>
<tr>
<td>Prerequisite: 1102 or 1103 or 1104</td>
<td></td>
</tr>
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</table>

**For Undergraduates and Graduates**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1011 Italian of the Renaissance World</td>
<td>5.00</td>
</tr>
<tr>
<td>May be given in English for non-majors.</td>
<td></td>
</tr>
<tr>
<td>1101 Italian Civilization</td>
<td>4.00</td>
</tr>
<tr>
<td>Open to undergraduates with a maximum of two years in either foreign language, and in previous studies. Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1103 Italian Civilization</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: consent of major advisor.</td>
<td></td>
</tr>
<tr>
<td>1104 Italian Civilization</td>
<td>4.00</td>
</tr>
<tr>
<td>From earliest writings to end of sixteenth century. Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1105 Italian Civilization</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1106 Italian Civilization</td>
<td>4.00</td>
</tr>
<tr>
<td>From sixteenth century to present. Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1111 Advanced Composition and Conversation Italian</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
<tr>
<td>1112 Advanced Composition and Conversation Italian</td>
<td>4.00</td>
</tr>
<tr>
<td>Prerequisite: 1101 or equivalent.</td>
<td></td>
</tr>
</tbody>
</table>
Genetics/LIBERAL ARTS

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, stenographic medical 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 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 unit 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 student may earn in a science course in another college of the University 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.

4 student in a general science research program may earn a Bachelor of Arts or Bachelor of Science degree by completing one of the approved sequences listed under "Science Education" in this section of the Catalog of the College of Liberal Arts.

Students who want to teach in secondary schools must also satisfy certification requirements, which include a 20-hour sequence specific to education (see "Secondary Education" in the "Bachelor of Education" section of the Catalog.

Students majoring in general science are urged to take sufficient courses in basic and applied mathematics to prepare them for graduate study and quantitative research. All general science students who are not in either the science education program or one of the health-related programs must complete at least 12 semester hours in mathematics courses, or an equivalent course or a higher level mathematics course.

Genetics

Program chair: J. Greene (Interim)
Faculty: professors Naget (Chemistry), Busick (Microbiology), Demmel (Microbiology), Herriott (Microbiology), Ho (Microbiology), Keaton (Microbiology), Shattuck (Microbiology), Stoll (Microbiology), Stucky (Microbiology), and Taylor (Microbiology)

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 them up during the first year of graduate study.

Admission to the program is based on assessment of the applicant's undergraduate academic record, performance on the Graduate Record Examination (GRE), verbal, quantitative, and analytic 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 Medicine are of good academic standing, grade-point averages greater than 3.0 and GRE totals (verbal plus quantitative) exceeding 1250, students with lower grades may be admitted, depending on other indicators of academic potential.

The program accepts admission applications at any time.

Financial Aid

A full-time graduate student may be supported as a National Institutes of Health predoctoral trainee. Traineeships include stipends of $5,040 for 10 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 do 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 $8,000 per year. Students receiving assistantships must apply for full or partial tuition scholarships.
Medical Scientist Training Program

Students may continue study toward an M.D. and a Ph.D. in genetics. Further information about this program may be obtained from the director of the Medical Sciences Training Program in the College of Medicine.

Departmental Ph.D. Programs

The departments of Biochemistry, Botany, Microbiology, and Zoology offer degree programs in which students may specialize in a particular aspect of genetics. See departmental descriptions elsewhere in the Catalog for further information about these programs.

Courses

The following genetics courses are available to graduate students:

66:150 Biochemistry of Informational Molecules 3 s.h.
66:225 Topics in Molecular Biology 1-2 s.h.
62:104 Cytogenetics 3 s.h.
260:160 Genetics and Biogenesis of Cell Organelles arr.
260:215 Genetics Seminar 0-2 s.h.
62:175 Human Genetics 3 s.h.
62:170 Microbial Genetics 3 s.h.
4:175 Microbial Genetics Lab 2 s.h.
61:178 Comparative Microbial Genetics 3 s.h.
81:270 Topics in Molecular Biology arr.
267:165 Population and Evolutionary Genetics 3 s.h.
37:165 Behavioral Genetics 3 s.h.
37:165 Quantitative Genetics 3 s.h.
37:170 Eukaryotic Molecular Biology 3 s.h.
37:171 Molecular Genetics 4 s.h.
37:172 Topics in Evolutionary Genetics 2 s.h.
37:176 Topics in Eukaryotic Molecular Biology 2 s.h.
37:265 Advanced Genetics 2 s.h.
37:260 Developmental Genetics 2 s.h.

Geography

Department chair: James B. Lobberg
Faculty: professors: John W. Pifer, James B. Lobberg, Michael L. Kitchin, Glenn R. Reynolds, Robert S. Twenhofel, and David R. A. Torrance; associate professors: Clyde F. Kohn, Heli G. Isberg, and Barbara Ann Heseltine; instructors: Joseph H. Macdonald, and Charles M. Lee, Graham A. Topel; and one faculty member. Degree offered: B.A., B.S., M.S., Ph.D.

Geography seeks to explain spatial organization through detailed studies of significant patterns and processes. The discipline is concerned with 'place' or 'environment' and ongoing forces which promote change within and between human and physical systems. Geography is a composite science, in that a broad base of knowledge from many related disciplines is required, as well as an analytical science which seeks explanations of specific research questions from a distinctly geographic perspective.

Students who elect courses in geography find they develop insights and methods of inquiry which are particularly applicable to understanding many of the complex problems confronting different societies. For instance, the distribution and consumption of natural resources, air and water pollution, the growth and development of urban areas, increasing populations, transportation problems, spatial inequalities, loss of services, and conflicts between nations are some of the issues which will be dealt with during geographical training.

Studies in geography also provide students with concepts and methods for organizing such spatial units as urban areas, microwatershed regions, school districts, health service areas, drainage systems, and areas of environmental concern. Thus, geographers can make substantial contributions towards understanding the behavior of individuals, of societies, and of their relations with the environment.

Career opportunities for majors in geography exist in many branches of government and in business. There is a demand for persons capable of dealing with resource management, economic development, market size analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena.

Courses in geography are commonly required of students preparing to enter the teaching profession at the elementary and secondary school levels, of students who want to work in urban and regional planning, and as a base for many related professions, including law, health care, environmental or transportation engineering, and business administration.

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 or for students interested in electing a cluster of courses in conjunction with another discipline or for the B.S. degree; and for students interested in acquiring a major in geography. The department also offers significant interdepartmental 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 Science 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 a minimum of 26 semester hours of general education work; at least 15 of which must be at the 100 level. Many students are required to take courses in English and mathematics beyond the minimum requirements for mastery of a specific subject.

All geography majors must complete:
44:110 Spatial Organization
44:120 Undergraduate Seminar for Geography Majors
and one of the following statistical courses:
225:127 Applied Statistical Methods and Computations
225:235 Elements of Statistics
225:101 Bivariate Statistics
225:102 Introduction to Statistical Methods

In addition, Bachelor of Science students must complete a mathematics requirement consisting of:
226:3 Mathematical Techniques II or
254:16 Fundamentals of College Mathematics
and
22M:20 Elementary Functions
or
22M:16 Mathematics for the Biological Sciences
or
22M:18 Calculus for the Biological Sciences
or
22M:22 Calculus I
or
22M:25 Calculus II
or
22M:35 Engineering Calculus I
and a computer science requirement consisting of:
22C:7 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 wildlife, mathematical, and computer science requirements.

Recommendations
Students majoring in geography are advised to:
Take both the introductory level courses 44.1 Introduction to Human Geography and 44.2 Introduction to Physical Geography during their freshman or sophomore years.
Take first 44.110 Spatial Organization followed by 44.150 Undergraduate Seminar for Geography Majors during their senior 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 take 22M:25 Calculus I or a statistics course in fulfillment of the mathematics requirement. Students equipped with these skills will find themselves with greater flexibility, particularly for other geographic studies and later career opportunities.

Courses for the Nonmajor
Students in the College of Liberal Arts or other regional colleges at the University may find geography classes meaningful to their own areas of study. The beginning-level courses 44:1 Introduction to Human Geography, 44:2 Introduction to Physical Geography, 44:1 Introduction to Social Geography, 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 Rural Geography, 44:25 World Cities, 44:15 Locational Conflict, 44:125 Drainage Basin Form and Process, 44:167 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 under the different 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 department office.

Environmental Studies
The undergraduate program in environmental studies is designed for students with career objectives 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 interrelationships 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 44:16 Contemporary Environmental Issues at the beginning of their major program. They are advised to select additional geography courses from the following:
- 44:1 Introduction to Human Geography
- 44:20 Introduction to Economic Geography
- 44:115 Weather and Climate
- 44:116 Locational Conflict
- 44:120 Natural Hazards
- 44:122 Environmental Conservation in the United States
- 44:125 Geography of Natural Resources
- 44:124 Introduction to Global Environmental Issues
- 44:126 Experimental Impact Analysis
- 44:128 Drainage Basin Form and Process
- 44:129 Water Resource Management
- 44:180 Field Studies
- 44:191 Energy in Contemporary Society
- 44:197 Mapping and Geographical Computer Methods in Geographical Analysis

Under the direction of an adviser, students should select courses (at least 12 semester hours) from among one of the following clusters:
- Physical Systems
  - 44:20 Introduction to Geology
  - 44:16 Introduction to Oceanography
- 44:110 Introduction to Remote Sensing
- 44:180 Hydrogeology
- 44:171 Geomorphology
- 523:150 Principles of Environmental Engineering

523:181 Irrigation and Drainage
523:186 Hydrology
523:187 Water Resources Systems

Environmental Science
11:22 Ecology and Evolution
11:25 Chemistry and Physics of the Environment
11:29 Technology and Man
21:11 Plant Diversity
21:31 Plants and Human Affairs
21:11 Plant Ecology
1:199 Plant-Animal Interactions
2:116 Field Ecology
2:132 Ecology
37:133 Topics in Ecology
37:129 Quantitative Field Ecology
37:187 Statistical Methods in Ecology

Environmental Management
6E1:1 Principles of Economics
6E2:1 Principles of Economics
6E2:1 Microeconomics
6E2:1 Macroeconomics
6E1:11 Economics of the Global Economy
6E1:127 Natural Resources in the World Economy: Control and Conflict
6E1:133 Economic Growth and Environmental Decay
6E1:100 Administrative Management
6E1:161 Individual Behavior in Organizations
6E1:163 Design and Management of Organizations
102:101 Introduction to Planning and Policy Development
102:102 Case Studies in Urban and Regional Planning
122:004 Introduction to Environmental Planning
91:136 Resource Planning
527:102 Technology of Environmental Pollution Control
527:104 Environmental Planning and Management

Urban and Regional Studies
Students with interests in urban and regional analysis will find this concentration relevant, either as background training for graduate work or as a base 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, cartography, 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 substantive 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
44:20 Introduction to Economic Geography
44:25 World Civilizations
44:115 Localized Conflict
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 Geography
44:135 Urban Geography
44:136 The City
44:137 Urban and Regional Modeling
44:138 Urban Problems
Also strongly recommended:
44:1c7 Maps and Mapping
44:129 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 Atio-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 Marketing Research
International Development Studies
The concentration in international development studies is designed for students interested in international affairs; in the social, political, and economic development of old and new nations; in the solution of regional problems that have global implications; and in comparative economics. 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 relate.
In this concentration, 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
44:20 Introduction to Economic Geography
44:222 Urbanization
44:215 Locational Conflict
44:124 Revolution to Global Environment
44:101 African Development
44:102 The Third World
44:103 The Chinese World
44:101 Energy in Contemporary Society
Under the direction of an advisor, students should select courses in related disciplines from among the following:
30:90 Introduction to World Politics
30:107 Policy Problems in Industrial Societies
30:150 The Political Economy of the Third World
30:160 International Politics
30:180 Politics of War and Peace
61:123 Political Economy of the Military-Industrial Complex
61:129 Economic Development of Developed Areas
18:80 Culture and Politics of Latin America
18:90 Introduction to Modern Latin America
18:106 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 cooperates 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 200 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 Computing
225:25 Elementary Statistics and Inference
225:101 Biostatistics
225:102 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 measure by the demand for University of Iowa graduates from the large and growing number of government and university faculties, in research-oriented institutions, and in business and government.
The department offers specialized instruction in the teaching of geography at the college level for those interested in academic careers. 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 teaching 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. Several programs have been developed 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, should complete their program of study for their degree program. This should be done after the position of the student's interest and should identify clearly the general area (or areas) within 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 200-level courses. The 200-level specific requirements for the degree are:
At least 4 semester hours chosen from among the mini-courses 44:201-202 Geographical Analysis I and II.
Satisfaction of the department's B.S. degree requirements in mathematics, statistics, and computer programming are assumed. (See above: 44:202 Quantitative Analysis I and II.
An additional 12 semester hours in geography.
Additional courses in geography or related fields complete the student's program.
Students who enter with sufficient background are frequently able to complete their program in one full year.
The M.A. degree is available with or without thesis. A maximum of 8
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 44:201-202 Geographical Analysis I & II and 44:203-206 Quantitative Analysis I & II. The eight mini-courses comprising 44:201-202 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 44:203-206 Quantitative Analysis I & II may 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 44:350 Research Seminar: Staff each semester while they are in residence.

The remainder of the Ph.D. program includes appropriate graduate courses, seminar work, and independent study in geography; courses in disciplines closely related to geography may be elected, subject to the approval of the student's research advisor. Research tool requirements for Ph.D. candidates are the courses 44:203-206 Quantitative Analysis I & 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 review of the literature, assessment of progress to date, an outline of the area within geography in which they intend to specialize, and a program of study for the following year. Preferably during the second year in residence, doctoral students who have been admitted to the graduate program without advanced academic credit must submit an original research paper to the faculty, with the approval of their advisor.

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 they 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, appraisal of regional analysis, non-economic theory, macro-economic theory, and operations research. Doctoral candidates in the field of regional science also are 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 and these courses to their master's and doctorate in Geography, because completing the B.A. in Regional Science requirements entails satisfying most of the 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 that of the junior and senior years; score 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 3.5 or 3.75 and 2.75 will be admitted only for the M.A. degree and on the condition that he or she achieve a grade-point average of 2.75 or better for 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 grade-point average, to be appointed to an assistantship. These appointments should ordinarily be renewed by Fall-Winter '15.

Facilities

The department possesses a unique complete graphics hardware system in the MLAC PDS-4 mini-computer that supports a GRAP PEN OF-2 semi-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 370/195. 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 social, economic, and political maps. The library is a depository for maps of the United States, is affiliated with the Army Map Service Command, formerly Army Map Service.

The Geology Library contains approximately 50,000 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 photography for use by students in laboratory exercises.

Courses

Most courses open to graduate students may be taken in any order or simultaneously if recommended, however, courses 44:41-10 and 44:41-20 in that sequence. All courses below the 100-level are open to freshmen; 44:1-1, 44:2-1, 44:41, 44:19, and 44:20 are available on a credit/no credit basis for the general education requirement in social sciences.

Primarily for Undergraduates

44:000 Cooperative Education Training Assignment 8 u.h.

646 Introduction to Human Geography 4 u.b.

An introduction to geographic principles of contemporary urban, environmental, and demographic processes; urban growth, problems of the ghettos, effects of sociology, territory, and perception.
44237 Urban Spatial Analysis... 5 a.b. Research issues, finding, and methodologies in urban and regional planning and related personal processes in urban settings; presentation of review papers.

44233 Urban Transportation 5 a.b. Transportation planning and policy development; urban transportation systems and urban transportation planning; urban transportation systems and networks; network analysis. Continuation of 44232.

44238 Urban Planning and Policy 5 a.b. Urban planning and policy development; urban planning systems and urban planning systems and networks; network analysis. Continuation of 44232.

44220 Urban Systems Analysis 5 a.b. Urban systems analysis; urban systems and urban systems and networks; network analysis. Continuation of 44219.

44219 Urban Systems Analysis 5 a.b. Urban systems analysis; urban systems and urban systems and networks; network analysis. Continuation of 44218.

44218 Urban Systems Analysis 5 a.b. Urban systems analysis; urban systems and urban systems and networks; network analysis. Continuation of 44217.

44227 Urban Spatial Analysis 5 a.b. Research issues, finding, and methodologies in urban and regional planning and related personal processes in urban settings; presentation of review papers.

44233 Urban Transportation 5 a.b. Transportation planning and policy development; urban transportation systems and urban transportation planning; urban transportation systems and networks; network analysis. Continuation of 44232.

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agencies. Some intend to enter law, business, or other fields such as urban planning, environmental studies, engineering, archeology, science education, or oceanography in the 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 (invertebrate, vertebrate, paleoecology), a terminal link to the University computing center, the Iowa Geologic 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 1123 Earth History and Resources and 1124 Man and His Physical Environment, a two-term, laboratory-taught 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 person interested in a general geology, 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 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 in geology are designed specifically as preparation for graduate study and for employment in industry. Required courses in this program:

- 125 Introduction to Geology 4 s.h.
- 126 Evolution of Man 4 s.h.
- 1241 Mineralogy 4 s.h.
- 1242 Elementary Petrology 4 s.h.
- 1243 Summer Field Course 6 s.h.
- 1211 Principles of Paleontology 3 s.h.
- 1212 Structural Geology I 4 s.h.
- 1212 Structural Geology II 3 s.h.

At least two elective geology courses 8 s.h.

Total 36 s.h.

(Note: The student may substitute 1123 Earth History and Resources for 125 Introduction to Geology, but 125 is preferred.)

The geology major requires at least 10 semester hours of college mathematics, including 225/26 Calculus II or 225/26 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 course work in education, the B.A. program provides a base for high school or 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:

- 125 Introduction to Geology 4 s.h.
- 126 Evolution of the Earth 4 s.h.
- 1241 Mineralogy 4 s.h.
- 1242 Elementary Petrology 4 s.h.
- 1211 Principles of Paleontology 3 s.h.
- 1218 Field Trip (two sections) 4 s.h.
- Geology electives 12 s.h.

Total 35 s.h.

(Note: The student may substitute 1123 Earth History and Resources and/or 1124 Man and His Physical Environment for 125 Introduction to Geology, but 125 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 must take 1210 Geologic Orientation.

All graduate students in geology must perform teaching, research, or related administrative services as part of the degree program.

Prospective graduate students in geology should consult the "Rules and Regulations" in the "Graduate College" 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.

Entry graduate students are assigned to a general graduate advisor. 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 to 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 beyond the undergraduate level course work, including not more than 12 semester hours of research and research credit, and at least 24 semester hours in residence at The University of Iowa.
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 does not count toward the semester-hour requirements for the degree. To qualify for admission to the final master's examination, the candidate must have at least a 3.0 grade point average on those graduate courses which are being offered toward the 30 semester hour 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 6 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 must submit a final scientific report on the activity and on the geologic principles involved to the instructor and broader applications and implications. No college credit is gained 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 earned in other departments of the University.

The faculty may 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 in 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. Competence is normally achieved by satisfactory completion of a one-year sequence of appropriate courses, proficiency by satisfactory completion of a two-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 botany, chemistry, physics, and zoology 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 not be applied to credit requirements for the degree.

These are the minimum requirements:

- Satisfaction of course requirements for the M.S. degree in geology at The University of Iowa.
- At least 12 semester hours in addition to the M.S. degree, 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 in current elementary textbooks.

These are the major and minor fields:

- Economic Geology
- Petroleum Geology
- Economic Deposits
- Mineral Economics

- Crystallography
- Determinative Mineralogy
- Crystal Chemistry and Mineral Chemistry
- Igneous and Metamorphic Petrology
- Igneous Petrology
- Metamorphic Petrology
- Applied Geomancy and Thermodynamics
- Structural Geology
- Geosynclinal
- Structural Analysis
- Remote Sensing
- Geophysics
- Exploration Geophysics
- Gold-End Geophysics
- Rock Properties
- Stratigraphy
- Physical Stratigraphy
- Biostratigraphy
- Depositional Environments
- Sedimentary Petrology
- Sedimentation
- Sandstone and Carbonate Petrology
- Physical Stratigraphy
- Paleosol Studies
- Plastosol Geology
- Variegate Paleontology
- Quantum Paleontology
- Paleobotany
- Palaeozoology
- Palaeocology
- Biostratigraphy
- Geomorphology
- General Geomorphology
- Glacial and Pleistocene Geology
- Environmental Geology
- Hyrogeology
- Remote Sensing
- Engineering Geology
- Other Minor Subjects

Botany
Zoology
Chemistry
Physics
Materials Engineering
Geography
Hydraulics
Archeology-Antropology
Science Education
Others

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
German

Department Chair—James P. Ptasch

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 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.
13.22 Fourth-Semester German: Reading and Conversation 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 II 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 take 13.103 German Phonology (three semester hours) to the above.

Applied German Track

Third Year

13.30 Intermediate Composition and Conversation 3 s.h.
13.34 Intermediate Composition and Conversation 3 s.h.
13.35 Intermediate 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 requires for teacher certification a course of study that meets the requirements of the state, it is imperative that the student consult with the undergraduate advisor to help 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 - 3 hours
- 12.32 Introduction to Modern German Literature II - 3 hours
- 13.33 Intermediate Composition and Conversation - 3 hours
- 13.34 Intermediate Composition and Conversation - 3 hours
- 13.101 Advanced Composition and Conversation - 3 hours

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 3.5 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 (Frassabu) 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 recorded materials 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 for research 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 appropriate levels. 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 working 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, but 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 30 semester hours, or equivalent, of graduate level work, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalog)

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 adviser's approval, some of the 30 semester hours required for the degree may be taken outside the department, in related subject areas 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. The 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 Catalog), 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 foreign language other than German which he or her adviser certifies is 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 special fellowships, and tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funk prizes to students of distinction.

Courses

Primarily for Undergraduates

121 Introductory German 4 s.h.

122 Elementary Grammar, vocabulary, and language development. Satisfies a language requirement for arts and science majors. Prerequisite: 121 or equivalent.

128 Intermediate German 4 s.h.

129 Advanced Grammar, vocabulary, and language development. Prerequisite: 128 or equivalent.
For Undergraduates and Graduates

15.00 Individual German 3.00
Offered for majors and minors in German. Available only by arrangement with instructor.

15.00A-5 Individual German 3.00
Offered for majors and minors in German. Available only by arrangement with instructor.

15.00B-4 German Phonology 3.00
Course is open to English majors and minors. A separate major in German is not necessary. May be repeated. Prerequisites: 15.00B-4 or 15.00B-5, or permission of instructor.

15.00C-3 German Pragmatics 3.00
Assessment of the role of pragmatic factors in language use. Prerequisites: 15.00C-3 or 15.00C-4, or permission of the instructor.

15.00D-3 German Cultural History 3.00
Cultural history of Germany from 1400 to the 19th century. Prerequisites: 15.00D-3 or 15.00D-4, or permission of instructor.

15.00E-3 The Third Reich and Literature 3.00
Half-treatment, Literature of the Housewife and the Oppressor, and some German Literature review. Same as 15.00E-3.

15.00F-3 German Cultural History 3.00
Cultural history of Germany from 1700 to 1871. Prerequisites: 15.00F-3 or 15.00F-4, or permission of instructor.

15.00G-3 History of Western Civilization 3.00
Introduction to the history of Western Europe. May be repeated. Prerequisites: 15.00G-3 or 15.00G-4, or permission of instructor.

15.00H-3 German Culture and Civilization 3.00
Continuation of 15.00H, with some option of other approach. Greater emphasis as vocabulary building. Prerequisite: 15.00H-1 or equivalent.

15.00I-3 German Literature 3.00
Continued study of 15.00I or 15.00I-1, with an emphasis on the works of the major 19th-century novelists. Prerequisite: 15.00I-2 or equivalent.

15.00J-3 History of the English Language 3.00
History of the English language from the earliest times to 1776. Prerequisite: 15.00J-2 or equivalent.

15.00K-3 German Literature 3.00
Continuation of 15.00K. Prerequisite: 15.00K or 15.00K-5, or permission of instructor.

15.00L-3 German Literature 3.00
Continuation of 15.00L. Prerequisite: 15.00L or 15.00L-5, or permission of instructor.

15.00M-3 German Literature 3.00
Continuation of 15.00M. Prerequisite: 15.00M-2 or equivalent.

15.00N-3 German Literature 3.00
Continuation of 15.00N. Prerequisite: 15.00N or 15.00N-5.

15.000-3 German Language and Literature 3.00
Consolidated study of senior German literature. Prerequisite: 15.000-3 or 15.000-4, or permission of instructor.
Global Studies

Global Studies

Committee chair: Joel Berman (Political Science)

Graduate Program Coordinator: Borna Asen (International Relations) Joanne Eagan (Politics) Robert Cornette (Sociology)

Yuki Harada (Sociology)

Kathleen Miller (Earth Design)

Elise McCall (Geography)

Scott J. Sommer (Economics)

Douglas Melish (Anthropology)

James Morley (Political Science)

Jared Schamp (Economics)

Julie Tedford (Economics)

T. Dostie (Economics)

Jay Kuehs (Economics)

Kim Moore (Economics)

The Global Studies Program at the University of Iowa is designed to provide undergraduate students multidisciplinary study of major contemporary, interconnected global problems concerned with peace, power, and poverty; development; environmental concerns and global resources; and cross-cultural understanding.

Undergraduate majors in any department, in any college, are eligible to enroll in the program. Each case will include the requirements of the Global Studies Program. Students completing the requirements of the program are awarded a certificate of Global Studies at the time they receive their bachelor's degree. Students pursuing the certificate is Global Studies may also apply Global Studies as their minor.

Any bachelor's degree in Global Studies (B.S.) degree may also be admitted to the program. However, because B.S. candidates have no departmental concentration, they will require very careful academic advising by the program's faculty committee. All students enrolled in the program, including B.S. students, are required to complete or have the equivalent of two-year's study of a foreign language and will be encouraged to go beyond this minimal requirement. Each student completing the program will graduate 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, 47:1 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 relevant to each of the problems, clarification of their interconnectedness, and identification of some current efforts to deal with them.

Multidisciplinary Senior Seminar

This course, 47:100 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 47:7 Contemporary Africa, a multidisciplinary survey of the political, economic, and cultural life in Sub-Saharan Africa, and 47:100 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 selects 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 forces for purposes of national and 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.

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.

III. Word and Power

This component of the Global Studies Program deals with power and power-wielding processes, both international and national, to the extent they influence the character of and prospects for the developing countries.

IV. Cultural Diversity

This component of the Global Studies Program deals with the international diversity of cultures and the processes which influence them.

All students must take either:

3. 184 Military Affairs or

16. 146 War and Society

Students who elect to take three courses in this area, in addition, may take one of the following:

3. 187 Arms Races and Arms Control or

85. 123 Political Economy of the Military-Industrial Complex

And one from this group:

3. 148 The Politics of Southern Africa or

20. 161 The United Nations or

3. 166 Political Peace and War or

3. 167 Arms Races and Arms Control or

3. 172 Introduction to International Law 18. 06 Introduction to international Concepts of Peace

When the course deals with issues of particular relevance to global studies students:

16. 146 War and Society or

19. 170 United States in World Affairs 1930-1975

18. 06 United States in World Affairs, 1930-1975

9. 12 Literature of Peace and War

9. 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:

115. 161 Sociology of the Third World (same as 54.151) or

85. 123 Economic Development: Underdeveloped Areas

Students who elect to take three courses in this area, in addition, may take any two courses from this list:

3. 148 African Development (same as 44.152) or

16. 150 The Political Economy of the Third World

16. 125 International Economics

9. 127 Natural Resources in the World Economy: Control and Conflict

16. 128 Economic Development: Underdeveloped Areas

16. 186 The Political Economy of Socio-Political Development

44. 30 World Cities

44. 162 The Third World

16. 151 Sociology of the Third World (same as 54.151) or

34. 174 World Political Problems

77. 124 Education in the Third World
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. Critical issues are the environmental problems arising from the transformation of these resources by humans using modern technology. All students must take either:
44:19 Contemporary Environmental Issues
or
44:104 Introduction to Global Environment
Student 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
(sum 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 views complicate the process of people communicating about and arriving at possible solutions to global problems; and that it is risky to accept at face value, without examination, the perceptions, values, and beliefs of any one society or culture.

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 sensitivities required for dealing with the world's most 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
112:03 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 an additional course from the following list:
32:188 World Order and Conflicting Values
42:187 World Futures
30:165 Human Rights
91:193 Human Rights in the World Community: Problems of Law and Policy (emphasizes enforcement)
69:186 The Political Economy of Socialism
19:190 Comparative Communications Systems
18:191 Contemporary Asian News Cilpum
(sum as 30:165)
47:7 Contemporary Africa
113:10 Introduction to the Study of Culture and Society
113:10 Anthropology and Post-World War Problems
113:14 Language and Human Behavior
113:168 Women's Roles: A Cross-Cultural Perspective
113:172 Language and Culture
113:181 Race, Ethnicity, and International Relations
(sum as 45:15)

Option 2
Students electing 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 seminars of interest to the general public as well as students.

Courses
47:1 Global Interactions and Human Survival 3.50
This course in the four-hour lecture series of the Global Studies Program, based on information related to each of the four fields, provides an introduction to the four regions of the world, and an understanding of the current attitudes towards the future.
140:100 Policies in Global Studies 3.50
Current world problems are surveyed on a subject matter of a particular semester. It is intended for students in the four-hour lecture course on the four divisions of Global Studies, and is required of all students.
47:100 Velocities in Global Studies 3.50
In-depth exploration of a particular global problem or topic oriented course content will vary from year to year, but in all cases the approach will be comparative in that it will use case-study materials from different countries. Guest speakers from on- and off-campus may be requested with support of the Global Studies Committee chair.

Greek
See "Classics."

History
Department chair: John B. Neumann
Depose 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 their world in the light of its past. In addition to offering these essential elements of liberal education, the department trains professional historians and teachers of history, serves those who require a knowledge of a guided or aspect of history as background for their own specialized pursuits 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 relations, or planning 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 foreign language be met by selecting a language which fits in with the major student's background and interests.

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, of which at least 12 semester hours are upper-level courses. Students who choose to seek the major in history must take 30 hours of work in history courses, excluding courses taken for speciaT purposes. Courses must be taken in residence at the College of Liberal Arts.
hours must be in non-U.S. History courses. This limitation is imposed to ensure students will have contact with at least one other society besides our 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 based after the student has finished a number of other History courses.

Of the 24 semester hours of history required for the major, 12 (including the 3 hours of colloquium) must be taken in residence at The University of Iowa.

A minimum of 16 to 18 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio art only), geography, history (excluding workshop courses), philosophy, 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-areas requirement.

Students majoring in history may waive three semester hours of the general education requirement in historical perspectives. They may not receive credit towards this requirement by taking courses counted toward three of the following: 11:20-30 Problems in Human History, 11:31-32 Western Civilization, and 11:55-60 Civilizations of Asia. (a total of 3 semester hours) but may count such a course towards the general education requirement in historical perspectives. They must complete the professional courses in the College of Education which are required by the Teacher Certification (a total of 23 semester hours). They must also take 18:51 Colloquium for History Majors. They must choose an American History Concentration or meet these requirements:

American History Concentration

Course in U.S. history

20 s.h.

Courses in related areas

36-44 s.h.

Students must include at least one of the following six related areas: economics, geography, world history (non-U.S.), political science, psychology, sociology. They must take 13 semester hours of courses in each of the three areas they 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 to be taken in the College of Liberal Arts.

Students must select three of the following six related areas: economics, geography, American History, political science, psychology, sociology. They must take 13 semester hours in each of the three areas they 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. Three semester hours from general education courses in historical perspectives (11:20-30, 11:31-32, 11:55-60) may be counted toward the required 30 semester hours in non-U.S. History.

Students seeking the teaching major in history should consult an advisor in social studies education (see the "College of Education" section of the Catalog).

Honor’s

The honor’s 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 History Department’s Honors Program by the director of that program, and to the honors program in history by the Department of History. The student must complete the major, and the honors program in history by the end of the sophomore year. The student must be made either the Bachelor of Arts degree with honors in history. (A minimum of 24 semester hours is required for the degree.)

Successful completion of the honors program leads to the Bachelor of Arts degree with honors in history. Requirements are:

Successful completion of the honors program leads to the Bachelor of Arts degree with honors in history. Requirements are:

Students who complete the M.A. under the thesis option must 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 12 semester hours in the graduate course. The program must also include at least 6 semester hours in each 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
### 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 family life education.

**In meets 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 also are prerequisites for home economics courses.

All students majoring in home economics compare these core:
- 17:20 Development and the Family 3 s.h.
- 17:22/23/24/25, and You 3 s.h.
- 17:30 Design for the Home 3 s.h.
- 17:80 Textiles for Consumers 3 s.h.
- 17:111 Management of Family Resources 3 s.h.
- 17:180 Seminar: Home Economics 2 s.h.

### Bachelor of Arts

**Family Development**

This program prepares students for careers with agencies and services concerned with the total family and its fundamental aspects of family life education, and for the extension service. The following courses are required:
- 17:10 Growth and Development of the Young Child 3 s.h.
- 17:118 Adolescence and the Family 3 s.h.
- 17:108 Basic Aspects of Aging 2-3 s.h.
- 17:112 Personal Financial Management 3 s.h.
- 17:113 Marriage and Family Interaction 3 s.h.
- 17:114 Parent-Child Relationship 3 s.h.
- 17:115 Parent-Child Relationships in the Exceptional Family 3 s.h.
- 17:19 Great Ideas in Family Development 3 s.h.
- 17:122 Materials and Methods in Family Life Education 3 s.h.
- 31:1 Elementary Psychology 3-4 s.h.
- 34:1 Introductory to Sociology: Principles 3-4 s.h.
- 24:19 The Family in Various Societies 3 s.h.
- 24:161 The American Family 3 s.h.
- Electives from home economics, education, social work, economics, psychology, and sociology are recommended.

**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:
- 17:101 Food Study 2 s.h.
- 17:102 Food Study Laboratory 2 s.h.
- 17:103 Meal Management 2 s.h.
- 17:104 Experimental Food I 3 s.h.
- 17:105 Experimental Food II 3 s.h.
- 17:146 Nutrition Laboratory 3 s.h.
- 41:14 Principles of Chemistry I 3 s.h.
- 41:16 Principles of Chemistry II 3 s.h.
- 41:20 Chemistry I 3 s.h.
- 41:21 Organic Chemistry I 3 s.h.
- 41:23 Intermediate Chemistry Laboratory I 1 s.h.
- 61:10 General Microbiology 4 s.h.
- 42:10 General Nutrition 4 s.h.
- 49:110 Biochemistry 3 s.h.
- Electives should be selected from home economics and the natural sciences.

A concentration in nutrition with emphasis on dietetics requires:
- 17:101 Food Study 2 s.h.
- 17:135 Food Study Laboratory 2 s.h.
- 17:132 Meal Management 2 s.h.
- 17:134 Experimental Food I 3 s.h.
- 17:136 Food Service Systems Management 3 s.h.
- 17:42 Nutrition 3 s.h.
- 17:43 Nutrition Laboratory 2 s.h.
- 17:44 Diet Therapy 3 s.h.
- 41:14-15 Principles of Chemistry I 6 s.h.
- 41:16 Principles of Chemistry II 2 s.h.
- 41:20 Organic Chemistry I 3 s.h.

**Biochemistry and Biological Science**

- 17:110 Biochemistry 2 s.h.
- 86:1 Principles of Economics 4 s.h.
- 86:158 Personnel Management 3 s.h.
- 75:76 Educational Psychology and Measurement 3 s.h.
- 75:131 Educational Psychology 3-4 s.h.
- 34:1 Introductory to Sociology: Principles 3-4 s.h.
- 31:1 Elementary Psychology 3-4 s.h.
- 61:15 General Microbiology 4 s.h.
- 72:160 Human Nutrition 4 s.h.
- 113:3 Introduction to the Study of Culture and Society 3 s.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 their programs carefully screened by the first semester of the senior year.

**Home Economics Education**

This program leads to certification and vocational 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 applied agricultural and to teach in nonschool settings. Required courses for this concentration are:
- 17:31 Introductory Food Study 2 s.h.
- 17:131-132 Food Study, Food Study Laboratory 4 s.h.
- 17:152 Personal Financial Management 3 s.h.
- 17:131 Marriage and Family 3 s.h.
- 17:14 Parent-Child Relationships 3 s.h.
- 17:121 Curriculum: Home Economics Education 3 s.h.
- 17:128 Evaluation: Home Economics Education 3 s.h.
- 17:133 Meal Management 2 s.h.
- 17:165 House: Planning and Structural Analysis 3 s.h.
- 17:166 House: Social and Psychological Aspects 3 s.h.
- 17:170 Custom and Contemporary Tailoring 3 s.h.
- 17:171 Fancy Problem and Flat Pattern Design 3 s.h.
- 18:1 Elements of Art 2-3 s.h.
- 18:2 Elements of Art 2-3 s.h.
An approved two-dimensional studio art course

17:70 Introductory Chintz 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.
17:162 Experimental Textiles 3 s.h.
17:163 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.
4/6 General Chemistry I & II 6 s.h.
4/6 General Chemistry Laboratory 2 s.h.
6E1 Principles of Economics 4 s.h.
22E/25 Quality Control, Reliability, and Engineering Statistics 3 s.h.
Two 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, government, or medical research laboratories.

Food and Nutrition

To meet the requirements for the B.A. degree emphasizing food or nutrition, the B.S. degree requires the following courses:
22M/23 Mathematical Techniques 8 s.h.
22M/26 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 in the A.B. 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 courses and work experience listed for the B.A. degree, the B.S. requires:
4/6 General Chemistry I & II 6 s.h.
4/6 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 6-8 s.h.
Textile Science

This program prepares students for positions in the textile industry and for graduate studies. In addition, 10 courses listed for the B.A. degree in textiles technology, the following are required for the B.S. degree:

- 4:101 Elementary Quantitative Analysis 4 s.h.
- 4:121-122 Organic Chemistry I-ll 8 s.h.
- 224:24 Calculus I 4 s.h.
- 224:26 Calculus II 4 s.h.
- 226:26 Computational Laboratory for Calculus and Linear Algebra arr.

Electives should be selected from chemistry, engineering, computer science, statistics, microbiology, and home economics.

Cooperative Education/Internship Program

The department participates in the University's Cooperative Education Program, which enables students to obtain work experience related to their professional goals and academic program. Majors who are concentrating in family development, home economics education, interior design, textile design, housing, or textiles and clothing, and who meet the department's requirements, may apply to the department's cooperative education committee for participation in this program. Students register for 17:000 Cooperative Education Training Assignments to colletc their work experience and for 17:195 Home Economics Internship during the subsequent semester.

Honors

To be eligible for honors, the student must have junior standing, 30 semester hours complete in the University, an overall cumulative grade-point average of 3.5 or above, a grade-point average of 3.0 or all home economics courses, and at least 12 semester hours completed in home economics. Honors work conducted at 19:101 Honors Seminar: Home Economics and 17:192 Honors Problems: Home Economics, in which students do creative work or a research project. A written report or honors thesis and an oral examination are required.

Graduate Programs

The demand for well-qualified professionals in home economics for exceeds the number of graduates with advanced degrees. The master's degree graduate may qualify for positions in colleges, secondary schools, business, industry, and research.

The graduate program enables students to obtain a second degree in one of five subject areas: family development; food and nutrition; home economics education; interior design, textile design, housing; and textiles and clothing.

The department offers both thesis and nonthesis options. The thesis option is recommended for students preparing for teaching and research in colleges and universities, for positions in industry, and for continued study beyond the master's degree. The thesis option permits more intensive experience in research procedures or the opportunity for extensive creative work. The thesis may be undertaken in the department, or in cooperation with related departments.

To be admitted unconditionally, the student must have an overall grade-point average of 2.8, with 3.0 in the area which is to be the major interest in graduate study. Conditional admission requires an overall grade-point average of 2.5 with 2.5 in the area of major interest in graduate study.

Master's Programs

For either the Master of Arts or Master of Science degree, students must complete a minimum of 30 semester hours of graduate work with a thesis, or 38 semester hours of graduate work without a thesis, in addition to adequate prerequisites for courses selected. Approximately one-third of the student's course work is completed in departments other than home economics; these courses must be taken for a letter grade. Students who lack required background courses will be required to complete these courses early in their programs; these courses will not apply to the student's graduate program. The designation of the degree, M.A. or M.S., is based on the area of major work.

All students in the M.A. and M.S. programs are required to complete 17:200 Seminar: Home Economics Research. Those in the thesis option also complete 17:291 Thesis.

Family Development

The graduate student in this program gains both psychological and sociological perspectives in human development and family relationships. The plan of study may emphasize either human development, family relationships, or family life education. Courses in education, psychology, sociology, and social work supplement offerings in home economics. The graduate student should have an adequate background in social science. Graduates work with agencies concerned with the family or prepare for college and university teaching. Required courses for the family development concentration are:

- 17:216 Individual and Family Development: Life Span 3 s.h.
- 17:218 Seminar: Family Dynamics arr.

17:213 Theory in Family Development 3 s.h.
17:295 Seminar: Home Economics Research 2 s.h.
One course in statistics 3 s.h.
A course from at least two of the following content areas:
- Child Development
- Human Sexuality
- Family Economics/Consumer Issues

Food and Nutrition

Graduate work in this program may emphasize food, nutrition, or nutrition education. Graduates qualify for positions in educational institutions, business, industry, government, and the health field. Applicants need background courses in food, nutrition, general and organic chemistry, mathematics, physics, and microbiology.

Courses required for the M.S. degree with specialization in food are:

- 17:134-135 Experimental Food I-II 8 s.h.
- 17:233 Seminar: Food 2 s.h.
- 17:239 Research: Problems in Food and Nutrition 2 s.h.
- 17:241 Seminar: Nutrition 2 s.h.
- 17:290 Seminar: Home Economics Research 2 s.h.
- 99:120 The Chemistry of Biological Materials 3 s.h.
- 99:130 Biochemistry 3 s.h.
- 99:167 General Microbiology 4 s.h.
- A course in statistics 3 s.h.

Courses required for the M.S. degree with specialization in nutrition are:

- 17:134 Experimental Food I 3 s.h.
- 17:135 Experimental Food II 3 s.h.
- 17:146 Introduction to Nutrition 2 s.h.
- 17:148 Laboratory 2 s.h.
- 17:233 Seminar: Food 2 s.h.
- 17:239 Research: Problems in Food and Nutrition 2 s.h.
- 17:241 Seminar: Nutrition 2 s.h.
- 17:290 Seminar: Home Economics Research 2 s.h.
- 99:120 The Chemistry of Biological Materials 3 s.h.
- 99:130 Biochemistry 3 s.h.
- A course in statistics 3 s.h.

Courses required for the M.A. degree with specialization in nutrition education are:

- 17:124 Nutrition Work with Children (or substitute, depending on professional goal) 3 s.h.
- 17:145 Advanced Nutrition 3 s.h.
- 17:146 Nutrition Laboratory 2 s.h.
- 17:239 Research: Problems in Food and Nutrition 2 s.h.
- 17:241 Seminar: Nutrition 2 s.h.
- 17:290 Seminar: Home Economics Research 2 s.h.
- 79:131 Psychological Assessment 3 s.h.
- 99:107 Chemistry of Biological Materials 3 s.h.
A course in statistics 3 s.h.

Home Economics Education
The graduate student's program in home economics 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 student option and three in the nonthesis option must be from the same department.

The program's course requirements are:
17:223 Seminar: Readings in Home Economics Education 2 s.h.
17:300 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 are available to the M.A. graduate in interior design, textile design, housing. These include professional teaching, interior design, textile design, natural preservation and reclamation, positions in business and industry. Required courses (depending upon previous coursework) are:
17:250 Seminar: Design and Housing 2 s.h.
17:250 Seminar: Home Economics Research 2 s.h.
Courses 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.
17:255 Research: Problems in Interior Design and Housing 2-4 s.h.
One course in art history 3 s.h.
One course in housing 3 s.h.
One course in clothing 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 Textile Design: Printing and Dyeing 3 s.h.
17:156 Textile Design: Weaving 3 s.h.
17:156 Textile Design: Forms and Fibers 3 s.h.
17:181 Textile Finishing, Dyeing and Dyeing 3 s.h.
17:250 Studio Workshop in Fiber 4 s.h.
17:256 Advanced Studio Problems in Textile Education 3 s.h.
Another course in textile design 3 s.h.
Two studio art courses 6 s.h.

Textiles and Clothing
This program prepares students for careers in merchandising, textile research, teaching, extension advice, and communication. Applicants need background courses in textiles, clothing, and chemistry. Courses required for the textiles and clothing concentration are:
or
17:250 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 five 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 20 semester hours of graduate course work in education and at least 16 semester hours of graduate work in home economics. For certification, the student must have completed (at the undergraduate level or graduate 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 2 s.h.
79:131 Educational Psychology 3 s.h.
75:125 Methods: Home Economics 3 s.h.
75:191-192 Observation and Laboratory Practica in the Secondary School 12 s.h.
75:127 History of Western Education 2 s.h.
or
75:117 Philosophy of Education 2 s.h.
75:170 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
Severe annual departmental awards recognize undergraduate students for their outstanding qualities and achievements. The Adelino 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 full-in-state tuition scholarship given to a student for his or her senior year. Four Hilah M. Chartering Camp Scholarships are awarded to undergraduate majors with financial need. The Myrta Lee Sprangler Memorial Award is given to an outstanding home economics senior. Two awards are 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
17:400 Comparative Education: Teaching Assignment 0 s.h.
17:500 Human Development and the Family 3 s.h.
Introduction to Human Development; special emphasis placed on personality of the family.
17:501 Consumer Behavior 3 s.h.
Study of the consumer, cognitions, motivations, and societal influences of the consumer. Emphasis on the relationships between children and families.
13:144 Marketing (required) 3 credits
Examination of marketing and promotion theories and their application to real-world marketing situations. Emphasis on marketing services to the public. Preparatory: 11:340 or consent of instructor.
13:170 Selected Topics in Clothing 3 credits
Preparatory: unless special permission standing are consent of instructor.
13:176 Textile Technology and Analysis 3 credits
13:181 Textile Finishing, Dyeing, and Dyelessness 3 credits
13:185 Equine Extravaganzas 2 credits
Individual or group projects connected in the field or laboratory with lessons discussed in summer format. Preparatory: Consent of instructor.
13:190 Textile Technology and Apparel 3 credits
Economical and industrial history of textiles and apparel and current developments and problems in production and marketing. Prerequisites: 11:161 or 11:262.
13:192 Ecotrends in Textiles and Apparel 3 credits
Chronological development of western textiles and apparel, historical, cultural, technical, and environmental factors; fashion continues evolution. Prerequisites: 11:190 and 11:191. May not be taken by humanities and natural sciences general education requirements.
13:193 Directed Studies in Textiles Preparatory: credit or previous standing and consent of instructor.
13:219 Seminar: Home Economics 3 credits
Scope of home economics. Interpersonal, developmental, communication, and family roles; factors influencing attitudes, values, and social roles of women. Prerequisites: 11:190 and 11:191. May not be taken by humanities and natural sciences general education requirements.
13:241 Seminar: Home Economics 3 credits
Research project or creative work, open to both majors and nonmajors.
13:283 Seminar: Home Economics 3 credits
Research project or creative work, open to both majors and nonmajors.
13:341 Seminar: Human Development 3 credits
Recent work experience complementing student's coursework: not to be part-time, with credit based on activities and employment activities. Written report. Preparatory: 11:190 and 11:191 or 11:290 or consent of instructor. May be repeated for a maximum of 2 semesters. Consent of course director or departmental cooperative education committee.

Primary for Graduates
13:311 Individual and Family Development Life Span 3 credits
Practicum: recent work experience complementing student's coursework: not to be part-time, with credit based on activities and employment activities. Written report. Preparatory: 11:190 and 11:191 or 11:290 or consent of instructor. May be repeated for a maximum of 2 semesters. Consent of course director or departmental cooperative education committee.
13:370 Theory is Family Development 3 credits
Preparatory: recent work experience complementing student's coursework: not to be part-time, with credit based on activities and employment activities. Written report. Preparatory: 11:190 and 11:191 or 11:290 or consent of instructor. May be repeated for a maximum of 2 semesters. Consent of course director or departmental cooperative education committee.
13:391 Workshop in Human Development 3 credits
Fieldwork in selected social development areas. Preparatory: 11:190 and 11:191 or 11:290 or consent of instructor. May be repeated for a maximum of 2 semesters. Consent of course director or departmental cooperative education committee.
13:392 Seminar: Home Economics 3 credits
Critical review of current literature in human resource education. Preparatory: consent of instructor.
13:393 Special Topics in Family and Consumer Studies 3 credits
Individual research problems of advanced students. Preparatory: 11:190 or consent of instructor.
13:394 Seminar Food 3 credits
13:395 Research Problems in Food and Nutrition 3 credits
Individual research problems of advanced students. Preparatory: 11:134 or consent of instructor.
13:396 Seminar: Nutrition 3 credits
13:397 Seminar in Interior Design and Housing 3 credits
Individual research problems of advanced students. Preparatory: 11:190 or consent of instructor.
13:398 Study Workshop in Fiber 4 credits
Field problems in a specific medium, emphasis on element of color and the use of natural substances. Prerequisites: 13:283 and 11:190.
13:400 Advanced Seminar in Textiles 3 credits
Individual research projects for advanced students. Prerequisites: 13:280 and 11:190 or consent of instructor.
13:401 Readings in Textiles 3 credits
Readings, reports, and evaluation of current literature in textiles.
13:402 Research Problems in Textiles 3 credits
Individual research projects for advanced students. Prerequisites: 11:190 or consent of instructor.
13:403 Seminar: Human Development 3 credits
Methods and techniques in research in human development, Emphasis on planning and conducting research. Preparatory: or consent of instructor.
13:411 Textiles Master's degree candidates.

Hospital and Health Administration
See "College of Medicine."

Italian
See "French and Italian."

### Undergraduate Programs

The main objective of the Iowa undergraduate program is to provide students for professional positions in Journalism and for careers in the broad field of mass communication. Such positions vary widely but include newspaper reporting and editing, magazine writing and editing, public relations, broadcasting, public relations, organizations, communications, book publishing, radio and television and design, and photography. The Iowa program emphasizes the basics of reporting, writing, and editing, but professional preparation also requires an introduction to and understanding of theoretical concepts. All course work for an integration of practice and theory. The program offers a wide variety of courses.

To ensure that students have a strong liberal arts background to go with their professional preparation, the school limits students to 36 semester hours in the field of Journalism and Mass Communication. From course work taken to satisfy the Journalism program, students must develop an area of concentration. This area may be major, or equivalent, in consultation with their advisors. To complete this requirement, students may either complete the major requirements of another department, or create their own area of concentration by selecting related courses in several departments for a total of 24 semester hours of credit beyond the general education level.

The Iowa program offers undergradautes a choice of three sequences of study: journalism, media communication laboratory, and mass communication inquiry. Students in all sequences must fulfill the following foundation requirements:

**Journalism and Mass Communication Foundations of Communication** 3 s.h.

**Communication** 3 s.h.

**Introduction to Journalism** 3 s.h.
Journalism and Mass Communication

B.A. Major: 12 credit hours

10-120 Legal and Ethical Issues in Communication 3 s.h.

10-122 News Reporting and Writing 3 s.h.

10-124 News Processing 3 s.h.

10-125 Contemporary Issues and Problems in Mass Communication 3 s.h.

10-126 Journalism electives 6 s.h.

Total 18 s.h.

Mass Communication Lab 1 s.h.

Maximun journalism credits allowed toward graduation: 36 semester hours

Mass Communication Inquiry Sequence

This sequence offers students an opportunity to develop proficiency as professional communicators who can identify and analyze problems that need communication and media products for solutions. Students in this sequence will complete individual, group, production and conceptual courses within the context of their intellectual and media interests. Seniors in 19-181 Mass Communication Lab are formed into enterprises whose members produce independent productions, or projects for clients in need of professional communications services. These projects may include slide presentations, videotape productions, brochures and other publications. Center possibilities for students completing the sequence include work in public relations departments, advertising agencies, publication information offices and independent production companies, as well as either print or broadcast journalism.

Foundation courses

10-120 Legal and Ethical Issues in Communication 3 s.h.

10-122 News Reporting and Writing 3 s.h.

10-124 News Processing 3 s.h.

10-125 Contemporary Issues and Problems in Mass Communication 3 s.h.

10-126 Journalism Electives 6 s.h.

Total 18 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 the school's second area of concentration requirement in one of two ways:

1. A full B.A. major in another department;
2. A 24 semester hour concentration beyond the general education level. This concentration should be approved by the student and the student's advisor.

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 second area of concentration requirement in one of two ways:

1. A full B.S. major in a natural or social science;
2. A 24 semester hour concentration in the natural or social sciences, beyond general education level. This concentration should be designed by the student and the student's advisor.

Honors

Students with outstanding academic records may participate in the Honors Program. They are urged to consult the departmental Honors Program advisor as soon as possible. A student must fulfill the following requirements:

1. Carry out additional work under the guidance of a faculty advisor.
2. Write an honors thesis under the supervision of a faculty mentor.
3. Make a formal presentation of honors work at a committee meeting of a faculty advisor, the director of the Honors Program, and a third faculty member 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 hours of instruction 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 for 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 Journalism transfer credits from another institution for up to, but not more than, 20 percent of the student's total number of credits toward a major in journalism at Iowa. Other course work taken elsewhere might be applicable toward fulfilling elective and/or second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be approved by the student's journalism adviser at Iowa.

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 project, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.

Professional 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 enter Ph.D. work.

Program requirements for students with a background in journalism or communication: 18:200 Master's Seminar 3 a.h. 18:112 News Reporting and Writing 3 a.h. 18:245 Specialized Reporting or Editing 3 a.h. or 18:181 Mass Communication Lab 3 a.h. (18:181 option intended for students with special interest in public relations or organizational communication) Electives 16-17 a.h. 18:201 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. Electives in the school (minimum) 9 a.h. Electives in other departments up to 18 a.h. 18:201 Master's Research 3 a.h. Final examination, last period of enrollment.

The student must complete a major professional project (18:201) 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 adviser.

Communication and Mass Communication Emphasis
This emphasis offers a specialization in the study of communication phenomena with special emphasis on theory and methodology. Qualified individuals may petition the graduate advisory 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 sessions) 2 a.h.
18:201 Approaches to the Study of Communication Issues and Concepts 3 a.h.
18:999 Communication Research: Research Approaches 3 a.h. or
18:201 Communication Research: Behavioral Approaches 3 a.h.
Electives in communication and mass communication in other departments 10 a.h. 18:201 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 adviser.

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 mass media and society across time and culture. The program's substantive nature is defined by the scholarly interests of its faculty, who tend most frequently to investigate of historical, legal, social, and cross-cultural aspects of communication, both verbal and visual, and is organized in a series of courses and seminar.

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 encourages 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 semiannual 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, audiotaping, typewriting, copy preparation, and print production including a minicomputer. Many students use the newsletter and other facilities of the award-winning University student newspaper, The Daily Iowan, housed in the John Wayne Center. The school also has its own Reserve Center/Reading Room and gallery of natural-color journalism photography and project displays.

Financial Aid
In addition to research and teaching assistantships for graduate students, more than $1,000,000 in scholarships and financial aid is available to both undergraduate and graduate students. To determine eligibility, write for more information.
Internships/Cooperative Education/Professional Experience

The Lowe program has a strong commitment to providing students with learning opportunities inside the classroom. During the academic year, the school maintains a number of public relations internships through The University of Iowa Office of Public Information. University of Iowa faculty members also help students arrange summer internships in a wide variety of media positions throughout Iowa and outside the state. The internships are designed and monitored to fulfill the student's professional growth. The school also works with the Cooperative Education Program, Career Services and Placement Center.

In addition to internships, student-organized and locally-owned media outlets provide opportunities for professional experience.

Semester in London

Each academic year—during the spring semester—advanced undergraduates and M.A. professional students have an opportunity to study in England. The program involves a dozen students who carry a full load of courses, including classes offered in conjunction with The City University of London. Coress of both a practical and theoretical nature are offered with courses in specialty reporting and the history of the British mass media.

In addition, internships with London newspapers and broadcasters are arranged for students. The journalism faculty member accompanies the group.

Courses

1090 Journalism and Mass Communication Cooperative Education 2 credits. Internships administered by the Cooperative Education Office; those in competitive areas are coordinated by the Journalism/Mass Communication/Computer Science 15 credits. Approved courses selected in consultation with the Journalism/Mass Communication/Computer Science. Each credit hour requires a minimum of 75 hours of work experience.

1091 Introduction to Radio/Filmmaking and Film Production 2 credits. For students who seek previous experience; projects must be approved by instructor. Computer-aided video production, video editing; audio production: livestreaming; video editing; media production: video, audio, graphics, photography, audiovisual, grads, professional, non-professional, etc. Each session is 1 semester hour. Newsprint may repeat in conjunction with 2 semester hours. Typically may repeat in maximum of 6 semester hours. Open to freshmen.

1488 Newsroom and Editing for Community Audiences 3 credits. Business communications media specifically and precision relationships with audiences; audience criteria for preparing news content; news values defined in terms of the process and community. Emphasizes personal outdoor seminars. See 1091. 1093 Social Scientific Foundations of Communication 3 credits. Deals with the processes and consequences of communication within and between social systems; considers how a given social system is impacted by the various levels of society. Emphasizes personal outdoor seminars. See 1091.

1095 News Writing and Reporting 3 credits. Reporting techniques, emphasis on a variety of writing styles, using electronic news writing and photojournalism. Open to non-majors. Emphasizes personal outdoor seminars and journalism. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.

1096 News Reporting and Writing 3 credits. Reporting techniques, emphasis on a variety of writing styles, using electronic news writing and photojournalism. Open to non-majors. Emphasizes personal outdoor seminars and journalism. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.

1098 Broadcast Journalism 3 credits. Emphasis on the development of electronic news media. Laboratory techniques include broadcasting and videography. Open to non-majors. Emphasizes personal outdoor seminars and journalism. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.

1495 Radio/Television Production 3 credits. Studies the production of radio and television broadcasts, including scripts, programming, station management, and station operations. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.

1100 Medical Reporting 3 credits. Preparation of reports in the medical field, including medical and health-related topics. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.

1099 Broadcast Journalism 3 credits. Emphasis on the development of electronic news media. Laboratory techniques include broadcasting and videography. Open to non-majors. Emphasizes personal outdoor seminars and journalism. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.

1106 Aural/Oral Communication Techniques 3 credits. Experiential seminar in the development of oratory, communication, public speaking, and communication skills. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.

1107 Video Production 3 credits. Laboratory techniques in video production. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.


1109 Research Methods in Mass Communication 3 credits. Analysis of mass communication research with specific emphasis on the design, implementation, and evaluation of research studies. Open to non-majors. Emphasizes personal outdoor seminars. See 1091.
Latin American Studies Program

Senior Seminar
Seniors in the major enrol in 113:132 Latin American Studies Seminar (same as 315:159 and 38:159), 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.
113:116 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.
113:133 Latin American Civilizations of Mesoamerica 3 s.h.

History
10:166 Introduction to Colonial Latin America 3 s.h.
10:167 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.
20:146 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 2 s.h.
38:105 Brazilian Literature I 3 s.h.
38:106 Brazilian Literature II 3 s.h.
38:107 Nineteenth-Century Brazilian Novel 3 s.h.
38:115 Brazil: People and Culture 3 s.h.
(Taught in English.)
38:159 Latin American Studies Seminar 3-4 s.h.

Spanish
38:156 Contemporary Latin American Narrative 3 s.h.
(Same as 11:18, Taught in English.)
38:159 Readings in Hispanic Literature 3 s.h.
38:163 Contemporary Spanish American Fiction 3 s.h.
38:164 Spanish American Poetry 3 s.h.
38:165 Spanish American Drama 3 s.h.
38:166 Short Story of Spanish America 3 s.h.
38:167 Spanish American Literature of Fantasy 3 s.h.
38:168 Survey of Pre-Columbian Spanish American Literature 3 s.h.
38:169 Contemporary Latin American Novel and Short Story 3 s.h.
38:178 Spanish American Civilization 3 s.h.
38:185 Latin American Studies Seminar 3-4 s.h.

Latin American Studies Related Courses
Anthropology
113:113 Africans in the New World 3 s.h.
113:119 Urban Anthropology 3 s.h.
113:147 Special Topics in Anthropology 3 s.h.
113:151 Sociology of the Third World 3 s.h.
(Stame as 34:151.)
113:150 Primitive Art 3 s.h.
113:169 Economic Anthropology 3 s.h.
113:184 Comparative Prehistory 3 s.h.
113:185 Race, Ethnicity, and International Relations 3-5 s.h.
(Stame as 45:185.)

Art and Art History
163:172 Art of the Tribal Cultures 3 s.h.
155:105 Art of Pre-Columbian America 3 s.h.

Economics
6E:125 International Economics 3 s.h.
6E:137 Natural Resources in the World Economy: Control and Conflict 3 s.h.
6E:129 Economic Development: Underdeveloped Areas 3 s.h.

Geography
44:35 World Cities 3 s.h.
44:182 The Third World 3 s.h.
Political Science
38:100 Introduction to World Politics 3 s.h.
Portuguese
38:101 Black Literature of Portuguese Expression 3 s.h.
(Meets as 49:108.)
38:116 Modern Portugal 3 s.h.
(Taught in English.)
38:120 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.
35:125 Introduction to Bilingualism 3 s.h.
(Same as 103.125.)
35:127 Chicano Puerto Rican Literature 3 s.h.
(Taught in English.)
35:132 Business Spanish 3 s.h.
35:133 Terminology 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
Director: Col. Ogden
Chairperson: Marketa Varela-Jose Oakeshott
associate professor Col. Ogden
Assistant professor Linda L. Neiman
curatorial professor Terrence Brians, R. Patrick Cooper, wine critic, Agnes Stathokostas
professor Kathleen Tannenbaum
professor, Blair Robbins
associate professor, George Strick
associate professor, Thomas Canavos, Edwin Hallan
Affiliated faculty: Dale M. Bentley, K.K. Mazer, Jerry Hagen
Degree offered: M.A.
The School of Library Science offers a program of professional preparation for careers in all types of library 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 library 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 bibliography techniques and sources of information in a wide range of fields and media formats;
Articulate an understanding of the techniques and procedures of management, and perform the professional responsibilities of determining need, setting goals, enlisting problems, formulating programs and evaluating results;
Give and evaluate research that helps in the advancement of the profession and which evaluates 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 librarianship 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, librarians, 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 library science and children's literature courses (120-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 admission program is graduate in nature, and the undergraduate program of study is aimed at providing the foundation of knowledge necessary for successful performance in graduate studies. In addition, the student must pass a comprehensive examination at the conclusion of the program.

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 student must be able to develop a plan of study through consultation with the Program Director to meet his or her needs and goals.
In a regional or statewide cooperative basis. The variety of uses, 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 meet those segments of the population now unserved, as well as to provide a full range of services to all segments of the community. Management skills are often needed in new situations.

**Required Courses**

**Core courses**
- **12 a.h.**
  - 21:151 Reference I
  - 21:152 Cataloging and Classification
  - 21:153 Sources of Library Materials
  - 21:201 Management of Libraries and Information Centers

**Type of library course (one required)**
- **3 a.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 a.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, they cannot be shown to warrant displacement of needed courses in a brief one-year program. Electives outside the department must be earned following admission to the School of Library Science, and shall not exceed six semester hours for students having no previous courses in library science, nine hours for those with six or fewer prerequisites. Only courses taken for graduate credit may be counted towards the 33-hour requirement. The thesis option is not intended to replace courses in a student's basic preparation if the student completes the full 33-hour program in addition to the thesis before or concurrently with the thesis if the student comes to the program with extensive background in library science, such as earning another degree in library science and completion of 21:249 Research Methods or equivalent.

The purpose of the thesis option, then, is to equip expansion research competence is possible one means of independent study to a student with extensive preparation in library and information science.

The program normally requires two semesters and a one-semester research study or, in the case of students attending summer only, a minimum of four summer sessions. Maximum graduate credit is 6 hours in regular semesters, 8 credit hours in summer sessions.

**Public Library Work**

Public funds support public libraries in order to provide information, education, and recreational circulating materials and a wide range of services for a diversified clientele. Public libraries usually receive a majority of funding from local taxes, but are often organized

**School Library Work**

The school media center makes a wide range of print and audiovisual materials available to students and teachers. The work of the media specialist includes such activities as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, producing new materials, offering reading guidance, and providing reference service. State certification is required for a career as a librarian in elementary and secondary schools.

**Work in Special Libraries**

Special librarianship includes careers in information centers serving banks, industrial firms, museums, historical societies, and law firms. The ability to design services suitable for the parent organization, and substantial knowledge in the relevant area are characteristics important in such a career. Indexing, abstracting, literature searching and analysis, design of information systems, translation, and current awareness services are more usually found in special library work than in more traditional libraries.

**Required Courses**

**Core courses**
- **12 a.h.**
  - 21:230 Special Libraries
  - **Suggested Electives**

**Suggested Electives**
- **18 a.h.**
  - 21:232 The College and University Library
  - 21:248 Introduction to Information Science
  - 21:249 Research Methods
  - 21:251 Advanced Reference
  - 21:252 Advanced Cataloging
  - 21:253 Practical in Libraries
  - 21:254 Medical Librarianship and Bibliography
  - 21:260 Law Librarianship, Bibliography, and Research Techniques
  - 21:261 History of Children's Books
  - 21:269 Literature and Storytelling for Children
  - 21:296 Introduction to Information Science
  - 21:297 Medical Librarianship and Bibliography

**School Library Work**

21:261 History of Children's Books
21:269 Literature and Storytelling for Children

**Library Work**

21:246 Introduction to Information Science
21:248 Research Methods
21:251 Advanced Reference
21:252 Advanced Cataloging
21:253 Practical in Libraries
21:254 Medical Librarianship and Bibliography
21:255 Government Publications
21:256 Medical Librarianship and Bibliography
21:260 Law Librarianship, Bibliography, and Research Techniques
21:266 Government Publications
21:277 The Community College

21:281 History of Children's Books
21:296 Introduction to Information Science
21:297 Medical Librarianship and Bibliography
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 II in an area vocational-school or community college (endorsement 70).

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 20 hours of undergraduate and graduate course work approved by an advisor. In order to pursue such a non-degree program, however, a student must have been approved 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 Program Degrees

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, so that the student will contribute to one discipline the insights and methods of the other. Although there is a mechanism by which departments may approve a joint program, the School of Library Science has established formal programs with the College of Law and the College of Business Administration. The student enrolled in such a joint program will work with an advisor in the School of Library Science to ensure the benefits of integration.

Objectives of a joint program will be consistent 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 aspects 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 B.S. in business, 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.

Libraries

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 programming, super-8mm filmmaking, 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, staff, are taught, in various courses, to write programs on the Prime system, to conduct online information searches 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 network of academic and public libraries. Students provide back-up reference service to libraries throughout the state, using learned skills in performing bibliographic research and in answering 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 in the school's quarter. 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 are available for the study of computer-oriented systems, and the atmosphere is casual and friendly.

University 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 and 12 departmental branches. An average of 90,000,000 volumes is acquired annually. The serials collection is extensive, with more than 25,000 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 frequency-used collections.

Other Libraries

Students have access to a variety of libraries through field trips, practice experience, and personal use. The State Historical Society Library in Iowa City; the Iowa City Public Library and public and school libraries; the Coe, Cornell, and Grinnell college libraries; and the Harriet Hoover Presidential Library in West Branch, the Iowa City Public Library, located only four blocks from the Main Library, was the first public library in the country to be a totally computerized catalog. It's service philosophy and contemporary management practices provides students with an innovative public library model.

Other Resources

Livingston Hall, 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, Audiovisual Production Lab, and Curriculum Resources Lab. The Curriculum Resources Lab contains an extensive collection of books and non-

book instructional materials for children in primary grades. It is 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 coursework. Each graduate student is provided with a small funded account by the Graduate College.
Linguistics/LIBERAL ARTS

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 the M.A. in linguistics with a professional focus, or through the doctorate; or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociolinguistics, 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-semantic systems (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of sub-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 several electives to be worked out in consultation with the undergraduate adviser.

Graduate Programs

Emphasis in all graduate programs is on theory and research. Students interested in nonuniversity careers may also consider either taking their major field of study in applied linguistics and other fields of specialization, or one with a theoretical base, or a program with doctoral work or an 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 count up to 1 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 (at least 12 of course work) and take at least 9 semester hours of elective courses. The focus area may either be designed in advance by the student (subject to departmental approval), or be one of a set of

Prerequisites: 21516/163 and 21517, or consent of instructor.
21534 Library Seminar in Chinese and Young Adult Fiction 3 s.h.
Prerequisite: and practice of library service in elementary and secondary schools and teacher education programs for older and young adults in the public library. Offered alternate terms: Prerequisites: 21515 or 21510.
21540 Bibliography of the Humanities 3 s.h.
Special reference sources and valuation aids in philosophy, religion, the natural and social sciences, literature, and other areas of human culture. Offered alternate terms: Prerequisites: 21515.
21542 Bibliography of the Social Sciences 3 s.h.
Special reference sources in the social sciences: history, anthrology, sociology, economics, education, geography, political science, psychology, sociology, and related areas. Offered alternate terms: Prerequisites: 21515.
21543 Bibliography of the Sciences 3 s.h.
Building and using collection in science and technology: special reference sources and valuation aids in the natural and social sciences, periodicals and other serial titles, survey of major disciplines and their literature. Offered alternate terms: Prerequisites: 21515.
21552 Information to the Sciences 3 s.h.
Characteristics and techniques of scientific literature; concepts of scientific thought and research method; classification and electronic applications of scientific literature. Offered alternate terms: Prerequisites: 21515.
21562 Research Methods 3 s.h.
Conception and techniques of research in library and information sciences; evaluation and conducting and analyzing research projects. Offered alternate terms: Prerequisites: 21562.
21571 Advanced Reference 3 s.h.
Concepts in reference service: philosophy, communication, bibliographic instruction, evaluation; students staff extensive reference service; seminars in reference work, library administration, and business and statistics. Prerequisites: 21562.
21581 Advanced Cataloging 3 s.h.
Library of Congress classification and subject cataloging; special cataloging problems in music, mathematics, and other administrative problems; evaluation and use of bibliographic description; online cataloguing systems. Prerequisites: 21515.
21582 Government Publications 3 s.h.
Federal publications, and local U.S. government publications, as well as United Nations and foreign publications. Prerequisites: 21515.
21585 School Media Center Practice 3 s.h.
Supervision and practice in a school media center. Includes collection development, acquisition, and evaluation in service sessions. Offered alternate terms: Prerequisites: 21582.
21595 Medical Library and Bibliography 3 s.h.
Types of medical literature characteristics of medical literature, and organization of health science information: evaluation and use of reference and bibliographic tools, current awareness, and bibliographic instruction. Offered spring semesters, Prerequisites: 21515 and 21582, or consent of instructor.
21597 Law Libraries, Bibliography, and Research Techniques 3 s.h.
Types of law literature characteristics of legal literature, and organization of law information systems. Legal research techniques. Offered alternate terms: Prerequisites: 21515 and 31506, or consent of instructor.
21598 Current Topics in Information Science 3 s.h.
Research and analysis of contemporary issues and trends in library and information science. Prerequisites: 21515.
21599 Workshop in Library Science 1-3 s.h.
Directed study of a topic in library science, or consent of instructor.
21602 Individual Instruction in Library Science 1-6 s.h.
Prerequisite: consent of instructor.
21605 Thesis 6 s.h.
Linguistics is the discipline that studies the ordering principles underlying human language.
There are many indicators that such prepositions 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.

Linguistics is not attempt to learn many languages. Rather, they consider the languages of the world as data to be analyzed by common principles.

Linguistics is a science with many laboratories. One of these laboratories may consist of a library and pencil and paper. Another laboratory with acoustical equipment. Others need computers. Some go into sound-related 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 relationship between language variation and socioeconomic structure, or "race," of a people, changes in language change, spend time studying ancient languages.

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 the deaf or for Chinese, Korean, 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 retrain people with linguistic disabilities.
Courses

Special English Courses for Foreign Students

Intensive Intensive English Program (102:1, 103:2, 103:3, 103:4) is a noncredit program consisting of 20 hours per week of English for foreign students, including conversation, pronunciation, listening comprehension, reading, vocabulary development, grammar and writing. Prerequisite: permission of department.

103:1 Intensive English Conversation 3 h.
103:2 Intensive English Listening Comprehension 3 h.
103:3 Intensive English Reading 3 h.
103:4 Intensive English Grammar and Writing 3 h. Prerequisite: permission of department.

103:50 Connections Class For Foreign Students 1 h.
Practice in conversation, with the goal of communicative competence, both pronunciation, grammar, and vocabulary.

103:500 Pronunciation and Oral Skills For Foreign Students 1 h.
Emphasis on the diagnosis and correction of pronunciation problems and on the correct use of stress, intonation, and pronunciation. Focus on reading and presentation.

103:500 Grammar for Foreign Students 3 h.
Focus is on the patterns of English sentence structure.

103:507 Written English For Foreign Students 3 h.
Emphasis on more complex grammatical structures, writing strategies, and the usage of standard terminology; practice in writing various patterns of organization in writing.

103:508 Comprehension Of Written English For Foreign Students 1 h.
Focus is on improving reading comprehension skills. Students will be introduced to common vocabulary; practice is in classroom discussions and in class readings.

103:509 Comprehension Of Written English For Foreign Students 1 h.
Focus is on increasing speed and comprehension of reading for study and personal use for this course. 

Financial Aid

Teaching assistantships and research assistantships are available to qualified graduate students. Application should be made by March 1 for the following academic year. Students applying for financial aid and admission concurrently should submit their Graduate Record Examination scores and three letters of recommendation.

For Undergraduates and Graduates

103:100 Introduction to Linguistics 2 h.
Survey of major problems in linguistics. Same as RL 103:100 and 103:101.

103:120 Language and Society 2 h.
Sociocultural conditions as they influence language; study of English, social and cultural factors, and language change. Prerequisite: 103:100 or equivalent. Same as RL 103:120.

103:150 Teaching English as a Foreign Language 3 h.
Dramatic technique of teaching English to foreign students, focusing on methods of ELT: teaching, classroom management, teaching aids, and pronunciation. Prerequisite: 103:100 or equivalent. Same as RL 103:150.

103:150A Functions in Teaching English as a Foreign Language 1 h.
Practical experience in teaching English as a second language to non-English speaking students. Prerequisite: 103:100 or equivalent. Same as RL 103:150A.

103:160 Analytical and Academic Phonetics 3 h.
Arthuristic and analytical phonetic theory; intensive practice in phonetic transcription.

103:165 Syntactic Analysis 3 h.
Introduction to generative models dealing with the syntactic structure of natural languages. Prerequisite: 103:150.

103:167 Phonological Analysis 3 h.
Introduction to phonological analysis in the study of the English language. Prerequisite: 103:160 or equivalent. Same as RL 103:167.

103:170 Linguistic Fieldwork 3 h.
Survey and extraction of language data in field situations. Includes the use of observations, interviews, and phonemic transcription. Emphasizes the role of the field linguist in eliciting data from an informant. Prerequisites: 103:100 or equivalent.

103:180 Language in Legal Practice 2 h.
Introduction to comparative and descriptive techniques; uses of existing computer programs; comparison of comparable language analyses. Same as RL 103:180.

103:185 Women, Language, and Society of Hispanic Women 3 h.
Examines the sociolinguistic indicators of social, political, and cultural status of Hispanic women: gender, class, race, language, and social class. Prerequisite: 103:100 or equivalent. Same as RL 103:185.

103:185Y Topical in Portuguese Linguistics 3 h.

103:190 Historical and Comparative Linguistics 3 h.
Principles of language change, comparative methods and generalization of historical linguistics, and the use of historical linguistics in the study of modern languages. Prerequisite: 103:102 or equivalent. Same as RL 103:190.

103:210 Introduction to Phonetics 3 h.
Phonetics: the description of the sounds of language. Prerequisite: 103:100 or equivalent. Same as RL 103:210.

103:210S Introduction to Phonetics 3 h.
Prerequisites: 103:100 or equivalent. Same as RL 103:210S.

103:220 Literacy and English Language 3 h.
Development of phonological and grammatical structures of English from Old to Middle English; development of the English literatures. Prerequisite: 103:100 or equivalent. Same as RL 103:220L.

103:230 History of the English Language 3 h.
in one of the professions, or in the humanities and social sciences.

Courses in ESA are open to juniors, seniors, and graduate students from any department or college. Freshman and sophomore students may occasionally be admitted by approval of the instructors.

Courses are conducted by round-table discussions, in a small group of students with two or more faculty representing different departments and disciplinary perspectives. The topics of these courses engage the special contributions of particular disciplines while they focus on important problems of value and concern to us all.

Reading lists are chosen from outstanding works of past and present.

The following are the specific requirements beyond the general education courses, for the B.A. in Literature, Science, and the Arts.

L.S.A. 12 a.h.
Natural, social sciences 12 a.h.
Philosophy, religion, History 12 a.h.
Literature beyond general education requirements 12 a.h.
Fine arts 3 a.h.
Foreign language: one semester beyond second year (foreign literature courses in the original language may also be used to satisfy the requirement in literature) 3 a.h.

Students considering an L.S.A major should complete these requirements by the end of the sophomore year.

Honors

Superior students who undertake a further program of independent study may earn the Bachelor of Arts degree "with honors." To be admitted as a candidate for honors, the student must have the endorsement of the chair of the interdisciplinary Program in Literature, Science, and the Arts. An honors student submits an honors project and takes an examination on a portion of the reading list, during the semester before graduation.

Courses

2315 The Poetics of Happiness 24 a.h.
Tragedy, comedy, and the various types of human experience by Aristotle, Freud, Dahlia, Physicians, Voltaire, Goethe, etc., etc.

2410 Love in the Western World 24 a.h.
Meaning, importance, and varieties of love as they appear in literature, music, art, philosophy, psychology, anthropology, etc.

2411 Myth and Romance 24 a.h.
Mythology and folklore from various periods in Western thought, reading from Sophocles, Plato, Aristotle, Shakespeare, Hawthorne, etc.

2412 The Great SOnly 24 a.h.
The life and the potential of man's life in society, as seen in works by Plato, Rousseau, Blake, Dostoevsky, Shakespeare, Locke, Gibbon, Marx, recent fiction and novels.

2415 Values in the Contemporary World 24 a.h.
Modern problems in definition and choice of value, examined through writings of contemporary ethicists and sociologists.

2314 Human Nature and the Impact of Science 24 a.h.
Relationship of science to art, social, political, and religious thought. See also 12-10.

2316 From Marx to Modern Art 24 a.h.
Interaction between art and other cultural phenomena, and critical theory. Experience with art, and perception, evaluation of value, and perception. Writings, specific works of art, and perception. Selected readings from novels, poems, paintings, and other art forms. See also 12-10.

2417 Values in 1940-1945 24 a.h.
Perceptual and ideological changes in various cultural fields continue to influence modern life. Related art exhibits and works, selected readings from literature and art by writers such as Sartre, Beckett, Berg, Bouin, Klein, Ginzburg, and Simmel, and readings from authors such as Freud, Wittgenstein, Scheler, Veblen, and Hume.

2418 Roots of Modern Culture 24 a.h.
Literary and social manifestations of modern revolution.

2419 Biblical Interpretation in Bible and Opera 4 a.h.
See also 12-13, 50-113.

2420 Greek and Roman Drama 24 a.h.
Drama and the role of autonomous and independent elements in opera and other musical works with poetry. See also 12-17.

2421 Special Projects 64 a.

2422 Independent Study in History 4 a.h.
Honor courses must take 20-21 and 20-154, for a total of an semester hour. This course cannot be taken concurrently.

2423 Independent Study in History 4 a.h.
Independent study in history, as taught by a foreign professor or independently.

2424 Approaches to Women's Studies 3 a.h.
Wrestling with the methods and materials of the historical study of women; the experience of life for women and men of different periods, the role of women in society.

2511 Bachelor of Science 24 a.h.
Bachelor of Science in the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least 2 semester hours of credit.

2621 Introduction to Computation Theory 24 a.h.

Division of Mathematical Sciences

Degree offered: B.A., B.B., M.S., Ph.D.

Bachelor of Arts

Students must take at least seven additional approved courses from the division beyond one year of calculus (either 22M:35-36 Calculus I and II or 22M:35-36 Engineering Calculus I and II).

Each of these seven courses must carry at least 2 semester hours of credit.

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:116 Operating Systems and Concurrent Programming
22C:122 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:125 Data: Abstractions, Types and Structures
22C:195 Introduction to Computation Theory

22C:146 Artificial Intelligence
22C:153 Design and Analysis of Algorithms
22C:167 Theory of Graphs
22C:200 Introduction to Ordinary Differential Equations
22C:201 Introduction to Partial Differential Equations
22C:203 Foundations of Set Theory
22C:204 Foundations of Logic
22C:206 Continuum Mathematical Models
22C:211 Elementary Topology I
22C:211 Elementary Topology II
22C:215 Introduction to Analysis I
22C:215 Introduction to Analysis II
22C:216 Complex Variables
23C:130 Abstract Algebra I
22C:212 Abstract Algebra II
22C:213 Optimization Techniques
22C:219 Matrix Theory
22C:215 Discrete Mathematical Models
22C:212 Theory of Graphs
22C:200 Differential Geometry
22C:206 Differential Geometry II
22C:210 Numerical Analysis: Nonlinear Equations and Approximation Theory
22C:171 Numerical Analysis: Differential Equations and Linear Algebra
22C:212 Methods of Solutions of Boundary Value Problems
22C:213 Introduction to Probability
22C:214 Introduction to Mathematical Statistics
22C:215 Introduction to Mathematical Statistics II
22C:217 Introduction to Stochastic Processes
22C:218 Actuarial Theory
22C:212 Actuarial Theory II

Some of the above courses require extensive prerequisites which the student should consider in planning his or her program.

Students are advised to consult the overall catalogue concerning courses which may be applicable toward the seven-course requirement. Students who complete the requirements for a secondary teaching certification may take any one 200-level Mathematical Sciences Division course among those seven required courses in mathematics. See further requirements under "Mathematics Education."

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 2 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 22C: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 22S:183 Demography and Life Table Construction, 22S:184 Risk Theory, and 22S:185 Theory of Finance. Students are encouraged to take at least one course in computer science and a substantial portion of courses from the College of Business Administration. The 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


Other general courses which may be of interest are 22M:50 Elements of Group Theory, 22M:105 Analysis for Applications, 22M:118 Introduction to Analysis I, 22S:126 Elementary Theory of Numbers, and 22M:150 Matrix Theory.

Students in applied mathematics should be familiar with computer programming. (22C:7 Introduction to Computing with FORTRAN can be taken after calculus) and with the basic ideas of probability and statistics (these courses 22S:163 Introduction to Probability and 22S:164 Introduction to Mathematical Statistics I or 22S: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 in biology, chemistry, or the Division of Mathematical Sciences. Students who plan to do graduate work in applied mathematics should take 22M:115 Introduction to Analysis I.

Mathematics Education

Mathematics education majors are required to take the sequence 22M:25-26 Calculus I&II, 22M:57 Introduction to Linear Algebra, 22M:50 Elements of Group Theory, 22M:56 Fundamental Properties of Spaces and Functions, and 22M:170 Foundations of Geometry. The student must substitute for any of these courses a 100-level course in the area desired to complete a 100-level course in the designated area. The student must take 22M:66 before taking 73:107, a course required for teaching certification in mathematics (see the College of Education section of Catalog for certification requirements).

A program in mathematics education might include any of the 100-level courses, and should include at least one in analysis, 22S:120 Foundations of Set Theory, 22M:104 Foundations of Logic, 22M:118-119 Elementary Topology I&II, 22S:115-116 Introduction to Analysis I&II, 22S:120 Probability and Statistics, 22S:150 Methods of Statistical Inference, and/or 22S:104 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 22C:7 Introduction to Computing with FORTRAN, 22C:17 Programming with PASCAL, 22C:18 Computer Organization and Assembly Language Programming, and one or two courses in mathematical analysis from 22M:95 Fundamental Properties of Spaces and Functions, 22M:106 Analysis for Applications, and 22M:110 Introduction to Analysis I. Substantial 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 Department of Statistics numbered 100 and above, excluding 22S:102.

Additional courses may be selected from 22S:50 Elements of Group Theory, 22S:104 Foundations of Logic, 22S:118-119 Elementary Topology I&II, 22S:120 Probability and Statistics, 22S:150 Methods of Statistical Inference, and/or 22S:104 Introduction to Mathematical Statistics I. Students in mathematics education also must have proficiency in one computer programming language.
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 Division of Mathematical Sciences Courses numbered 22M.50 or above (excluding 22M.50-51 and including at least one course numbered 100 or above) or 22S.103 or above, and
At least three additional quantitative courses from one department 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 enter at senior or junior status, if they have completed at least 9 semester hours of credit in Division of Mathematical Sciences courses beyond the first year of calculus or 22C:16 Introduction to Programming with PASCAL.

Minor

Courses designated as upper-level for the purpose of satisfying minor field requirements in the mathematical sciences are 22C:21 Data Structures and above (excluding courses not open to computer science majors for degree credit), 22M:28 Calculus II, 22M:30 Elements of Group Theory and above (excluding 22M:60 Theory of Arithmetic and 22M:81 Geometry for Elementary Teachers), and 22S: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 E. Atkinson
Faculty: Kendall Atkinson (Mathematics), Dennis Brukner (Systems Engineering), Walter J. Carlisle (Engineering), John A. Cvetanovic (Mathematics), Ed Magi (Materials Engineering), Harald M. Neidhardt (Physics), William Olson (Physics), Steven F. F. Quesenberry (Computer Engineering), Vasilij Okaer (Mathematics)

Degree offered: Ph.D.

Applied mathematicians 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 industrial and governmental laboratories, professional consulting positions, and software computer consulting.

The program in applied mathematical sciences 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 the 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:107 Section I: Applied Mathematical Science
Prerequisite: C- or better in 22C:16.

22C:396 Reading and Research
Prerequisite: consent of advisor.

Computer Science

Department Chair: Theodore J. Spickard

Degrees offered: B.S., 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 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 equivalent by transfer) with a grade-point average of 2.0 or better and a minimum 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

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
4 a.h.
22M:26 Calculus II
4 a.h.
Bachelor of Science
For the B.S. degree, the student must take two additional courses (each having at least 2 semester hours' credit) in the Division of Mathematical Sciences. The undergraduate handbook, available at the Division of Mathematical Sciences office, includes trigonometry 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 course of study for the M.S. degree in computer science must have completed the following:

22C:115 Introduction to Operating Systems 3 s.h.
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 Computational 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.

Outside courses must be selected to support the student's career objectives and must be approved by the student's advisor. The courses must either broaden a student's background through study of a new area or extend earlier work outside of computer science.

Computer science courses should be selected according to the student's special area interests, but should also provide a broad range of experience and competence in computer science. In particular, some experience with projects involving extensive programming should be included.

Any M.S. candidate may elect to write a thesis, and with the advisor's consent may apply up to eight semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S. degree.

The M.S. final examination consists of either an oral defense of the thesis or a written examination which assumes completion of 22C:115 Operating Systems and Concurrent Programming, 22C:125 Advanced Computer Organization, 22C:135 Programming Language Foundations, and 22C:136 Introduction to Computation Theory. The written examination attempts to confront the interfaces among these four courses as well as the major topics in the individual courses. Students should consult the Graduate Handbook for further information.

It is strongly recommended that the applicant have exposure to the M.S. program in computer science have a B.A. or B.S. in computer science, mathematics, engineering, or physical science. A student whose undergraduate program does not include equivalent of the courses required in The University of Iowa's computer science undergraduate curriculum is expected to complete these courses prior to admission to graduate courses.

Doctor of Philosophy
Doctoral students are expected to complete 80 to 90 semester hours of graduate work, including a thesis. The student need not have a master's degree when beginning the Ph.D. program, and need not acquire one.

Course requirements for the doctorate include:

22C:115 Operating Systems and Concurrent Programming 3 s.h.
22C:125 Advanced Computer Organization and Architecture 3 s.h.
22C:123 Programming Language Foundations 3 s.h.
22C:135 Data Abstraction Types and Structures 3 s.h.
22C:127 Compiler Construction 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:153 Design and Analysis of Algorithms I 3 s.h.

The student must also complete the courses in one of the specialty groups outlined in the departmental Graduate Handbook, and at least 18 semester hours of 200-level computer science courses work in addition to 22C:298 Research for Dissertation.

In addition to the course work in computer science, the student must complete at least three courses, with grades of A or B, in one of these outside areas:

Algebra
Analysis
Logic and set theory
Operations research
Statistics and probability
Numerical analysis

At least one course in the outside area must be at the 200 (advanced) level, except in statistics and probability, where the advanced course may be at the 100 level.

After the student passes the qualifying examination, the departmental graduate committee assigns the student a faculty adviser, and student and adviser select the student's dissertation committee. In consultation with the adviser and dissertation committee, the student prepares a plan of study and the specifications for a specialty examination that will serve as his or her Ph.D. comprehensive examination. The dissertation committee admitts the student to candidacy after the student completes the required courses in an affinity group.

Examinations are described in the Graduate Handbook.

The student prepares a written proposal for research, and defends the proposal in an oral examination administered by the dissertation committee. The student must demonstrate expertise in the area of proposed research, and must justify the proposal in terms of originality and significance.

The student must make an oral defense of the dissertation.

The department is highly selective in admitting doctoral students, and normally considers only applicants with a grade-point average above 3.3.

Graduate Service Courses
Competence and experience in the use of a digital computer in problem solving is assumed for and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence 22C:108 Introduction to Programming with Pascal and 22C:109 Computer Programming with Pascal is recommended. Students in fields in which other programming languages are heavily used may find 22C:109 Introduction to Programming, 22C:110 Introduction to FORTRAN, or 22C:108 Programming with COBOL more appropriate.
Courses

**Primary for Undergraduates**

ECSE 206 Computer Education Teaching Methods 3 s.h.

ECSE 301 Survey of Computing 3 s.h.

The nature, uses, and limitations of computers and computing as enlisted in a typical course. Survey of computer architecture, operating systems, computer networks, computer programming, computer-aided instruction, and information retrieval. The impact of computing technology on society.

ECSE 307 Introduction to Computing with FORTRAN 3 s.h.

Basics of computer structure and programming techniques. Elementary assembly language programming. Algorithms, data representation, subroutines, loops, and data structures. Major emphasis on programming with FORTRAN.

ECSE 308 Programming with COBOL 3 s.h.


ECSE 318 Introduction to Programming with Pascal 3 s.h.

Programming and program design techniques using the Pascal programming language. Emphasizes, expressions, structured control constructs, block structure and procedures, data types, including scalar types, data, record, and arrays.

ECSE 317 Programming with Pascal 3 s.h.

Compilation of ECSE 315-316, data types, stack, stack and heap, and recursive procedures, data representation, scope, addressing and advanced programming. State models of language, program procedures and subroutines. (Taught with PL/1 during Fall 1962.) Pre-requisite: Programming experience.

ECSE 316 Computer Organization and Assembly Language Programming 4 s.h.

Introduction to hardware organizations; memory organization techniques; CPU management and inter-relationships; machine language vs. assembly language; assembly language; addressing, heap storage, stack storage, data types, data representation, data handling, and assembly programming. Pre-requisites: ECSE 315, 316, and 318.

ECSE 315 Digital Structures 3 s.h.

Survey of various examples of applications to modeling of digital graphs and their basic properties, including network formation in electronic circuits, proof techniques, and applications to modeling on computer topologies with emphasis on independent variable, group, and network structures. Pre-requisites: ECSE 315, 317, 318, and 316.

ECSE 314 Data Base 3 s.h.


ECSE 313 Programming Languages Cornell 3 s.h.

Survey of programming languages. Structure of data types and data design techniques appropriate for computer organization, compiler design techniques, and logical versus physical program design. Pre-requisites: EECS 310, 312, and 316.

ECSE 312 Digital Systems and Computers 3 s.h.


EC 202 Introduction to Systems Software 3 s.h.

Introduction to systems programming concepts, techniques, and architectures, including computer hardware and software interface, scheduling, system process, load, and job control languages, sequential and concurrent operating systems, storage allocation, concurrent programming, scheduling, recovery, and protection. Pre-requisites: ECSE 206, 315, and 316.

**Graduate Course Services**

ECSE 220 Introduction to Computing with FORTRAN 3 s.h.

A programming course designed to provide the student with an understanding of the FORTRAN language and computer organization. Pre-requisites: ECSE 315, 316, and 318. Pre-requisite: ECSE 220.

ECSE 221 Topics in Computer Science 1-3 s.h.

Reading, research, or programming projects in the area of current computer science interest. Interested student may contact faculty member concerning the project. Pre-requisites: consent of instructor.

**Graduate Course Services**

ECSE 220 Introduction to Computing with FORTRAN 3 s.h.

A programming course designed to provide the student with an understanding of the FORTRAN language and computer organization. Pre-requisites: ECSE 315, 316, and 318. Pre-requisite: ECSE 220.

ECSE 221 Topics in Computer Science 1-3 s.h.

Reading, research, or programming projects in the area of current computer science interest. Interested student may contact faculty member concerning the project. Pre-requisites: consent of instructor.

**Primary for Computer Science Majors**

ECSE 215 Software Engineering - Applications 3 s.h.

Practicum in software design and development: software life cycle; prototype analysis, requirements definition, specification, design; testing, debugging, quality assurance, personnel development, management and technical writing, issues dealing with programs and software applications. Pre-requisites: ECSE 215-216-217-218 and 219. Pre-requisites: consent of instructor.

ECSE 216 Software Engineering - Systems 3 s.h.

Practicum in software design and development: software life cycle; prototype analysis, requirements definition, specification, design; testing, debugging, quality assurance, personnel development, management and technical writing, issues dealing with programs and software applications. Pre-requisites: ECSE 215-216-217-218 and 219. Pre-requisites: consent of instructor.

ECSE 217 Software Engineering - Systems 3 s.h.

Practicum in software design and development: software life cycle; prototype analysis, requirements definition, specification, design; testing, debugging, quality assurance, personnel development, management and technical writing, issues dealing with programs and software applications. Pre-requisites: ECSE 215-216-217-218 and 219. Pre-requisites: consent of instructor.

ECSE 218 Advanced Computer Organization and Architecture 3 s.h.

Review of classical organization principles; advanced computer design concepts including computer architectures, CPU design, memory structures, input-output organization, compiler structure, system software, computer design for educational and computational environments. Pre-requisites: consent of instructor.

ECSE 219 Programming Languages 3 s.h.

Introduction to computer languages and programming techniques in the area of current computer science interest. Pre-requisites: consent of instructor.

ECSE 220 Digital Systems and Computers 3 s.h.

Basic digital system concepts. Basic digital circuits, decoding devices, microprocessors, register operations, arithmetic, storage devices, and addressing mechanisms. Pre-requisites: ECSE 220.

ECSE 221 Topics in Computer Science 1-3 s.h.

Reading, research, or programming projects in the area of current computer science interest. Interested student may contact faculty member concerning the project. Pre-requisites: consent of instructor.
22M:102 Intermediate Differential Equations
22M:103 Continuous Mathematical Models
22M:138 Optimization Techniques
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
22M:171 Numerical Analysis: Differential Equations and Linear Algebra

Students are required to take two comprehensive examinations: one covering the content of 22M:170, 22M:171, and 22M:138; the other covering the content of 22M:101, 22M:102, and 22M:109.

Two from the following:
22M:118 Complex Variables
22M:150 Matrix Theory
22M:151 Discrete Mathematical Models
22M:162 Theory of Graphs
23C:116 Operating System Principles and Concurrent Programming
23C:130 Design and Analysis of Algorithms
253:164 Introduction to Mathematical Statistics
253:156 Introduction to Mathematical Statistics II

22M:187 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-mathematics students working toward a Ph.D. in another area requiring mathematical knowledge. The program has no required courses. Course requirements are the same as for Program I.

The student in program IV is considered to have passed 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 mathematics 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 degree program equivalent to the one offered by the Division of Mathematical Sciences. A student's 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 in the division. There is no formal departmental policy distinguishing between pure and applied mathematics.

The requirements for the Ph.D. in mathematics include 7.5 hours of graduate credit, at least three years of graduate residence, including at least one 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 either 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 a language sequence offered by the appropriate foreign language department. The demonstration 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 not open to graduate students except by special arrangement with the chair of the department.

22M:101 Basic Mathematical Terminology
22M:102 Intermediate Differential Equations
22M:103 Continuous Mathematical Models
22M:138 Optimization Techniques
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
22M:171 Numerical Analysis: Differential Equations and Linear Algebra

Algebraic techniques, equations and inequalities, functions and their graphs, solutions of equations and inequalities. Prerequisite: 22M:101 or one year of high school algebra.

Algebraic techniques, equations and inequalities, functions and their graphs, solutions of equations and inequalities. Prerequisite: 22M:101 or one year of high school algebra.

Algebraic techniques, equations and inequalities, functions and their graphs, solutions of equations and inequalities. Prerequisite: 22M:101 or one year of high school algebra.

Algebraic techniques, equations and inequalities, functions and their graphs, solutions of equations and inequalities. Prerequisite: 22M:101 or one year of high school algebra.

Quantitative Methods

Mathematical methods for solving problems arising in management and economics sciences and related social sciences: introduction to differential and difference equations, linear algebra, and linear programming. Prerequisite: 22M:101 or one year of high school algebra.

Mathematical methods for solving problems arising in management and economics sciences and related social sciences: introduction to differential and difference equations. Prerequisite: 22M:101 or one year of high school algebra.

Introductory to linear algebra, vector spaces, linear dependence, linear transformations, determinants, eigenvalues and eigenvectors. Prerequisite: 22M:101 or one year of high school algebra.

Linear algebra, vector spaces, linear dependence, linear transformations, determinants, eigenvalues and eigenvectors. Prerequisite: 22M:101 or one year of high school algebra.

Linear algebra, vector spaces, linear dependence, linear transformations, determinants, eigenvalues and eigenvectors. Prerequisite: 22M:101 or one year of high school algebra.

Linear algebra, vector spaces, linear dependence, linear transformations, determinants, eigenvalues and eigenvectors. Prerequisite: 22M:101 or one year of high school algebra.
Undergraduate: Upper Division

220:15 Introduction to Ordinary Differential Equations 3.0 h.
First-order ordinary differential equations; second-order linear differential equations; series solutions; higher-order linear equations; Laplace transforms; linear systems; phase plane analysis. Prerequisites: MATH 230 and 231. 220:25 or 220:20.

220:16 Partial Differential Equations 3.0 h.
Introduction to partial differential equations, linear second-order equations, separation of variables, Fourier series, Laplace's equation, applications to physical science and engineering. Prerequisite: MATH 220:15.

220:17 Intermediate Differential Equations 2.0 h.
Selected topics from the preceding course, with increased emphasis on the qualitative behavior of solutions. Includes: phase plane analysis, qualitative properties of solutions, and applications to mechanics and defective matrices. Prerequisite: MATH 220:10 or equivalent.

220:19 Foundations of Real Analysis 3.0 h.
Infinite series, power series, Taylor's theorem, integration, the Lagrange remainder, uniform convergence, and applications to improper integrals. Prerequisite: MATH 220:10.

220:20 Analysis for Applications 3.0 h.
Selected topics in real and vector field theory, optimization problems, infinite series and sequences, power series, uniform convergence, improper integrals, and applications to physics. Prerequisite: MATH 220:10 or equivalent.

220:21 History of Mathematics 3.0 h.
Selected topics in the history and development of mathematics. Prerequisite: two semesters of calculus and one semester of linear algebra, or consent of instructor.

220:22 Continuous Mathematics I 3.0 h.
A course in the rigorous development of calculus based on the epsilon-delta definitions of limit. Prerequisites: MATH 220:10 and 220:15.

220:23 Elementary Number Theory 3.0 h.
Introduction to the topics of divisibility, prime numbers, congruences, arithmetic functions, and the distribution of primes. Prerequisites: MATH 220:10 and 220:15.

220:24 Linear Algebra 3.0 h.
Systems of linear equations, matrix theory, vector spaces, linear transformations, determinants, eigenvalues and eigenvectors, diagonalization, and applications. Prerequisites: MATH 220:15 and 220:23.

220:25 Introduction to Complex Analysis 3.0 h.
Introduction to the calculus of functions of a complex variable: Cauchy’s integral theorem, power series, and Laurent series. Prerequisite: MATH 220:15 or equivalent.

220:26 Introduction to Topology 3.0 h.
Introduction to the theory of metric spaces, algebraic structures, and other generalizations of one-dimensional point networks, including knots, network topology, and complex networks. Prerequisite: MATH 220:15.

220:27 Foundations of Abstract Algebra 3.0 h.
Introduction to the topics of group theory, ring theory, and field theory. Prerequisite: MATH 220:15 or equivalent.

220:28 Advanced Calculus I 3.0 h.
Real Analysis: Real numbers, sequences and series, continuity, differentiation, Riemann integral. Prerequisites: MATH 220:15 and 220:23.

220:29 Advanced Calculus II 3.0 h.

220:30 Introduction to Manifolds and Topology 3.0 h.
Introduction to the concepts of differentiable manifolds, differential forms, and de Rham theory. Prerequisites: MATH 220:15 and 220:28.

220:31 Complex Variables 3.0 h.
Complex calculus: Taylor and Laurent series, contour integration, residue theory, harmonic functions, and conformal mapping. Prerequisites: MATH 220:24 or 220:25, or equivalent.

220:32 Advanced Linear Algebra 3.0 h.
Eigenvalues and eigenvectors, inner product spaces, linear transformations, and applications. Prerequisite: MATH 220:25 or equivalent.

220:33 Advanced Topics in Analysis 3.0 h.
Special topics in analysis, such as functional analysis, measure theory, and the theory of distributions. Prerequisites: MATH 220:25 or equivalent.

220:34 Advanced Topics in Algebra 3.0 h.
Special topics in algebra, such as group theory, ring theory, and field theory. Prerequisites: MATH 220:25 or equivalent.

220:35 Advanced Topics in Geometry 3.0 h.
Special topics in geometry, such as projective geometry, differential geometry, and algebraic geometry. Prerequisites: MATH 220:25 or equivalent.

220:36 Advanced Topics in Topology 3.0 h.
Special topics in topology, such as algebraic topology, geometric topology, and topological dynamics. Prerequisites: MATH 220:25 or equivalent.

220:37 Advanced Topics in Complex Analysis 3.0 h.
Special topics in complex analysis, such as conformal mapping, Riemann surfaces, and the theory of residues. Prerequisites: MATH 220:25 or equivalent.

220:38 Advanced Topics in Partial Differential Equations 3.0 h.
Special topics in partial differential equations, such as the theory of hyperbolic equations, elliptic equations, and parabolic equations. Prerequisites: MATH 220:25 or equivalent.

220:39 Advanced Topics in Real Analysis 3.0 h.
Special topics in real analysis, such as measure theory, functional analysis, and the theory of distributions. Prerequisites: MATH 220:25 or equivalent.

220:40 Advanced Topics in Linear Algebra 3.0 h.
Special topics in linear algebra, such as matrix theory, tensor theory, and the theory of vector spaces. Prerequisites: MATH 220:25 or equivalent.

220:41 Advanced Topics in Algebraic Geometry 3.0 h.
Special topics in algebraic geometry, such as the theory of curves, surfaces, and varieties. Prerequisites: MATH 220:25 or equivalent.

220:42 Advanced Topics in Differential Geometry 3.0 h.
Special topics in differential geometry, such as Riemannian geometry, symplectic geometry, and Lie groups. Prerequisites: MATH 220:25 or equivalent.

220:43 Advanced Topics in Topological Dynamics 3.0 h.
Special topics in topological dynamics, such as the theory of attractors, symbolic dynamics, and ergodic theory. Prerequisites: MATH 220:25 or equivalent.

220:44 Advanced Topics in Algebraic Topology 3.0 h.
Special topics in algebraic topology, such as homology, cohomology, and spectral sequences. Prerequisites: MATH 220:25 or equivalent.

220:45 Advanced Topics in Functional Analysis 3.0 h.
Special topics in functional analysis, such as the theory of Banach spaces, Hilbert spaces, and operator theory. Prerequisites: MATH 220:25 or equivalent.

220:46 Advanced Topics in Complex Analysis 3.0 h.
Special topics in complex analysis, such as the theory of Riemann surfaces, the theory of residues, and the theory of elliptic functions. Prerequisites: MATH 220:25 or equivalent.

220:47 Advanced Topics in Real Analysis 3.0 h.
Special topics in real analysis, such as the theory of measure and integration, the theory of harmonic functions, and the theory of distributions. Prerequisites: MATH 220:25 or equivalent.

220:48 Advanced Topics in Algebraic Geometry 3.0 h.
Special topics in algebraic geometry, such as the theory of curves, surfaces, and varieties. Prerequisites: MATH 220:25 or equivalent.
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 FORTRAN or
22C:9 Introduction to Programming with PASCAL
22M:25-26 Calculus I-II
22M:37 Introduction to Linear Algebra
22M:28 Calculus III
22M:12 Introduction to Probability
22M:15 Introduction to Mathematical Statistics I
22M:35 Actuarial Principles of Life Insurance
22M:17 Numerical Analysis for Actuaries

At least 3 from the following:
6A:1 Introduction to Financial Accounting
6F:102 General Insurance
6M:102 Introduction to Marketing
6L:47 Introduction to Law
6L:100 Administrative Management

Suggested additional courses:
22C:183 Demography and Life Table Construction
22M:184 Risk Theory
22C:185 Theory of Pension Funding
6F:121 Property and Liability Insurance
6F:122 Life and Health Insurance

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 recommendation is usually based on two to three written essays and exams 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 examination over the topics covered 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:155 Introduction to Nonparametric Statistics
22S:180-182 Actuarial Theory I-III
22S:177 Numerical Analysis for Actuaries
22S:297 Seminar: Actuarial Theory

At least three courses from:
22C:183 Demography and Life Table Construction
22C:184 Risk Theory
22C:185 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 and Probability
(with or without thesis)

22M:116 Introduction to Analysis I
22M:153 Introduction to Probability
22M:154-155 Introduction to Mathematical Statistics I
22M:157 Introduction to Stochastic Processes

At least two of these:
22S:172 Topics in Statistics
22S:230 Introduction to the Theory of Nonparametric Statistics
22S:244 Theory of Statistics II
22S:255 Linear Models
22S:256 Multivariate Analysis
22S:284-285 Theory of Probability II

Applied Statistics

(without thesis)

22C:153 Introduction to Probability
22C:154 Introduction to Mathematical Statistics I
22S:158 Analysis and Design of Experiments I
22C:162 Regression Analysis
22C:173 Statistical Computation and Consulting

At least two of these:
22S:133 Quality Control, Reliability, and Engineering Statistics
22S:136 Bayesian Statistics I
22S:151 Introduction to Mathematical Statistics II
22S:158 Applied Time Series Analysis
22S:183 Applied Statistical Decision Theory
22S:181 Application of Multivariate Statistical Techniques
22S:230 Analysis of Categorical Data
22S:239 Introduction to the Theory of Nonparametric Statistics
22S:239 Bayesian Statistics II
22S:255 Linear Models
22S:256 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 advisor.

Experience in a computer language (PL/1 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 methods. A program oriented towards biostatistics, for example, could include:

225:161 Application of Multivariate Statistical Techniques
225:162 Regression Analysis and elections chosen from among:
63:158 Principles of Epidemiology
63:175 Biostatistical Methods
63:101 Dynamics of Health
63:102 Man and the Environment
63:269 Chronic Disease Epidemiology

Students interested in operations research, for example, could electives from among:
225:156 Introduction to Mathematical Statistics II
225:157 Applied Statistical Decision Theory
225:158 Introduction to Stochastic Processes
585:141 Operations Research II
588:142 Production—Inventory Models
588:143 Quantitative Investment Analysis
588:149 Digital Systems Simulation I
588:249 Digital Systems Simulation II
588:242-243 Mathematical Programming I
588:245 Stochastic Service Systems
588:245 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 statistics courses would be courses in the Department of Statistics. The student should consult closely with his or her adviser in developing a program of study tailored to the student's specific interests. If the student's interest is in a particular area, consultation with his or her adviser is strongly recommended. If a student 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 Thesis)
225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
225:155 Analysis and Design of Experiments I
225:158 Analysis and Design of Experiments II
At least two of these:
225:159 Applied Multivariate Statistical Techniques
225:160 Analysis of Variance

At least two of these:
225:133 Quality Control, Reliability, and Engineering Statistics
225:138 Bayesian Analysis
225:155 Introduction to Mathematical Statistics
225:156 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
225:220 Analysis of Categorical Data
225:230 Introduction to the Theory of Nonparametric Statistics
225:239 Bayesian Statistics
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 advisor's approval, courses in other fields related to the thesis.

Experience in a computer language (PL/1 or FORTRAN) is required. If the student anticipates the requirement by taking a course, that course may not be counted toward the M.S. semester hour requirement.

The 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 in Statistics
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

At least 2 semester hours of any combination of the following:
At least 2 semester hours of any combination of the following:
225:291 Seminar: Mathematical Statistics
225:293 Seminar: Probability
At least two of the following:
225:156 Applied Time Series Analysis
225:161 Application of Multivariate Statistical Techniques
225:158 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
225:230 Introduction to the Theory of Nonparametric Statistics
225:255 Linear Models
225:269 Research in Statistics and Actuarial Science
225:284-285 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 Readings in Statistics and Actuarial Science, or 225:298 Researching.

For the graduate program, students may wish to take course work or seminars in other departments for the achievement of certain auxiliary goals of the degree. Subjects to include his or her area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computer equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with foreign scientists.

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 also take an oral examination on 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 3.35 grade-point average on completed courses in the plan of study. A program which does not conform to the above requirements but which is of high excellence, may be approved by the department chair.

Special Features
Because statistics is often teamed with other sciences in research projects, it is important that students gain a broad background in other fields. In several courses, the department tries to provide such experience. In addition, the department houses the Statistical Consulting Center, which offers
assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students participate in these activities as part of their training. Although the majority of Statistical Consulting Center projects involve statistical problems arising in thesis research conducted by students in other departments, the center also seeks involvement in larger research projects and in the writing of proposals.

Courses

Primary for Undergraduates

No student may receive credit for a Department of Statistics course numbered below 100 after receiving credit for a Department of Statistics course numbered above 100. A student may receive credit only if one of these courses: 225-6, 235-6, 225-102.

225-1 Statistical Models and Society 3.5


235-1 Probability 3.5

Continuation of 225-1. Discrete and continuous probability. Estimation and hypothesis testing. Random variables, expectation, variance, and Jensen's inequality. Prerequisites: 225-1 or 225-6 or 225-102.

235-2 Introduction to Statistics 3.5

Introduction to sampling and experimental design; basic concepts of data analysis for one- and two-sample problems. Prerequisite: 225-1 or 225-6 or 225-102.

235-3 Quality Control, Reliability, and Engineering Statistics 3.5

Quality control: control charts for variables and attributes. Design of experiments. Binomial distribution. Acceptance sampling. Reliability: basic concepts, life testing, and system reliability. Prerequisites: 225-1 or 225-6 or 225-102.

235-4 Design Analysis Experiments in Biomedical Sciences 3.5

Survey of design and analysis of biomedical experiments. Prerequisite: 235-1 or permission of instructor.

235-14 Intermediate Statistics Methods 3.5

Principles of data analysis. Basic regression analysis. Analysis of variance. Prerequisite: 235-1 or permission of instructor.

235-15 Methods of Statistical Inference 3.5

Parametric and nonparametric inference. Regression, analysis of variance. Sampling distributions. Estimation and hypothesis testing. Prerequisites: 235-1 or permission of instructor.

235-16 Introduction to Mathematical Statistics 3.5

Introduction to the theory and application of probability theory including elements of probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-17 Introduction to Mathematical Statistics II 3.5

Continuation of 235-16. Advanced topics in probability, including moment generating functions, random walk, renewal theory, Markov processes, and limit theorems. Prerequisite: 235-16 or permission of instructor.

235-18 Applied Time Series Analysis 3.5

Linear and nonlinear time series models, stationary and nonstationary models, regression, nonparametric regression, frequency domain analysis, multivariate time series analysis. Prerequisites: 235-1 or permission of instructor.

235-19 Applied Experimental Design 3.5

Completely randomized, randomized block, lattice, factorial, and fractional factorial designs. Analysis of variance. Prerequisites: 225-102 or 235-1 or permission of instructor.

235-20 Introduction to Linear Models 3.5

Introduction to linear models: least squares estimation, statistical hypotheses, analysis of variance, multiple regression, correlation, diagnosis of residuals, basic model building and model selection. Prerequisites: 235-1 or permission of instructor.

235-21 Data Analysis in Environmental Science 3.5

Introduction to data analysis in environmental science. Introduction to statistical methods and computer software for the analysis of data from ecological and environmental studies. Prerequisites: 235-1 or permission of instructor.

235-22 Introduction to Environmental Economics 3.5

Application of statistical methods to economic problems related to environmental policy. Prerequisites: 235-102 or 235-1 or permission of instructor.

235-23 Introduction to Environmental Impact Assessment 3.5

Introduction to the principles and practice of environmental impact assessment. Prerequisites: 235-102 or 235-1 or permission of instructor.

235-24 Introduction to Environmental Information Systems 3.5

Introduction to environmental information systems as tools for the management of environmental data. Prerequisites: 235-102 or 235-1 or permission of instructor.

235-25 Introduction to Nonparametric Methods 3.5

Introduction to nonparametric methods, including order statistics, rank tests, goodness-of-fit tests, and other Cramér-type tests. Prerequisites: 235-102 or 235-1 or permission of instructor.

235-26 Introduction to Regression Analysis 3.5

Introduction to the theory and application of regression analysis, including multiple regression, correlation, diagnosis of residuals, basic model building and model selection. Prerequisites: 235-1 or permission of instructor.

235-27 Introduction to Statistical Computer Software 3.5

Introduction to the use of statistical computer software for data analysis. Prerequisites: 235-1 or permission of instructor.

235-28 Introduction to Statistical Learning 3.5

Introduction to statistical learning, including supervised and unsupervised learning, regression, classification, and clustering. Prerequisites: 235-1 or permission of instructor.

235-29 Introduction to Statistical Programming 3.5

Introduction to statistical programming, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-30 Introduction to Statistical Practice 3.5

Introduction to statistical practice, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-31 Introduction to Statistical Research 3.5

Introduction to statistical research, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-32 Introduction to Statistical Software 3.5

Introduction to statistical software, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-33 Introduction to Statistical Theory 3.5

Introduction to statistical theory, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-34 Introduction to Statistical Methods 3.5

Introduction to statistical methods, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-35 Introduction to Statistical Practice 3.5

Introduction to statistical practice, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-36 Introduction to Statistical Programming 3.5

Introduction to statistical programming, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-37 Introduction to Statistical Research 3.5

Introduction to statistical research, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-38 Introduction to Statistical Software 3.5

Introduction to statistical software, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-39 Introduction to Statistical Theory 3.5

Introduction to statistical theory, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-40 Introduction to Statistical Methods 3.5

Introduction to statistical methods, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-41 Introduction to Statistical Practice 3.5

Introduction to statistical practice, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-42 Introduction to Statistical Programming 3.5

Introduction to statistical programming, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-43 Introduction to Statistical Research 3.5

Introduction to statistical research, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-44 Introduction to Statistical Software 3.5

Introduction to statistical software, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-45 Introduction to Statistical Theory 3.5

Introduction to statistical theory, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-46 Introduction to Statistical Methods 3.5

Introduction to statistical methods, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-47 Introduction to Statistical Practice 3.5

Introduction to statistical practice, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-48 Introduction to Statistical Programming 3.5

Introduction to statistical programming, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-49 Introduction to Statistical Research 3.5

Introduction to statistical research, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-50 Introduction to Statistical Software 3.5

Introduction to statistical software, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-51 Introduction to Statistical Theory 3.5

Introduction to statistical theory, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-52 Introduction to Statistical Methods 3.5

Introduction to statistical methods, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.

235-53 Introduction to Statistical Practice 3.5

Introduction to statistical practice, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-54 Introduction to Statistical Programming 3.5

Introduction to statistical programming, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-55 Introduction to Statistical Research 3.5

Introduction to statistical research, including data collection, data analysis, and statistical inference. Prerequisites: 235-1 or permission of instructor.

235-56 Introduction to Statistical Software 3.5

Introduction to statistical software, including R and MATLAB. Prerequisites: 235-1 or permission of instructor.

235-57 Introduction to Statistical Theory 3.5

Introduction to statistical theory, including probability, random variables, expectation, variance, generating functions, limit probability results. Prerequisites: 235-1 or permission of instructor.
Microbiology

Department: Agriculture, Forestry Degree: B.S., M.S., Ph.D.

Microbiology is concerned with the identification, structure, and activities of bacteria, fungi, viruses, algae, and some protista. It also includes immunology, a discipline dealing with the response of humans and animals to foreign materials.

Microbiology involves the study of the distribution of microorganisms in nature, their relationships to each other and to living things, their beneficial and harmful effects on humans, animals, plants, and the physical and chemical changes they produce in their environment.

All branches of the sciences—general microbiology, food and dairy microbiology, soil microbiology, plant microbiology, water and sewage microbiology, medical and veterinary microbiology, dental microbiology, immunology, pharmacological microbiology, marine microbiology, and geomicrobiology—have expanded rapidly in recent years and offer rewarding career opportunities to qualified persons.

For the graduate with a bachelor’s degree in microbiology, research positions are available in government, hospitals, public health, and industrial control laboratories.

Students who continue beyond the bachelor’s degree have career opportunities in many areas, such as college and university teaching, with greater responsibilities and commensurate higher salaries.

Bachelor of Science

The objectives of the undergraduate program in microbiology are to prepare students for careers in science, especially in their chosen majors, and to guide them to find their place in an even broader career in other subjects so they may relate microbiology to other fields of endeavor.

An undergraduate student majoring in microbiology at The University of Iowa must meet general College of Liberal Arts requirements. The student must complete a minimum of 14 semester hours in microbiology to retain a B.B. degree. No more than 2 semester hours of special problems (01:101 Problems in Microbiology) may count toward this requirement. Students desiring to apply for certification by the National Registry of Microbiologists are required to earn 20 semester hours of credit in microbiology, 20 semester hours of which must be in microbiology. Certification is required for employment or advancement in some areas. Except under unusual circumstances and with the consent of the advisor, mathematics and science courses required by the department for the B.B. degree should be taken for letter grades.

The following is a typical B.S. program. These courses are required:

- 41:15 Principles of Chemistry 3 s.h.
- 41:16 Principles of Chemistry Laboratory 2 s.h.
- 41:17 Elementary Quantitative Analysis 4 s.h.
- 41:21 Organic Chemistry I 3 s.h.
- 41:22 Organic Chemistry II 3 s.h.
- 41:41 Intermediate Chemistry Laboratory 2 s.h.
- 25:1:15 Mathematics for the Biological Sciences 4 s.h. or
- 25:20 Elementary Functions 3 s.h.
- 33:1:15 College Physics 5 s.h.
- 33:3:15 Principles of Animal Biology 5 s.h.
- 38:1:17 General Microbiology 4 s.h.
- 88:120 The Chemistry of Biological Materials 3 s.h.
- 88:130 Metabolism 3 s.h.

Honors Program

Open to seniors with a grade-point average of at least 3.0 and a 3.2 in microbiology courses, the Honors program in microbiology involves taking 20 semester hours of coursework in microbiology, including 8 semester hours in 61:171 172 Honors Microbiology. Their theses constitute an introduction to experimental research. At the end of the research, the student presents a written report. A student successfully completing these requirements receives the B.B. degree with honors.

Graduate Study, Faculty Roster, Courses

See "The College of Medicine" section of the Catalog.

Military Science

(Army ROTC)

Department Head: Lieutenant Colonel Michael J. Blodgett

Advisor: Professor Mark W. Buss (Chair), Robert C. Burger (Advisor), Peter J. M. van Steffen

Military Science is the academic unit administering the Army Reserve Officer Training Corps (ROTC) program at The University of Iowa. Participation in the program is voluntary. Courses in the program carry credit applicable toward a degree.
The ROTC Basic Course for freshmen and sophomores provides academic instruction in the fundamentals of leadership and management plus an introduction to the military roles of 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. Students also may participate in active Army training programs such as Ranger School, Air Assault 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 a National Guard or 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 program. Students may qualify for the advanced course by taking the ROTC program and being 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 even one year, with departmental approval.

Graduate School

Students commissioned as lieutenants upon graduation from The University of Iowa may apply for a delay of active duty to attend graduate school. No academic programs are required for active duty for such delays. Delays of up to three years are granted medical, dental, and law schools are generally granted.

Special Programs

The Black Barons is a traditional organization, engaged in intercollegiate military skills competition. The department also sponsors a small-bore rifle team that takes part in national competition. Cadets compete for individual skill and national awards for leadership, academic achievement, athletic, and military proficiency. The department sponsors military-oriented parades and social activities. Many cadets participate in these activities, including the annual military ball, a formal dinner called Cadet Corps Dining-in, and an awards ceremony.

Special Facilities

The department uses several areas near Iowa City for practical field problems and military skills instruction. It uses a variety of military equipment, such as helicopters and fixed-wing aircraft, in practical leadership experience in support of Field Training. Cadets visit Rock Island Arsenal, Rock Island Corps of Engineers District, and Camp Dodge, near Des Moines. To observe army operations and support equipment, junior-year cadets also use the Camp Dodge leadership reaction course, orienteering course, and rappelling facilities.

Financial Aid

Reserve Officers Training Corps scholarships, tuition, 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 that are a share of the total service obligation of four years.

All cadets in the second-year 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. Uniforms for training exercises, uniforms to continue in use by both ROTC and the Army, are furnished to students at no cost. The uniform includes 40-piece uniform service equipment at no cost. The uniform is furnished at no cost. The uniform includes 40-piece military service equipment at no cost. The uniform includes 40-piece service equipment at no cost. The uniform is furnished at no cost. The uniform includes 40-piece uniform service equipment at no cost. The uniform is furnished at no cost. The uniform includes 40-piece uniform service equipment at no cost. The uniform is furnished at no cost. The uniform includes 40-piece uniform service equipment at no cost. The uniform is furnished at no cost. The uniform includes 40-piece uniform service equipment at no cost. The uniform is furnished at no cost.
museums 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 museum department.

Courses
All registration by consent of instructor.

24 100 Museum Techniques 10 s.h. Course content: Cataloging; exhibiting; and related research for museum; classroom teaching, or internships. Research for preparatory work and exhibition staff. May be repeated.

24 120 Museum Conservation 10 s.h. Course content: Conservation of objects in museum collections. May be taken as independent study. May be repeated.

24 130 Museum Accounting 3 s.h. Course content: Business organization of museum. Teaching, acquisitions, curatorial, and financial management. May be repeated.

24 140 Museum Accessory Work 3 s.h. Course content: Conservation of objects on a small scale. May be taken as independent study. May be repeated.

24 150 Review of Exhibit Theory and Design 3 s.h. Course content: Review of exhibit theory and design.仅仅是概念，对课程没有具体描述。May be taken as independent study. May be repeated.

24 170 Special Readings and Projective Science 3 s.h. Course content: Advanced readings in historical development, educational philosophy, and role in modern society of sciences. Research and individual projects. Prerequisite: Consent of instructor.

24 180 Museum History 3 s.h. Course content: Development of major institutions and organizations in the field of curriculum development. Palm Beach, Florida, and the Metropolitan Museum of Art. Prerequisite: Consent of instructor. May be repeated.

24 181 Museum Ethnography 3 s.h. Course content: Ethnography, including students and others who are interested in the history of the museum. Not open to students who have not completed M.U.S. 110, 111, 112, or 113.

Undergraduate Programs
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. may not, count more than 16 semester hours of credit work in music toward the 124 semester hours required for graduation; and 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. Area of concentration offered in both programs are performance, music education, music therapy, composition/analysis, 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 in advance of registration. All transfer students must also take the above examination in music theory (see "Graduate Programs" below). Students with deficiencies in theory must register for 25 11 Review Theory. An acceptable candidate in music must satisfy all College of Liberal Arts general requirements except the historical perspective requirement (see the "College of Liberal Arts" section of the Catalog for these requirements), and the following course requirements of the School of Music:

25 1-2 Literature and Theory I 6 s.h.
25 3-4 Aural Skills II 4 s.h.
25 5-6 Theory and Literature 6 s.h.
25 7-8 Aural Skills III 4 s.h.
25 9-12 History of Music I 6 s.h.
25 17-18 Group Instruction in Performance 8 s.h.
The successful completion of proficiency exams and the successful completion of the above course requirements.

Elective Attendance (required of wind, percussion string, and voice majors for seven semesters)

25 15-16 Other Electives 8 s.h.
25 11-17 Arranging for Band 2 s.h.
25 12-12 Jazz Improvisation I 2 s.h.
25 13-12 Jazz Improvisation II 2 s.h.
25 14-14 Orchestration 4 s.h.
25 14-14 Contemporary Forms 4 s.h.
25 17-17 Total Forms 8 s.h.
25 18-18 Elements of Music Literature 16-124 s.h.
Music/LIBERAL ARTS

25:149 Analysis of Music Literature, 1750-1825 3 s.h.
25:155 Analysis of Music Literature, 1825-1900 3 s.h.
25:156 Analysis of Music Literature, 1900-Preilet 3 s.h.
25:157 Analysis of Music Literature, Special Topics 3 s.h.
25:153 Keyboard Harmony 2 s.h.
25:312 Gregorian Chant 3 s.h.
25:2132 Flute 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 in Sinfonietta or Chamber Orchestras. Keyboard majors may substitute accompanying in place of major ensemble participation for two semesters during their junior and/or senior years, with the consent of their advisors. Any request for adjustment of this requirement shall be submitted in writing to a reviewing committee consisting of the ensemble directors involved, the adviser, the major teacher, and a representative from the Director's Office. This committee will meet regularly at its meetings held each early registration period.

Major Ensembles
25:181 University Chorale - University Singers
25:192 University Choir - Kantorei
25:182 Chamber Orchestra - Sinfonietta
25:183 Orchestra
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, a student enrolling in the major must complete the following requirements for the music history major:

A senior thesis replaces the research paper requirement of the major 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 one of the language offices, the student must complete the following requirements:

Music Therapy Admission to the program in music therapy is based on demonstrated minimum knowledge skills and successful completion of 25:114 Orientation to Music Therapy. The number of students admitted to the program is limited by the type and amount 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 facility is required before the completion of the degree and certification. Certification is a registered music therapist (RMT). For more job opportunities, students also are strongly encouraged to complete the music therapist certification requirements.

Complete information on the program is available from the Music Department.
available in the music education office.
Course requirements for the major in music therapy are:
25:94 Music Therapy 1-3 s.h.
25:95 Recreational Music Therapy 2 s.h.
25:98 Orientation to Music Therapy 2 s.h.
75:146A Ethnomusicology of Music 2 s.h.
25:148 Behavioral Research in Music Therapy 3 s.h.
25:136 Music Therapy Techniques: Adult 3 s.h.
25:135 Music Therapy Techniques: Children 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. Upon 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 aspiring 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 his or her major instrument or voice. Following admission, the student undertakes applied music study as recommended by the advisor.

Ensemble participation is that 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 Lubar 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 and eligible 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 honor performances, solo and/or ensemble; honors compositions, orchestrations, arrangements; and honors theses, research papers, editorials, translations, etc.

A combination of at least two of these types of projects is required. None of the projects may duplicate elements assigned in other courses or required for globalization, such as 25:144 Senior Recital.

Honors students in music are encouraged to take graduate-level 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 advanced examination in music history (course, ear training, forms, and counterpoint), and history and literature, before fall or her first registration. The advanced examination is given each session on 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 may elect a minor in music theory by completing the following courses:
25:145 Comprehensive Forms 3 s.h.
25:147 Total Forms (unless excluded by advisory exam) 3 s.h.
25:234 Observation and Practice Teaching in Theory 1-3 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 1750-1855
25:150 Analysis of Music Lit 1855-1900
25:151 Analysis of Music Lit 1900-Present
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

25:321 Introduction to Graduate Study in Music

Music Theory

25:145 Corresponding Forms or
25:147 Total Forms

One elective in an analysis of music literature (25:148-163) or equivalent.
If elected 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 elected 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 II or equivalent, or satisfactory advisory examination.
If elected from 25:301 and 25:302 as a result of the advisory examination, the student should elect another course from the music history sequence 25:303-314, 25:318-317, 25:355, 25:356-357, 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, and 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 student, 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 all required materials in his or her indicated area of concentration, as follows:

Composition—representative musical scores.
Theory—analyses or research papers in music education—no materials required.
Performance (including conducting)—audition.

Musicology—research papers.

Pedagogy—contact School of Music for information about specific admission and curricular requirements for each area is available from the director of the office.

Master of Fine Arts

The M.F.A. is for students of aspiration ability 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 granted. 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 the final examinations, with a minimum combined total of 60 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 studies and seminars courses 25,149-162 or equivalent.
- One or more additional courses in the history of music chosen from courses listed in the master's degree requirements.
- 25,200 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 the courses for 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 majors may submit accompaniment in place of a major ensemble, at the discretion of their advisors.

Doctor of Philosophy

Areas of concentration 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 audition in his or her major performance area.

Information about specific admission and curricular 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. Yuletides may substitute the execution of one or more major works in a large-scale work for one of their 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—analyses or research papers in music education—research papers in music literature—research papers and essay.
Performance (including conducting)—audition.
Music history and musicology—research papers, theses.

Graduate Awards

Qualified 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 avocational interest in the field include 11,390-40 Masterclasses of Music; 25,159 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 25,150 Fundamentals of Music. 25,164 Beginning Guitar is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment.

Participation in School of Music ensembles is open to all university students with the ensemble director's approval (see overview of list of major ensembles). Nonmajors interested in performance should consult music advisers 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 electronically 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 School of Music and Art and its film, dance, theater, and creative writing areas. The center's basic purpose is to encourage student artists to develop their creative skills through such diverse and often interrelated media as class projects, films, theater, and writing.

Facilities

The University of Iowa Center for the Arts has one of the nation's finest teaching and research facilities in music. In addition to class and rehearsal rooms, the Music Building includes 55 teaching studios, 13 practice rooms, a large library, two electronic music laboratories, a record lab, and a large recital hall. The Music Building also includes a large recital hall, ample solo and ensemble practice facilities, professional recording laboratories, a fine arts computer studio with state-of-the-art equipment, and facilities for digital audio, video, and multimedia production.

Library resources include more than 50,000 volumes of music books, more than 2,100 rolls of microfilm, a microfiche collection, and a microfiche library of approximately 300 titles, several 5,000 LP records, and 175 periodicals in several languages. The acquisition program gives particular attention to a strong reference collection of important works of significance for research and performance. The library's quarters in the Music Building provide 24 study carrels, a microfiche reader, and an extensive music book room, a large reading area, and a separate area for the Goldenbell
Library, one of the world's most famous collections of bad music.

Courses

Primary for Undergraduates

Theory and Composition

25:1 Literature Theory | 3.0
Lecture, written, oral, and visual skills; condensation of music and fundamentals of harmony, Counterpoint 20.1.

25:2 Literature Theory I | 3.0

25:3 Audition Skills I | 3.0

25:4 Audition Skills II | 3.0

25:5 Literature Theory II | 3.0
Harmonic, contrapuntal, and tonal practices from sixteenth century to present. Prerequisite: 25:2 or 25:4. Counterpoint 6.7.

25:6 Literature Theory III | 3.0
Combination of 25:5, which is prerequisite. Counterpoint 7.8.

25:7 Audition Skills III | 3.0

25:8 Audition Skills IV | 3.0

25:9 Fundamentals of Music | 3.0
Musical notation; elementary melody, rhythm, and harmonic theory: basic aural skills; for students with little or no previous experience. Open to music majors.

25:11 Belief Theory | 3.0

25:12 Foundations of Music | 3.0

25:13 Undergraduate Composition | 2.0
Prerequisite: 25:2.

History and Research

10:17 Franz Blume and Art 1990-WWII | 3.0

25:31 Theory of Music I | 3.0
Prerequisite: For music majors, 25:5, 25:6, and 25:8, or equivalent; for non-majors, consent of instructor.

25:32 History of Music II | 3.0
Combination of 25:31, but may be taken as individual unit. Prerequisite: same as 25:31.

25:33 Undergraduate Seminar | 3.0
Introductions to various aspects of music, with emphasis on communicating both orally and in written form. Prerequisite: 25:31 or consent of instructor.

25:34 Workshops of Vocal Music | 3.0

25:35 History of Music I | 3.0
May be repeated.

25:36 Aspects of American Jazz Popular and Film Music | 3.0

25:37 Survey of Opera I | 3.0
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 names are indicated, students preparing for music teacher certification should register under the education number.

25:38 Group Instruction in Piano | 1.0
Beginning instruction for music majors whose individual participation includes voice in an orchestra or band-ensemble; study includes development of skills in sight reading, technique, harmonization, transcription, improvisation, and simple interpretation.

25:73 Group Instruction in Voice | 1.0
Elementary to early intermediate instruction in vocal major whose principal performance medium is in an orchestra or band-ensemble; study includes development of skills in sight reading, vowel and consonant,, and simple interpretation. Prerequisite: 25:71 or permission of professor-examiner.

25:74 Group Instruction in Voice | 1.0
Intermediate instruction for music majors whose principal performance medium is voice in an orchestra or band-ensemble; combination of skills introduced in 25:73: introduction of easy arias and ensemble literature. Prerequisite: 25:71 or permission of professor-examiner.

25:75 Voice Training | 3.0
Study of arias and ensembles for study of a secondary vocal medium. Open to vocal majors with approval of instructor.

25:110 Chamber Music for Study of a Secondary Vocal Medium | 3.0

25:150 Instrumental Techniques | 3.0
For perspective teachers in public schools; study of techniques for percussion instruments. Same as 75:140.

25:151 Chamber Music and Conducting | 3.0
Prerequisite: 25:107 or consent of instructor.

25:152 Chamber Music and Conducting | 3.0
Prerequisite: 25:107 or consent of instructor.

25:170 Basic Reading Skills | 3.0

25:170 Intermediate Reading Skills | 3.0
Prerequisite: 25:170 or equivalent, and 25:9 or equivalent.

25:180 Analysis of Music Literature, 1790-1850 | 3.0
May be repeated. Offered spring semester. Prerequisite: 25:9 or equivalent, and 25:8 or equivalent.

25:181 Analysis of Music Literature, 1850-1920 | 3.0
May be repeated. Offered spring semester. Prerequisite: 25:9 or equivalent, and 25:8 or equivalent.

25:182 Analysis of Music Literature, Special Topics | 3.0
Scope and content chosen by instructor. Prerequisite: 25:9 or equivalent, and 25:8 or equivalent.

25:185 Survey of Modern Art History | 3.0
Applied study of through the arts in seveneenth- and eighteenth-century Europe. Prerequisite: 25:8 and sufficient keyboard proficiency.

25:186 Comparative Seminar | 3.0

25:187 Designation | 3.0

25:188 Performance practice and analysis of Grottesque Models | 3.0
Prerequisite: 25:9 or equivalent.

25:190 Singing Pedagogy | 3.0
Prerequisite: 25:9 or equivalent.

25:223 Advanced Composition | 3.0
Prerequisite: 25:9 or consent of instructor. Counterpoint 50:166.

History, Literature, and Research

25:283 World Music I | 3.0
Introduction to the music of the indigenous peoples of sub-Saharan Africa, the Americas, and Australia. Open to undergraduate majors and minors. Offered spring semester of every year.

25:284 World Music II | 3.0

25:285 World Music | 3.0

25:348 History of Black Music | 3.0

25:351 Musical Instruments | 3.0

25:352 Early Eighteenth- and Nineteenth-Century Composers | 3.0

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**Minor Field (open to nonmajors)**

Students electing two applied music courses in the same semester are assessed a $30 fee. All music majors are expected to attend seminars of the applied music courses for which they register.

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**Major Field**

The major field of performance for the non-music majors is offered for a fee of $30 per semester per course. A course consists of one half-hour lesson or two hours of choice instruction weekly, at option of instructor.

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**Comprehensive Exams**

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Nuclear Medicine Technology

See “Division of Associated Medical Sciences” in the “College of Medicine” section of the Catalog.

Philosophy

Department Chair: Luiz Alys
Family: phenomenology, logic, history, metaphysics

PhD members:
- James Downing
- Eben Faleas
- Richard Farnsworth
- William Gross

Undergraduate Program

The undergraduate program in philosophy is designed to impart knowledge of the fundamental issues and the major developments in Western philosophy while strengthening the logical and analytical skills of the student. A major in 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 college teaching position in psychology.

Bachelor of Arts

The Bachelor of Arts degree requires a minimum of 27 semester hours of credit in philosophy numbered 20-102 to 20-190, and must include:
- 20-103 Introduction to Symbolic Logic
- 20-111 Ancient Philosophy
- 20-155 Nineteenth-Century Philosophy or
- 20-156 Eighteenth-Century Philosophy

At least the final 12 semester hours of philosophy course that are used to complete these requirements must be taken at The University of Iowa. An undergraduate major in philosophy is an excellent preparation for graduate work in a philosophy graduate program.
Physical Education—Field House

Department Chair: Dave M. Keegstra
Faculty: Professors Linda E. Atten, Jane M. Appley, Dennis R. Cazenay, Carl V. Gsell, James G. Ner, Jerry A. Meynard, Charles M. Taylor
Associate Professors Barry F. Hennes, R. Richard Holzinger, David F. Lose
Degree offered: B.A., B.S., 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. Though the recent job shortage in teaching and coaching 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:

10/21-22 Physical Education 2 a.h.
27/11 Introduction to Physical Education 2 a.h.
27/21-22 Teaching of Recreational Sports 2 a.h.
27/31 Teaching of Gymnastics 2 a.h.
27/41 Teaching of Swimming 2 a.h.
27/51 Human Anatomy 2-3 a.h.
27/51 First Aid 0 a.h.
27/71 Introduction to Athletic Training 2 a.h.

Bachelor of Science in Physical Education (Alternative Careers)

The Bachelor of Science degree in physical education includes courses in business to prepare students for coaching roles in sports clubs, health spas, YMCA-YWCA's, commercial recreation, and industries where physical fitness of employees is important. Students are also prepared for private enterprise, such as the operation of a fitness or exercise center.

Program requirements include:

10/21-22 Physical Education Skills 6 a.h.

The program also requires one of these seven coaching courses:

27/32 Coaching of Gymnastics 2 a.h.
27/33 Coaching of Football 2 a.h.
27/34 Coaching of Baseball 2 a.h.
27/35 Coaching of Track and Field Athletics 2 a.h.
27/36 Coaching of Basketball 2 a.h.
27/37 Coaching of Competitive Swimming 2 a.h.
27/38 Coaching of Wrestling 2 a.h.

These courses are required for teaching certification in physical education.

10/21-22 Growth and Motor Development 2 a.h.
10/22 Method and Materials in Elementary School Physical Education 2 a.h.
27/27 Teaching of Dance 2 a.h.
27/75 Educational Psychology and Recreation 3 a.h.
75/31 Pre-Physical Education Practicum 1-2 a.h.
75/32 Practicum in Elementary and Secondary Physical Education 3 a.h.
75/181 Observation and Laboratory Practice in the Secondary School 3 a.h.
75/182 Laboratory Practice in Elementary and Secondary Schools 3 a.h.

Bachelor of Science in Physical Education (Alternative Careers)
commercial potential, such as arcology, archery, badminton, billiards, bowling, canoeing, cycling, dance, juggling, new games, physical fitness, racquetball, self-defense, scuba, skin snorkeling, table tennis, tenessee, or weight training, and that have these three activity that involves a trip and trip planning, such as rock climbing, walling, or skiing."

27:11 Introduction to Physical Education 0 a.h.
27:21 Teaching of Recreational Sports 1 a.h.
27:31 Teaching of Gymnastics or 2 a.h.
27:37 Teaching of Swimming 2 a.h.
27:53 Human Anatomy 2-3 a.h.
27:56 First Aid 0 a.h.
or
Red Cross Standard First Aid Card Cardiopulmonary Resuscitation Certification 0 a.h.
27:57 Introduction to Athletic Training 2 a.h.
27:99 Special Projects 1-3 a.h.
27:107 Biomechanics of Physical Education 3 a.h.
27:120 Teaching Motor Skills 3 a.h.
27:121 Elementary Exercise Physiology 2 a.h.
College of Business Administration course work (students with advisors for selection) 24 a.h.
17:41 Food, Nutrition, and You 3 a.h.
72:72 College Human Physiology 4 a.h.
Two of the following:
104:108 Recreation Program 3 a.h.
104:109 Administration of Recreation I 4 a.h.
104:30 Park and Recreation Facility Management 3 a.h.
104:36 Principles of Outdoor Recreation 3 a.h.
10-13 semester hours from the following:
27:50 Leadership Training III 1 a.h.
27:58 Practicum in Special Physical Education 3 a.h.
27:103 Administration of Physical Education and Athletics 2-3 a.h.
27:147 Knowledge and Performance Tests in Physical Education 2 a.h.
28:142 Contemporary Issues of Health Education 3 a.h.
72:199 Counseling for Related Professional 2-3 a.h.
17:71 Growth and Motor Development 2 a.h.
17:106 Child Development 3 a.h.
17:108 The Adolescent and Young Adult 3 a.h.
31:19 Psychology in Business and Industry 3 a.h.
31:158 Psychology in Management 3 a.h.
7:1130 Drug: Their Nature, Action, and Use 2 a.h.
16:158 Communication and Public Relations 3 a.h.

The department also recommends that the student earn certification as an entry level of American College of Sports Medicine.

Bachelor of Arts

The predoctoral Bachelor of Arts program is open only to students 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 aesthetics.

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 courses to fit individual interests and needs.

Required foundational course:
413-14 Principles of Chemistry 6 a.h.
413-1 Laboratory 1 a.h.
411-1 Organic Chemistry I 3 a.h.
Mathematics through Calculus 3-5 a.h.
28:111-12 College Algebra/Trigonometry 8 a.h.
Required professional courses in physical education and related areas:
27:11 Introduction to Physical Education 0 a.h.
27:21-22 Teaching of Recreational Sports I & II 4 a.h.
27:53 Human Anatomy - 2-3 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.
27:108 Teaching Motor Skills 3 a.h.
72:100 Human Physiology 2 a.h.
72:502 Exercise Physiology 2 a.h.
17:302 Physiology of Exercise Laboratory 2 a.h.
90:211 The Chemistry of Biological Materials 3 a.h.
98:130 Metabolism 3 a.h.

Minor in Physical Education

The minor requires completion of 18 semester hours from the following courses:
27:48 Special Projects 1-3 a.h.
27:103 Administration of Physical Education and Athletics 2-3 a.h.
27:107 Biomechanics of Physical Education 2-3 a.h.
27:108 Teaching Motor Skills 5 a.h.

27:137 School Physical Education Programs 2-3 a.h.
27:141 Elementary Exercise Physiology 2 a.h.
27:149 Psychology of Sport 3 a.h.

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 grant the teacher the 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 2-3 a.h.
27:56 First Aid 0 a.h.
27:57 Introduction to Athletic Training 2 a.h.
Coaching of sport of interest 27:103 Administration of Physical Education and Athletics 2-3 a.h.
27:105 Biomechanics of Physical Education 3 a.h.
27:108 Teaching Motor Skills 3 a.h.
27:141 Elementary Exercise Physiology 2 a.h.
15:192 Observation and Laboratory Practice in the Secondary School 2-3 a.h.
"May be waived on the basis of appropriate coaching experience."
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 athletics 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 basic M.A. program in physical education:

- *Human anatomy* 2 s.h.
- *Human physiology* 3 s.h.
- *Physical biology or equivalent* 2 s.h.
- *Administrative of physical education and athletics* 2 s.h.
- *Methods in physical education* 2 s.h.
- *Practicum teaching or equivalent* 3 s.h.
- *Teaching swimming techniques* 1 s.h.
- *Teaching of swimming* 1 s.h.
- *Rhythmic exercises* 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 physical education, including 27-301 Non-theory Seminar and at least one course from each of these three groups:

**Group I**

- 27-105 Adapted Physical Education 2 s.h.
- 27-187 Measurement and Evaluation in Physical Education 3 s.h.

**Group II**

- 27-245 Supervision of Physical Education 3 s.h.
- 27-257 Public School Curriculum in Physical Education 3 s.h.
- 27-308 Human Perceptual-Motor Performance 3-4 s.h.
- 27-145 Psychology of Sport 3 s.h.

Group III:

- 27-157 Biomechanics of Movement 3 s.h.
- 27-241 Scientific Principles of Physical Conditioning 3 s.h.

**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 regarded as the first step toward the Ph.D., in one of nine 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, economics, 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 and the candidate, and by the M.A. advisor.

Candidates who have completed their graduate study leading to 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:

- 27-240 Professional Preparation in Physical Education 2 s.h.
- Two courses outside the area of specialization, from the following: 17-153 Advanced Anatomy and Kinesiology 2 s.h.
- 72-200 Exercise Physiology 3 s.h.
- 27-302 Physiology of Exercise Laboratory 3 s.h.

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 Movement 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.

These tests of research:
- 7P-143 Introduction to Statistical Methods 3 s.h.
- 65-161 Introduction to Biostatistics 3 s.h.
- 220-100 Introduction to Computing with FORTRAN 3 s.h.
- 7P-248 Data Processing 3 s.h.

Specialization areas:
- 27-401 Seminar in Scientific Writing 1 s.h.
- 27-404 Thesis (A) 4 s.h.
- Courses approved by advisor 5-7 s.h.
- Electives 4-6 s.h.
- Total 30 s.h.

Doctor of Philosophy

A Ph.D. candidate in physical education should 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, and coaching. Bachelor's, master's, and doctoral courses in physical education, exercise physiology, measurement, and evaluation in physical education; motor behavior, and therapeutics.

The program for the M.A. degree in physical education, together with the Ph.D. core courses, provides 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 initial 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 graduate with a minor in physiology.

The Ph.D. core requirements include:

- 7P-242 Selected Applications of Statistical Techniques 3 s.h.
- or
- 7P-243 Intermediate Statistical Methods 4 s.h.
- or
- 63:185 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.

The foreign language requirement differs for each area of specialization. All candidates are required to demonstrate proficiency in a foreign language satisfactory complete 7P-348 Data Processing or 22C:100 Introduction to Computing with FORTRAN.

The candidate must complete a minimum of 30 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:110 Special Educational Persons 3 s.h.
- 27:201 Research 3 s.h.
- 7T: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.
- 70:201 Foundations of School Administration 3 s.h.
- 27:201 Research 4 s.h.
- 27:207 Advanced Administration of Physical Education 3 s.h.
- 27:217 Advanced Administration of Athletics 3 s.h.
- 60:203 Gross Human Anatomy for Graduate Students 8 s.h.
- or
- 60:108 Human Anatomy 8 s.h.
- 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.
- 27:296 Electrophysiology in Kinesiology and Biomechanics 3 s.h.
- 57:192 Health Ed in Energy Engineering 6 s.h.
- 7F-246 Mechanics of Fluids, Transfer Processes, and Deformable Bodies 3 s.h.
- 681:154 Intermediate Dynamics 3 s.h.
- 60:106 Human Anatomy 4 s.h.
- 27:203 Practicum in College Teaching 2-4 s.h.
- 27:206 Electrophysiology in Kinesiology and Biomechanics 3 s.h.
- 27:207 Research Techniques in Biomechanics 4 s.h.
- 27:211 Secondary School Curriculum 3 s.h.
- 7P-161 Introduction to Theories of Learning 3 s.h.
- 27:201 Research 3 s.h.
- 27:338 Seminar: Models and Theory in Curriculum 2 s.h.
- 27:243 Psychological Bases of Curriculum Construction 3 s.h.
- 37:112 Cell, Tissue, and Organ Biology 3 s.h.
- 60:203 General History for Graduate Students 5 s.h.
- 57:192 Endocrinology Laboratory 2 s.h.
- 7T:205 Pharmacology for Health Sciences Medical 3 s.h.
- 7T:205 Exercise Physiology 2 s.h.
- 7T:205 Physiology of Exercise Laboratory 2 s.h.
- 7T:212 Medical Physiology 2 s.h.
- 7T:274 Advanced Exercise Physiology Laboratory 3 s.h.
- 7T:302 Advanced Exercise Physiology Laboratory 3 s.h.
- 99:130 Metabolism 3 s.h.
- 7T:244 Correlation and Regression 3 s.h.
- 22B:155 Introduction to Probability and 3 s.h.
- 22B:154 Introduction to Mathematical Statistics I 3 s.h.
- 7T:246 Design of Experiments 4 s.h.
- 7T:250 Construction and Use of Evaluation Instruments 3 s.h.
- 7T:202 Educational Measurement and Evaluation 3 s.h.

### Motor Behavior and Learning
- 27:201 Research 6 s.h.
- 37:312 Selected Issues: Information Processing and Motor Control 3 s.h.
- 27:314 Seminar in Motor Behavior Research 2 s.h.
- 7T:245 Design of Experiments 4 s.h.
- 60:110 Medical Neuroanatomy 3 s.h.
- 7T:222 Advanced Central Nervous System Physiology 2 s.h.
- 101:275 Evaluation of Selected Neurological Disorders arr.
- 101:272 Medical Instrumentation arr.

Three courses, one a graduate-level Pracicum, 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.

### Theatricals

All Students
- 101:214 Advanced Seminar in Physical Therapy 3 s.h.
- 101:325 Analysis of Scientific Literature 2 s.h.
- 101:337 Research in Therapy 3 s.h.
- 101:290 Teaching Practicum or
- 101:283 Clinical Educational Practicum or
- 101:294 Practicum in Research 3 s.h.

7W-262 Facilitating Learning in Health Education 3 s.h.
- 101:214 Advanced Seminar in Physical Education 3 s.h.
- 101:325 Analysis of Scientific Literature 2 s.h.
- 101:290 Teaching Practicum or
- 101:283 Clinical Educational Practicum or
- 101:294 Practicum in Research 3 s.h.

7W-252 Facilitating Learning in Health Education 3 s.h.
- 101:290 Teaching Practicum or
- 101:283 Clinical Educational Practicum or
- 101:294 Practicum in Research 3 s.h.

Cardiovascular Emphasis
- 7T:203 Exercise Physiology 2 s.h.
- 7T:212 Medical Physiology 2 s.h.
- 7T:274 Advanced Exercise Physiology Seminar 2 s.h.
- 7T:271 Advanced Cardiovascular Pharmacology and Physiology 2 s.h.
- 7T:290 Special Topics 3 s.h.
- 99:130 Metabolism 3 s.h.
- 99:130 The Chemistry of Biological Materials 3 s.h.
- or
- 99:183 Biochemistry for Medical Students 3 s.h.
Musculoskeletal Emphasis 3 s.h.
273:281 Advanced Anatomy of Muscles 2 s.h.
101:225 Electron Microscopy in Microbiology and Biomechanics 3 s.h.
60:205 General Pathology for Graduate Students 5 s.h.
or
657:190 Readings in Material Engineering 3 s.h.
Neuromuscular Emphasis 3 s.h.
60:110 Medical Human Anatomy 3 s.h.
72:282 Advanced Central Nervous System Physiology 2 s.h.
101:255 Electrophysiology in Kinesiology and Biomechanics 3 s.h.
37:180 introduction to Neuromusculature 3 s.h.
or
37:181 Neuropsychology 3 s.h.

Admission
Admission to the Ph.D. program is based on the applicant's grade-point average on work completed for the M.S. or Ph.D. degree, and on his or her score on the Graduate Record Examination. Aptitude Test. To be considered for admission, the student must have earned a grade-point average of 3.0 or higher on all graduate work undertaken.

For admission to the Ph.D. program in Therapeutics, the applicant must be a graduate of an approved program of professional training, be a licensed physical therapist, and must meet the master's degree requirements. (Note: The master's degree need not be in physical therapy.) Program entry is limited to the fall semester. Application for admission is February 15 for notification by April 1 and May 15 for notification by July 1.

Facilities
The Recreation Building and Field House provide excellent facilities for use in the physical education skills program, in the undergraduate and graduate instructional programs, and for student participation in intramural sports, recreational activities, and athletics.

Research laboratories for physiology of exercise, stress, motor behavior, and biomechanics are located in the Field House and provide excellent facilities for instruction and research at both the undergraduate and graduate level. Because of our cooperative efforts with other departments to facilitate specialization, physical education students utilize additional special facilities in other departments on the campus.

Courses

For Undergraduates and Graduates
37:27 issues and Trends in Physical Education and Athletics 3 s.h.
37:28 Fundamental Physical Education and Athletics 3 s.h.
37:28 Fundamental Physical Education 1 s.h.
37:29 Special Problems in Physical Education 3 s.h.
37:29 Special Problems in Physical Education 1 s.h.
37:31 Introduction to Physical Education 3 s.h.
37:31 Introduction to Physical Education 1 s.h.
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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 = 1 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, tumbling and apparatus.)

Rhythms 2 s.h.

(1 semester hour of ballet dance, 1 semester hour of modern dance or jazz)

Dance Education Area

2ED.29 Rhythmic Analysis of Dance 2 s.h.

2ED.73 Composition I 2 s.h.

2ED.74 Composition II 2 s.h.

7E.129 Methods and Materials of Teaching Children's Dance 3 s.h.

One of the following:

2ED.28 Dance Production 3 s.h.

2ED.115 Twentieth-Century Dance 3 s.h.

2ED.120 Dance in Education 2 s.h.

2ED.128 Teaching of Modern Dance 2 s.h.

At least 7 semester hours of the following:

2ED.18 Modern Dance 1-2 s.h.

2ED.19 Major Modern Dance I 1-2 s.h.

2ED.19J Jazz 1-2 s.h.

2ED.10 Ballet I 2 s.h.

2ED.11 Major Ballet I 1-2 s.h.

2ED.10J Major Ballet I 1-2 s.h.

2ED.13 Major Ballet II 1-3 s.h.

2ED.107 Major Modern Dance II 1-3 s.h.

2ED.108 Major Modern Dance 1-3 s.h.

Team sports 1 s.h.

Individual or dual sports 1-2 s.h.

Rhythms 2 s.h.

(1 semester hour of ballet 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

28:10 Introduction to Physical Education 1 s.h.

28:00 Anatomy 3 s.h.

28:01 Kinesiology 3 s.h.

28:106 Physiological Implications for Teaching Physical Education 3 s.h.

28:02 Measurement 2 s.h.

28:118 Methods and Administration of Physical Education 3 s.h.

28:121 History and Philosophy of Physical Education 3 s.h.

28:95 Psycho-Social Dimensions of Sport 3 s.h.

Sport Skills Requirements

Option 1

7 beginning level skills

2 intermediate level skills

1 officiating

Option 2

7 beginning level skills

3 intermediate or advanced level skills

Electives

At least 6 semester hours from:

28:14 Coaching Women's Sports 2 s.h.

28:35 Teaching of Sports 2 s.h.

28:37 Advanced First Aid 3 s.h.

28:71 Growth and Motor Development 2 s.h.

28:105 Care of Athletic Injuries 2-3 s.h.

28:142 Contemporary Issues of Health Education 3 s.h.

28:182 Sports Analysis 3 s.h.

Recommended

17:142 Nutrition 3 s.h.

6A:1 Introduction to Financial Accounting 3 s.h.

6F:100 Introductory Financial Management 3 s.h.

6M:31 Marketing 3 s.h.

6L:100 Administrative Management 3 s.h.

6E:1-2 Principles of Economics 3 s.h.

Internship Requirement

The student may elect to complete one internship for 6 semester hours of credit, or two internships for 3 semester hours each, in the following specialties:

Sports specialist

Fitness specialist

Sports administration

Sports marketing

Endorsement in Coaching

28:14 Coaching Women's Sports 2 s.h.

28:218 Advanced Coaching 2 s.h.

28:105 Care of Athletic Injuries 2 s.h.

28:108 Physiological Implications for Teaching Physical Education 3 s.h.

7E:1 Growth and Motor Development 2 s.h.

7P:108 Child Development 3 s.h.

7S:198 Coaching Practicum 1-3 s.h.

Health Education Secondary Approval

This secondary approval area (minimum standards, not a major) for Iowa

Enrollment 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.

27:53 Human Anatomy or

28:60 Anatomy 3 s.h.

46:56 Non-Prescription Drugs 2 s.h.

27:56 First Aid 0 s.h.

28:37 Advanced First Aid 3 s.h.

Red Cross certification

28:106 Physiological Implications for Teaching/Physical Education 3 s.h.

7C:112 Human Sexuality 3 s.h.

28:142 Contemporary Issues of Health Education 3 s.h.

28:144 Administration of School Physical Education 3 s.h.

28:146 Methods: Health instruction for Secondary Grades 3 s.h.

Approval to Teach Health in Grades K-9

To qualify for approval to teach health in grades K-9 within the elementary education program (Iowa endorsement 103), the student must earn at least 26 semester hours in that area of specialization, including these required courses:

17:41 Food, Nutrition, and You 3 s.h.

27:53 Human Anatomy or

28:60 Anatomy 3 s.h.

27:56 First Aid 0 s.h.

28:37 Advanced First Aid 3 s.h.

Red Cross certification

46:56 Non-Prescription Drugs 2 s.h.

28:106 Physiological Implications for Teaching Physical Education 3 s.h.

7P:108 Child Development 3 s.h.

7C:112 Human Sexuality 3 s.h.

28:142 Contemporary Issues of Health Education 3 s.h.

Honors

The Honors Program is designed to serve the interests of superior students. It gives the participants some research experience and a perspective on certain aspects of graduate work. The honors student in physical education takes 28:93-94 Honors Readings, compiles a reading or research project under supervision of a physical education faculty member, and prepares a paper summarizing project results. To be eligible for honors study in physical education, the student must have at least a 3.5 grade point average at the beginning of the junior or senior year, when the honors courses are taken. To qualify for the honors degree, the student must maintain at least a 3.0 average through the remainder of his or her degree work.

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 700 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 leadership roles in physical education, dance, and athletics. This department’s proud heritage of producing leaders has been honored 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 background for the selected specialization of the master’s and doctorate candidates.

The most common areas of specialization have been adaptive physical education, administration of athletics and physical education, methods and supervision, coaching, measurement and evaluation, sociology of sport, psychology of sport, and sports communication.

Internships are available in many areas, and are strongly encouraged for specialization in administration, supervision, coaching, and communications.

The graduate student group is composed of students from all over the world.

A research laboratory is available in Halsey Gymnasium. It is equipped primarily for psychosocial research, measurement, and motor-learning research. Other equipment needs may be met on an interdepartmental, intercollege basis. Computer terminals are available at Halsey Gymnasium, and complete University computer service is available as needed for research.

Master’s Degree

The M.A. 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 teaching, coaching, certification, or preparation for advanced degree work in the chosen area of specialization.

Doctoral Degree

Students 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 psychological 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 3 s.h.

*(For students 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 may be encouraged to submit a course of study to the graduate committee for consideration.

Students in both general curriculum and in an area of specialization work with an advisor in developing their program according to guidelines that have been set by the graduate committee.

Doctor of Philosophy

All doctoral students must 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.
28:401 Thesis 3 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 specializations have been approved:

- Administration of physical education/athleticism, measurement and evaluation, psychology of sport, and sociology of sport. Students desiring an area not listed should submit a plan for study for consideration.

Comprehensive Examination

The student writes an examination in the area of specialization, and also may be asked to do a part of the examination orally. The student and advisor 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

28:20 Dance Production 3 s.h.
28:299 Analytical Research of Dance 2 s.h.
28:73 Composition I 2 s.h.
28:74 Composition II 2 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.
28:174 Composition IV 2 s.h.
28:177 Beginning Laboratory 3 s.h.
28:247 Opera/Dance Theatre Production 3 s.h.
30.20 Preface to Medical Literature 3 h.

30.30 Clinical Practice 3 h.

30.40 History of Surgery 3 h.

30.50 Anatomy 3 h.

30.60 Physiology 3 h.

30.70 Pathology 3 h.

30.80 Pharmacology 3 h.

30.90 Microbiology 3 h.

30.100 Obstetrics 3 h.

30.110 Pediatrics 3 h.

30.120 Emergency Medicine 3 h.

30.130 Geriatrics 3 h.

30.140 Dermatology 3 h.

30.150 Neurology 3 h.

30.160 Psychiatry 3 h.

30.170 Radiology 3 h.

30.180 Cardiology 3 h.

30.190 Oncology 3 h.

30.200 Infectious Diseases 3 h.

30.210 Infectious Diseases 3 h.

30.220 Critical Care 3 h.

30.230 Emergency Medicine 3 h.

30.240 Anesthesiology 3 h.

30.250 Pain Management 3 h.

30.260 Palliative Care 3 h.

30.270 Ethics in Medicine 3 h.

30.280 Medical Law 3 h.

30.290 Medical Ethics 3 h.

30.300 Medical Genetics 3 h.

30.310 Medical Genetics 3 h.

30.320 Medical Genetics 3 h.

30.330 Medical Genetics 3 h.

30.340 Medical Genetics 3 h.

30.350 Medical Genetics 3 h.

30.360 Medical Genetics 3 h.

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30.750 Medical Genetics 3 h.

30.760 Medical Genetics 3 h.

30.770 Medical Genetics 3 h.

30.780 Medical Genetics 3 h.

30.790 Medical Genetics 3 h.

30.800 Medical Genetics 3 h.

30.810 Medical Genetics 3 h.

30.820 Medical Genetics 3 h.

30.830 Medical Genetics 3 h.

30.840 Medical Genetics 3 h.

30.850 Medical Genetics 3 h.

30.860 Medical Genetics 3 h.

30.870 Medical Genetics 3 h.

30.880 Medical Genetics 3 h.

30.890 Medical Genetics 3 h.

30.900 Medical Genetics 3 h.
The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics, but who do not wish to plan a 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

The following courses or their equivalents are required for the Bachelor of Science degree with a major in physics:

- 22M:26-28 Calculus I-II 8 s.h.
- 22M:27 Introduction to Linear Algebra 4 s.h.
- 22M:28 Calculus III 4 s.h.
- 22M:35-37 Engineering Calculus I-II 12 s.h.
- 22M:38 Differential Equations for Engineers 4 s.h.
- 22M:17-19 Introductory Physics I-II 12 s.h.
- 22M:15 Intermediate Mechanics 3 s.h.
- 22M:16 Introductory Quantum Mechanics 3 s.h.
- 22M:11 Statistical Physics 3 s.h.
- 22M:12-13 Electricity and Magnetism 6 s.h.
- 22M:12 Intermediate Laboratory (two semesters) 4 s.h.

Two additional courses, one of them at the 100-level, selected from:

- 22M:15 Optics 3 s.h.
- 22M:122 Electrons 4 s.h.
- 22M:122 Intermediate Laboratory (3rd semester) 3 s.h.
- 22M:123 Mathematical Methods of Physics 3 s.h.
- 22M:151 Atomic Physics 3 s.h.
- 22M:152 Nuclear Physics 3 s.h.
- 22M:153 Introductory Solid State Physics 3 s.h.
- 22M:154 Plasma Physics 3 s.h.

An additional five semester hours of introductory course work in another science or engineering field.

Undergraduate Major in Physics

The Bachelor of Science program is designed to serve either as preparation for graduate study in physics and related sciences, or as preparation for employment in research laboratories.
Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in astronomy:

22M:25-26 Calculus I, II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:35-37 Engineering Calculus I, II 12 s.h.
25:17-18 Introductory Physics I, II 12 s.h.
20:11-12 College Physics I, II 12 s.h.
22M:19 Introductory Physics III 12 s.h.
22M:61-62 General Astronomy 8 s.h.
22M:155 Intermediate Astronomy 3 s.h.
22M:117 Optics 3 s.h.
22M:118 Statistical Physics 3 s.h.
22M:119-120 Introduction to Astrophysics I, II 6 s.h.
22M:128 Electronics 3 s.h.
22M:129 Electricity and Magnetism 3 s.h.
22M:130 Intermediate Laboratory 2 s.h.
22M:137 Astronomical Laboratory 2 s.h.

Undergraduate Minor in Astronomy

The 18 s.h. of courses numbered above 100 required by the college must include 8 s.h. selected from the following list of courses.

22M:119-120 Introduction to Astrophysics I, II
22M:121 Solar System Astrophysics
22M:131 Radio Astronomy

Master of Science in Physics

The M.S. degree in physics is offered with a thesis option 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 a thesis defense or an oral defense. The student must select a thesis advisor and the final examination committee.

Master of Science in Astronomy

The M.S. degree in astronomy is offered with a thesis option or with a critical essay. Preliminary requirements include as for the M.S. in physics (see above). Course requirements are:

22M:115 Intermediate Mechanics 3 s.h.
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 Astrophysics 3 s.h.
29:120-121 Electricity and Magnetism I 1 s.h.
29:133 Advanced Laboratory 2 s.h.
29:137 Advanced Laboratory 2 s.h.
29:171-172 Mathematical Methods of Physics 5 s.h.
29:191 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 in his or her master's program as possible:

29:131 Radio Astronomy 3 s.h.
29:238-253 Theoretical Astrophysics 5 s.h.
29:232 Stellar Structure and Evolution 4 s.h.
29:235 Special Topics in Astrophysics 2 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. Show experimental skill, skill in modern physics, and astrophysics.

preparation and defense of a written dissertation based on this work.

All candidates for the Ph.D. must take at least 27 semester hours of 500-level courses in the department, excluding 29:250, 29:261, and seminars. The following minimum program is recommended as a preparation for the comprehensive examinations:

29:191 Atomic Physics 3 s.h.
29:192 Nuclear 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 5 s.h.
29:245-246 Quantum Mechanics I 1 s.h.

Advanced mathematics, such as the theory of functions of a complex variable and vector and tensor analysis, is used freely in these 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 student’s choice of more advanced and specialized courses will depend on the direction in which his or her interests develop. No more than 26 of the minimal 72 semester hours may be in research and seminars.

Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. The instructional facilities of the University’s Weeg Computing Center are available for research by students and staff of the department, and several other computers are available within the department. The central machine is a fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and mechanical shops for the use of advanced students and the research staff.

Experimental research is conducted in astronomy (optical and radio); low energy nuclear physics; plasma physics; solid state physics; magnetostrictive physics; solar-terrestrial, interplanetary, and planetary physics; atomic and molecular physics; low temperature physics; laser physics; and acoustics of musical instruments.

A more experimental space physics program is conducted in the department. Extensive facilities are available for construction of equipment for satellites and spacecraft, for the reception of satellite telemetry, and for computational and coding and analysis of data. A unique specialty in the National Accelerator Laboratory, which has been modified for energies up to 14 MeV, is used in studies of nuclear reactions induced by hydrogen, helium, lithium, and beryllium nuclei. The research on fundamental thermodynamics, electrical, and magnetic properties of metals, alloys, and compounds is conducted in the experimental solid state program, as are surface studies of crystals and semiconductors. Several experimental double plasma density waves are used to study confinement, nonlinear waves, and turbulence effects in high-temperature, steady-state plasmas. A variety of laser spectroscopy and molecular beam studies are carried out at the Iowa Laser Faculty.

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 12-meter parabolic reflector located at the North Liberty Radio Observatory near Iowa City. Current long-term research activities include intercontinental VLBI 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 29:205, 29:250, 29:261-12, 29:171-18, 29:50, and 29:61-62 are accepted toward the College of Liberal Arts general education requirements in the natural sciences.

Physics

Primarily for Undergraduates

29:400-403 Physics Lab I and II 2 s.h.

29:440-442 Physics Lab III and IV 2 s.h.

29:480-483 Physics Lab V and VI 2 s.h.

29:500-502 Physics Lab VII and VIII 2 s.h.

29:503-505 Physics Lab IX and X 2 s.h.

29:601-603 Physics Lab XI and XII 2 s.h.

29:604-606 Physics Lab XIII and XIV 2 s.h.

29:607-609 Physics Lab XV and XVI 2 s.h.

29:610-612 Physics Lab XVII and XVIII 2 s.h.

29:613-615 Physics Lab XIX and XX 2 s.h.

29:616-618 Physics Lab XXI and XXII 2 s.h.

29:619-621 Physics Lab XXIII and XXIV 2 s.h.

29:622-624 Physics Lab XXV and XXVI 2 s.h.

29:625-627 Physics Lab XXVII and XXVIII 2 s.h.

29:628-630 Physics Lab XXIX and XXX 2 s.h.

29:631-633 Physics Lab XXXI and XXXII 2 s.h.

29:634-636 Physics Lab XXXIII and XXXIV 2 s.h.

29:637-639 Physics Lab XXXV and XXXVI 2 s.h.

29:640-642 Physics Lab XXXVII and XXXVIII 2 s.h.

29:643-645 Physics Lab XXXIX and XL 2 s.h.

29:646-648 Physics Lab XLI and XLII 2 s.h.

29:649-651 Physics Lab XLIII and XLIV 2 s.h.

29:652-654 Physics Lab XLV and XLVI 2 s.h.

29:655-657 Physics Lab XLVII and XLVIII 2 s.h.

29:658-660 Physics Lab XLIX and L 2 s.h.

29:661-663 Physics Lab LI and LII 2 s.h.

29:664-666 Physics Lab LIII and LIV 2 s.h.

29:667-669 Physics Lab LV and LVI 2 s.h.

29:670-672 Physics Lab LVII and LVIII 2 s.h.

29:673-675 Physics Lab LIX and LX 2 s.h.

29:676-678 Physics Lab LXI and LXII 2 s.h.

29:679-681 Physics Lab LXIII and LXIV 2 s.h.

29:682-684 Physics Lab LXV and LXVI 2 s.h.

29:685-687 Physics Lab LXVII and LXVIII 2 s.h.

29:688-690 Physics Lab LXIX and LXX 2 s.h.

29:691-693 Physics Lab LXXI and LXXII 2 s.h.

29:694-696 Physics Lab LXXIII and LXXIV 2 s.h.

29:697-699 Physics Lab LXXV and LXXVI 2 s.h.

29:700-702 Physics Lab LXXVII and LXXVIII 2 s.h.

29:703-705 Physics Lab LXXIX and LXXX 2 s.h.

29:706-708 Physics Lab LXXXI and LXXXII 2 s.h.

29:709-711 Physics Lab LXXIII and LXXIV 2 s.h.
Political Science/LIBERAL ARTS

30.275 Particle Physics
3 h.
Topics vary each year; in year 2002 properties and phenomenology, new particle models, quantum field theory. No prerequisite; physics and mathematics; electromagnetism may be repeated.

30.277 Special Topics in Quantum Mechanics
3 h.
Selected advanced topics; emphasis on electronic structure, quantum electrodynamics, elementary particles, quantum field theory, and applications to chemistry. No prerequisite; physics and mathematics; some knowledge of quantum mechanics is recommended. May be repeated.

30.279 Stellar/Terrestrial Physics
3 h.
Astronomy of the Sun, and radio and particle emissions from solar and stellar systems; origin and nature of the gamma-ray burst field: the upper atmosphere of the other planets; nuclear astrophysics of the stars and clusters; black holes, and cosmology; supernovae and neutron stars and observational methods for their study. Prerequisite: 30.171. May be repeated.

30.281 Research in Physics
3 h.
Open to qualified students.

30.289 Advanced Physics Laboratory I
3 h.
Mechanical, electrical, and optical demonstrations and experiments and preparation of a final report. No prerequisite; physics and mathematics; open to qualified students.

30.295 Advanced Physics Laboratory II
3 h.
Continuation of 30.289. May be repeated.

30.300 Numerical Methods in Physics
3 h.
Concentration on stability and accuracy in finite difference equations and algorithms used in modern physics, numerical analysis, and direct methods, may be repeated. Prerequisites: knowledge of FORTRAN, experience with computers.

Astronomy

30.242 Undergraduate Seminar in Astronomy
3 h.
Survey of astronomy; special attention to the atmosphere of the Sun, the major planets, the Moon, and the stars; interstellar medium, black holes, and cosmology; observational astronomy and observational methods.

30.244 Observational Astronomy
3 h.
Exposure of students to the various aspects of astronomical observation, such as instrumentation, ionospheric effects, meteorological effects, and data presentation: radio, earth, moon, planets and satellites, meteors, comets, asteroids, meteors, and interplanetary dust. Emphasis on observational techniques, observational methods, and basic aspects of astronomical research.

30.245 General Astronomy
4 h.
A review of the nature of stars and stellar systems, stellar evolution, the interstellar medium in radii, continuum sources, infrared radiation, pulsars and quasars, cataclysmic variables, and neutron stars; emphasis on observational techniques, observational methods, and basic aspects of astronomical research.

30.264 Reading in Astronomy
3 h.
Open to qualified students.

For Undergraduates and Graduates

30.266 Introduction to Astrophysics
3 h.
Introduces the basic ideas and concepts of astrophysics: methods for the interpretation of astronomical data; preparation for advanced work in astrophysics. No prerequisite; physics and mathematics; may have been studied previously.

30.273 Introduction to Astrophysics
3 h.
Fundamentals of stellar astronomy and gravitational physics. Evolution of stars, stellar interiors, stellar spectra, binary stars, interstellar gas and dust, and galaxies and generic theories. Stellar evolution, nebulae, radio processes, radiation processes in galaxies and clusters. Notes, books, and special assignments. No prerequisite; physics and mathematics; may be repeated.

30.275 Bachelor of Arts in Political Science
3 h.
A student seeking the B.A. degree with a major in political science must complete 32 semester hours of course work in political science and 12 in one of these departments: economics, geography, history, journalism, philosophy, psychology, sociology, anthropology. Course work 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:

30.310 Introduction to American Politics
3 h.
30.315 Political Science Seminar
3 h.
30.320 Introduction to Political Thought and Political Action
30.400 Introduction to Comparative Politics
}

Bachelor of Science

30.321 Introduction to Political Behavior
3 h.

30.325 Political Science Seminar
3 h.
Open to qualified students.

30.329 Advanced Seminar in Political Science
3 h.
30.335 Political Science Seminar
3 h.
30.339 Advanced Seminar in Political Science
3 h.
30.345 Political Science Seminar
3 h.
30.355 Political Science Seminar
3 h.
30.365 Political Science Seminar
3 h.
30.375 Political Science Seminar
3 h.
30.385 Political Science Seminar
3 h.
30.395 Political Science Seminar
3 h.
30.400 Introduction to Comparative Politics
3 h.

Bachelor of Science in Political Science

30.301 Introduction to Political Behavior
30.305 Introduction to Political Thought and Political Action
30.400 Introduction to Comparative Politics
30.500 Introduction to Political Behavior
30.505 Introduction to Politics

Bachelor of Science

30.301 Introduction to American Politics
3 h.
30.315 Political Science Seminar
3 h.
30.320 Introduction to Political Thought and Political Action
30.400 Introduction to Comparative Politics

in political science courses numbered above 100 is 11 semester hours. Twelve semester hours of courses in each of two of these areas: American history, world history, economics, geography, and sociology. Twenty semester hours 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 3.5 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 and a general grade-point average of at least 3.2. Honors students must take 30:180 Honors Introduction to Political Inquiry, and must complete at least two semesters of work in the advanced 30:182-183 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 Honors advisor prior to the beginning of the junior year.

Graduate Programs

At the graduate level, the department offers a major 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 a career in public service, policy analysis, or public affairs 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 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. No 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 he 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 when 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 multivariate 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 advisor in the first two years of Ph.D. training.

Comprehensive 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. take written examinations in three of these areas: American Politics and Public Policy; Comparative Politics; International Politics; Public Policy. Before taking the written examination, 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 examination.

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

semester of zoology; two semesters of chemistry; two semesters of physics; one semester each of chemistry and physics. B.S. majors also must complete at least one semester of calculus. The student should consult with his or her advisor concerning specific courses which will satisfy these requirements.

Minor

A minor in psychology is an option which should be attractive to students from a variety of disciplines. At least 12 of the 16 semester hours for a minor in psychology must be completed in this department. Courses in at least three of the five areas identified below must be included in a minor program.

Departmental advisers can assist students in identifying sequences of courses for a minor which appropriately complement the student's major.

Area Electives

Animal Learning and Biopsychology
31:17 Human and Animal 3 s.h.
31:123 Psychology of Learning 3 s.h.
31:128 Psychobiological Psychology and Psychophysiology 3 s.h.
31:128 Introduction to Behavioral Pharmacology 3 s.h.
31:129 Biological Aspects of Behavior 3 s.h.
31:135 Behaviors of Skin 3 s.h.

Child and Developmental Psychology
31:14 Introduction to Chld Devel 3 s.h.
31:112 Development of Social Behavior 3 s.h.
31:114 Cognitive Development of Children 3 s.h.
31:116 Psychology of Sex Differences 3 s.h.
31:148 Individual Differences in Developmental Psychology 3 s.h.
31:153 Psychology of Language II 3 s.h.

Clinical Psychology
31:13 Introduction to Clinical Psychology 3 s.h.
31:104 Personality 3 s.h.
31:161 Schizophrenia 3 s.h.
31:163 Abnormal Psychology 3 s.h.
31:166 Behavior Disorders in Children 3 s.h.
31:170 Behavior Modification 3 s.h.

Human Experimental Psychology
31:16 Introduction to Mental Processes 3 s.h.
31:102 Psychology as a Science 3 s.h.
31:110 Learning and Motivation in Child Developmental Psychology 3 s.h.
31:118 Psychology of Language I 3 s.h.
31:119 Memory and Cognition 3 s.h.
31:132 Motivation 3 s.h.
31:133 Perception 3 s.h.

Social Psychology
31:16 Introduction to Social Psychology 3 s.h.
31:103 Development of Children's Social Behavior 3 s.h.
31:104 Attitude Change 3 s.h.
31:107 Environmental Stress 3 s.h.
31:108 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 3.2 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 advisor 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 the 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 as many as four areas of study, 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 and 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 12 semester hours outside the primary training area to develop a reasonably broad background in the discipline of psychology as a whole. The student will map his course work outside the primary training area, in consultation with his committee, to cover two areas somewhat among the training areas, and also to cover 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 becomes familiar with the literature, strategies, and special techniques in one or more research areas through engagement in individually-sponsored 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. Advanced 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 on the M.A. project, the comprehensive 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 16 semester hours in this department. The course work must include a statistics sequence, a learning course, and at least one course outside the primary area. The student also must complete an acceptable written thesis and conduct a successful oral defense of the thesis.

**Master of Arts without Thesis**

The Master of Arts degree without thesis is an advanced degree in those few students who terminate their work in this department after four semesters. Awarding of degree requires satisfactory completion of at least 38 semester hours of graduate credit in psychology, including a written thesis. At least 24 semester hours in this department. The course work will include a statistics sequence, a learning course, and at least one course outside the primary area. The student also must perform successfully on a written and/or oral examination covering the area of specialization.

**Graduate Training Areas**

**Animal Learning and Physiological Psychology**

The focus of the program in animal learning and physiological psychology is on the application of learning principles. The area is primarily nonhuman subjects, although the application of behavior analysis and other biological principles. Students in this program have the opportunity to learn the modern analytical and laboratory methods in computer-assisted experimentation, electronic instrumentation, neurophysiological and histological techniques, and biochemical assay procedures. Special faculty strengths are in the fields of classical and operant conditioning, comparative psychology, motivation, neuropharmacology, neuroendocrinology, and neuroanatomy.

Faculty members in the animal learning and physiological psychology area 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 such emerging interdisciplinary fields as behavioral medicine and behavioral science.

**Child and Developmental Psychology**

Students in the child and developmental program 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 such areas as language development, learning, and memory, the development of social judgment, senory development, and abnormal development. Most of these specializations require substantial preparation in at least one of the other training areas in the department. The program does not have a specific field focus but consists of faculty members in the department in a number of subject areas. Many of these faculty members in the department in a number of subject areas. Many of these faculty members participate in a number of areas, such as the College's psychology program and the center for research in psychology.

**Clinical Psychology**

The clinical program emphasizes an empirical approach to the study of psychopathology. It is designed for students who are primarily interested in developing scholarly understanding of psychological phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Recognizing that students must become familiar with clinical materials and competent in the application of psychological skills, the department closely integrates practical experience in the Center for Consultation C. Service Psychology Clinic with course work and with supervised research experience.

Students in the clinical program may develop special competence in each area as psychopathology, personality, psychodynamics, depression, schizophrenia, 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, otorhinolaryngology, and pediatrics, such as the Health Sciences Research Center, the Gerontology Research Program, and from nearby education agencies; partly as a consequence of such collaboration, interest in medicine 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 students have opportunities for gaining additional preclinical experience through placements in clinical facilities maintained by local, state, and University agencies. Students either 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 program in one of the three broad subareas of research processes, experience and perception, and experimental child psychology. Students specializing in cognitive processes acquire expertise in the areas of perception, learning, and language behavior. Students with interests in experience and perception may concentrate on studies of perception, auditory processes, or mathematical models of psychophysics. Students in experimental child psychology may concentrate 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 experimental methods. Collaborative research is underway with faculty members from the Department of Industrial Engineering, the Institute of COMPS and Research, Research, the Department of Speech Pathology and Audiology, the Department of Experimental Psychology, and the Psychology Clinic.
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 cognition and social influence; social psychology, dealing with group influence and the effects of group membership; social psychology, dealing with social behavior and the effects of social norms; social psychology, dealing with social influence and the effects of social roles.

Graduate Admission

The graduate program in psychology is designed primarily to serve students seeking the Ph.D. degree. All applicants are considered on an individual 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 apply to both departments before filing applications.

The deadline for applications is February 15. All materials to be on file by that date. The Graduate Record Examination must be taken no later than the December date. Applications may be submitted at any time but 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 academic performance, research experience, and letters of recommendation. The scores in verbal, quantitative, and analytic sections of the Graduate Record Examination, and the applicant's statement of background and purpose, the latter of which is based on the natural sciences and in mathematics, is desirable though not required. Students who have not had such a background but who are strongly qualified in other fields may be admitted, but will be expected to remedy deficiencies through special coursework or independent study prior to enrolling in the regular graduate program.

A student who has completed substantial graduate work at another institution at the time of admission to the program will be expected to present documents, such as the master's thesis or equivalent work, which will be evaluated by the faculty members of the appropriate training area as a basis for placement in the graduate program. In no instance will a student be permitted to complete substantial research or write for a master's degree as an initial institution while a regular full-time student in the graduate program at The University of Iowa.

A foreign language is not required for admission, and there are no foreign language requirements for either the B.A. or the Ph.D. degree in psychology.

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, in forms of teaching assistantships, research assistantships, travel grants, 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 75 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 Jewish W. Spence Laboratory of Psychology, and adjoining space in Seashore Hall, include three separate animal facilities, several surgicuts, a histology laboratory, a number of small laboratory computers, automated data acquisition and reduction systems, observation boxes with remote audiovisual control and recording equipment, soundproof chambers, closed-circuit television systems, electrophysiological recording rooms, conditioning laboratories, the Carl E. 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 Weag 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 facilitated by the facilities and staff of other University and social 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 Johnson Speech and Hearing Clinic, the Health Science Research Center, the Institute of Urban and Regional Research, and the Gerontology Project.

Courses

For Undergraduates

Either 31:1 or 31:3 or equivalents, is prerequisite to all other courses in psychology. Only one of these two courses may be taken for credit.


31:33 General Psychology 24 u.h.

One or more of the following: a behavior course, a social course, or a research course. Students are required to become familiar with the major research approaches in the field. It is suggested that students select two or more courses through participation in observational procedures or through preparation of research reports. May not be taken pass-fail.

31:37 General Psychology 24 u.h.

Not the same as 31:33, but with additional discussion of ethical issues and management of human behavior in experimental studies. Students are encouraged to take one or more courses in the social sciences and in the natural sciences and in mathematics. May not be taken pass-fail.

31:16 Introduction to Clinical Psychology 3 u.h.


31:14 Introduction to Child Psychology 3 u.h.

Survey of research and theory on infantile, pre-linguistic, and social aspects of development from infancy through school-age.

31:15 Introduction to Social Psychology 3 u.h.

Survey of current research and theory on social influences, attitudes, and social development. Special emphasis is placed on perceptions and
Recreation Education

Program chair—R. D. Marshall
Faculty: professor Ann A. Aslett, associate professors Benjamin H. Harrison, Jr., and Howard D. Marshall; Michael L. Haque; and assistant professor Howard D. Marshall.

In the past 20 years, the number of people employed in recreation and parks has doubled to 120,000. There are opportunities for professional development throughout the United States and abroad, in a wide range of public park and recreation settings, voluntary and social agency recreation programs, therapeutic recreation programs, school and general service, commercial, and industrial recreation programs: and teaching careers in higher education.

In its recreation aspect, the profession spans a wide range of activities ranging from music and drama to sports and tourism. The park aspects deals with the planning, design, supervision, and management of recreational land and facilities.

In addition to professional preparation, the Program in Recreation Education offers courses in leisure research, the history of cultural and social trends of recreation, and cultural issues.

The department serves and consults with numerous systems throughout Iowa and the nation.

Bachelor of Science

The student must take 34 semester hours of professional core course, including:

- 104:00 Foundations of Recreation
- 104:61 Recreation Leadership
- 124:102 Leisure Studies
- 124:103 Introduction to Therapeutic Recreation
- 124:104 Administration of Recreation I
- 124:198 Internship in Recreation

Additional information on academic programs, scholarships, and resources for recreation programs can be found at the Recreation Education website.
The student must also take 9 to 15 semester hours of courses in one of the areas of concentration described below.

Community Recreation

The overall 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:
104:03 Park and Recreation Facility Management
104:14 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:
104:10 Orientation to Rehabilitation Settings
104:11 Orientation to Special Populations
104:10 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 travel, industrial recreation, etc. It is the most flexible of all concentrations, 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 department, agencies, and services provide fieldwork and internship opportunities for students in the program.

Honor

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 9 of the 30 semester hours of required major coursework, and at least a 3.0 grade-point average on all college work attempted. Honors work in all areas of concentration is available 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 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 thesis (28 semester hours).

An introduction to scholarly activities and research is provided through 104:03 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 the design in 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, voluntary agencies, churches, hospitals, armed forces, state and federal agencies, 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 upon the meaning of leisure as a social phenomenon, with study of the historical, philosophical, 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 psychology.

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 major thrust toward understanding recreation's role is in a comprehensive rehabilitation program, including both clinical and community facilties, and thus prepares the student to work with 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 at least two program theory.

Financial Aid

Assistance is available in the form of graduate assistantships, research assistantships, teaching assistantships, and part-time work by 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 Utilization and In-service education, and the Coralville Department of Parks and Recreation.

Courses

Primary for Undergraduates

104:03 Foundation of Recreation
104:10 Introduction to Special Populations
104:14 Planning and Design of Recreation and Park Areas
104:15 Leadership in Recreation
104:20 Leadership in Rehabilitation Setting
104:30 Physical Education Techniques: Program Activities

104:46 Introduction to Health Care Services
104:56 Recreation Leadership in Special Populations
104:57 Health and Safety Education
104:63 Internship in Recreation Education

3 s.h.
For Undergraduates and Graduates

194/101 Libraries Research 2.5 h.
Research methods and data analysis presented and applied to leisure research topics; emphasis on research processes needed to complete a research project.

194/102 Introduction to Therapeutic Recreation 2.5 h.
Introduction to the therapeutic recreation field, organization, development of programs and services, economics and ethics.

194/104 Recreation and Human Development 2.5 h.
Introduction to the psychology of leisure and recreation and its relationship to human behavior. A focus on basic similarity areas.

194/105 Investigative Program 3.5 h.
Physical and evaluation of recreation program; organization and recreation evaluation of resources, use of evaluation techniques; topics in administration and management.

194/106 Student Recreation 3.5 h.
Philosophy, procedures, trends and changes in residence halls. Emphasis on recreation in college life.

194/111 Special Problems in Special Populations 2 h.
Design of programs for deaf, physically and mentally handicapped to develop and the current development of recreation and leisure services through individualized, informal approaches to investigating the developmental patterns of special populations.

194/112 Work and Leisure in American Life 2 h.
Combines methods and insights of two fields, American studies, and leisure studies, and applies them in the relationship between work and leisure in America; it explores patterns and perceptions of work and leisure and various opinions of what shall be expected in the future. A seminar approach for understanding changing American lives. Offered as 40-112.

194/123 Role of Therapeutic Recreation in Rehabilitation 2 h.
Role of therapeutic recreation in total rehabilitation and community rehabilitation efforts; specific services given to cooperative role of therapeutic recreation in total rehabilitation programs.

194/127 Senior Seminar in Therapeutic Recreation 2.5 h.
For seniors with program emphasis in therapeutic recreation; primary focus on co-operative issues among therapeutic recreation professionals; Prorective: consent of instructor.

194/130 Planning and Recreation Program 1 h.
Introduction to recreation and park facilities; emphasis on effective planning, development of land, and evaluation.

194/132 Planning and Recreation Administration 1 h.
Practical knowledge of recreation and park facilities; emphasis on effective planning, development of land, and evaluation.

194/134 Internship, Leisure Service
Practicum in planning and design of recreation and park facilities.

194/136 Principles of Outdoor Recreation 3.5 h.
Principles and techniques of outdoor recreation, emphasizing the importance of natural environment as a dimension of outdoor recreation, and the current development of recreation and leisure services.

194/138 Contemporary Issues in Recreation and Leisure 3.5 h.
Survey of recreation and leisure in a modern society; human and technological values as they relate to leisure. Primarily for expository and applied courses.

194/139 Introduction to Social Psychology 3.5 h.
Social psychology and the role that leisure activities play in social behavior.

194/140 Contemporary Issues in Leisure 3.5 h.
Various aspects of leisure in other cultures, a historical perspective, and a simple discussion on leisure and consumption with modern cases, also considers the potential social consequences of leisure.

194/141 Social Psychology of Sports 3.5 h.
Review of past research; and empirical research on the psychosocial and psychological determinants of sports and the behavior of sports; examination of sports-related social influences, sports values and social influence, sports values and sport behavior, sociological and ecological determinants and consequences of sports and sport behavior.

194/142 Independent Study 3.5 h.
Investigation of problems related to specific areas of professional practice, or an individual student's academic interests, and experience. Prerequisite: 140-125 and permission of instructor.

194/143 Internship 3.5 h.
Practicum in recreation and park facilities; emphasis on effective planning, development of land, and evaluation.

194/144 Internship 3.5 h.
Continuation of 194/143.

Primarily for Graduates

194/151 Internship 3.5 h.
Graduate department chair; lecture, registration, etc.

194/152 Graduate Practicum 3.5 h.

194/201 Concept of Recreation and Leisure 3.5 h.

194/202 Principles of Therapeutic Recreation 3.5 h.
Design factors in the development of therapeutic recreation programs; emphasis on effective planning, development of land, and evaluation.

194/203 Development of Therapeutic Recreation Services 3.5 h.
Initiation, improvement, expansion of therapeutic recreation services for handicapped, particularly handicapped children; practice in program development, service delivery to schools, and service delivery to schools, and service delivery to schools.

194/204 Seminar in Administration of Recreation 3.5 h.
A practical approach to the administration of recreation and leisure services.

194/206 Philosophy and Ethics in Recreation 3.5 h.
Philosophic and ethical perspectives of the recreation and leisure services.

194/208 Theory and Methods in Social Psychology of Leisure 3.5 h.

194/210 Recreation: College Teaching Internship 3.5 h.
Senior Seminar: Practicum 3.5 h.

194/220 Seminar: Practicum 3.5 h.

194/225 Advanced Professional Seminar for Recreational Professionals 3.5 h.

Religion

Director: John F. Boyle
Faculty: Professor Brian E. C. Bliss, David R. Beaton, George W. Forster, Aja A. Masick, John E. Mchale, W. Percival, James C. Spalding, and Thomas S. Forster.

It has always been a central purpose of the School of Religion to help students from any major field gain an understanding of the history and literature of the religions, and insight into the nature and meaning of the religious dimensions of human culture.

The school is not a theological seminary; it does not prepare students for ordination.

Academic rather than vocational in its orientation, the undergraduate major in religion provides a foundation for advanced academic degree work, or for study at a theological seminary.

The school's graduate programs provide preparation for the study and teaching of religion at an academic discipline. Many University students majoring in other social science elect courses in religion as part of their general education; some elect religion as a second major.

Bachelor of Arts

For a major in religion, undergraduate students elect a total of 24 semester hours of course work in religion according to their own interest, provided they take a minimum of four 100-level courses in religion, one of which is ordinarily the major seminar (32:196 Senior Major Seminar). Students majoring in religion also elect 12 semester hours in related courses, such as anthropology, art, classics, history, philosophy, psychology, or sociology. The student must also fulfill the requirements of the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). The selection of the foreign language must be approved by the advisor.

Honors

Religious majors who fulfill the requirements of the Bachelor of Arts degree with distinction may be awarded a degree with honors through satisfactory completion of an honors essay during the senior year.
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
- 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 a mastery of the tools and techniques or 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 graduate courses in research. Six may be transferred from another accredited graduate or professional school.

The program includes required courses in religion and personality, is 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 additional language requirements.

Doctoral students prepare for the oral and written comprehensive examinations in 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 minor programs:

- Judaic and Christian
- History of the Hebrews
- History of theology and religious thought in the West

Contemporary theology and religious thought

Studies relating theology and other academic disciplines

Hindu and Buddhist

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 attending 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 related to the specialty, 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 appointed only as research assistants.

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 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, parodie 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 thesis 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. Graduate aid is awarded annually on competitive basis to the most qualified applicants. Ordinary teaching assistantships are not awarded to first-year students, except on occasions are sometimes made on the basis of advanced language skills. Applications are competitive 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 designated for students from other fields who need a reading proficiency in Russian in either the social or natural sciences. A course is offered for students in sciences who need to develop reading ability for research purposes. Some classes are open to University students from all departments and are offered in English. The course includes survey courses in Russian literature, culture, 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 is 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 teaching, research, and equipment in the lab includes standard aural input, wave recorders, tape recorders, records, soundproof recording rooms, and drill rooms. An electronic classroom, a soundproof workroom, and a library of tapes and disc recordings are also available.

Courses

For Undergraduates and Graduates

411 First-Year Russian I 4 hrs.
412 First-Year Russian II Prerequisite: 411 or equivalent.
413 Second-Year Russian I Prerequisite: 412 or equivalent.
414 Second-Year Russian II Prerequisite: 413 or equivalent.
415 Russian for Business Prerequisite: 412 or equivalent.
416 Weekly Russian I Prerequisite: 411 or equivalent.
417 Russian for Students of Science, Engineering and Related Disciplines 4 hrs.
418 Weekly Russian II Prerequisite: 417 or equivalent.

419 Russian Literature I Prerequisite: 417 or equivalent.
420 Russian Literature II Prerequisite: 418 or equivalent.
430 Advanced Composition and Conversation Prerequisite: 418 or equivalent.
431 Advanced Composition and Conversation Prerequisite: 418 or equivalent.
432 Advanced Composition and Conversation Prerequisite: 418 or equivalent.

437 Russian Literature in Translation Prerequisite: 430-431. Conducted in English.
438 Russian Literature in Translation Prerequisite: 430-431. Conducted in English.
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 dollars in federal support since 1960. This support has helped establish a specific program for gifted and talented secondary school students, minor 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, an allied health field, specific preparation for careers in engineering, law, and/or research, 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 enter graduate studies in a single area of science, it is often necessary for them to complete additional courses in that discipline after 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 qualifies 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 two 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 specified 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;

Experience with the application of scientific knowledge in a technological sense.
4/12-12/2 Organic Chemistry I-II 8 s.h.

Other Environmental Courses
12 semester hours from the following:
4/41: Contemporary Environmental Issues 3 s.h.
4/41: Weather and Climate 3 s.h.
4/42: Environmental Conservation of the United States 3 s.h.
4/42: Introduction to the Global Environment 3 s.h.
4/42: Environmental Impact Analysis 4 s.h.
12/12: Introduction to Oceanography 2 s.h.
12/12: A Planet in Crisis 2 s.h.
12/12: Energy in Contemporary Society 3 s.h.
523: Principles of Environmental Engineering 3 s.h.
523: Environmental Microbiology 3 s.h.
523: Limnology 2 s.h.
63: Dynamics of Health 3 s.h.
63: Men and the Environment 3 s.h.
63: Community Health 1 s.h.
Mathematics as a Tool
22M: Mathematics for the Biological Sciences 4 s.h.

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
97:129 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Physical Science Emphasis
In the physical science emphasis, the student chooses either a chemistry or a physics concentration and completes the courses listed for that concentration. Students in both concentrations complete all other courses listed for the physical science emphasis.

Chemistry Concentration
4/13 Principles of Chemistry I 3 s.h.
4/14 Principles of Chemistry II 3 s.h.
4/18 Principles of Chemistry Lab I 2 s.h.
1/14 Intermediate Chemistry Laboratory I 3 s.h.
1/101 Elementary Quantitative Analysis 4 s.h.
1/121 Organic Chemistry I 3 s.h.
2/11 College Chemistry I 4 s.h.
2/12 College Chemistry II 4 s.h.
2/12 College Chemistry Electives 4 s.h.

Physics Concentration
2/11 College Physics I 4 s.h.
2/12 College Physics II 4 s.h.

Course in Earth Science
2/20 Introduction to Geology 4 s.h.

Mathematics as a Tool
22M: Calculus I 3 s.h.
22M: Calculus II 3 s.h.

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.

A minimum of 9 semester hours in astronomy, geology, meteorology, or physical science must be included.

History/Philosophy/Sociology of Science
97:129 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Honors
A student majoring in science education may earn an honors degree by completing all general requirements of the honors program. Requirements include four defenses of 97:110 Seminar, Selected Science and Education Topics, at least 4 semester hours of credit in 97:99 Honors Research Project, and completion of a significant research project approved by a faculty supervisor and described in a final paper prepared for the science education library.

Minors
Basically, the minors in science education have the same minimum requirements as in general science (see "General Science" in this section of the Catalog). All science education minors are designed to provide a set of courses necessary to qualify the student for a secondary teaching certificate in a specific area of science. All science teaching minors must include:

75:181 Science Methods: Individualizing Instruction in Science 2 s.h.
75:182 Science Methods II: Resources and Teaching Strategies 2 s.h.
75:183 Observation and Laboratory Practice in the Secondary School 3 s.h.
97:129 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

Additionally, the student must meet three other programs in his or her emphasis area:

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

Chemistry
4/1 Principles of Chemistry I 3 s.h.
4/1 Principles of Chemistry Lab I 2 s.h.
4/1 Organic Chemistry I 3 s.h.
4/1 Physical Chemistry I 3 s.h.

Astronomy
2/20 Introduction to Geology 4 s.h.

Mathematics as a Tool
22M: Calculus I 3 s.h.
22M: Calculus II 3 s.h.

Chemistry
4/1 Principles of Chemistry I 3 s.h.
4/1 Principles of Chemistry Lab I 2 s.h.
97:106 Social and Educational Applications of Chemical Concepts 3 s.h.
Chemistry electives 10 s.h.
<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>29:11-12 College Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:105 Societal and Educational Applications of Selected Concepts of Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Geology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:2 Introduction to Geology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>12:3 Principles of Physical Geology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>12:4 Principles of Historical Geology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Environmental Studies Emphasis</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:2 Introduction to Geology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>29:11 College Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Earth Science</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>12:3 Principles of Physical Geology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>12:4 Principles of Historical Geology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>General Astronomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>97:102 Societal and Educational Applications of Earth Science Concepts and Topics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Iowa-ASSIST**

Iowa-ASSIST is a special program for teachers in Iowa schools. The student registers as a special UI undergraduate student prior to high school graduation. The program includes research participation, enrichment courses, and/or field experiences.

**Iowa-UPSTEP**

Iowa-UPSTEP is a continuing program for UI undergraduate students interested in exploring science teaching as a career option. Students register for professional seminars and a variety of practicum experiences. In addition to experiences with youth, with scientists, 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 K-12 teaching, 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 health, 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**

<table>
<thead>
<tr>
<th>Track</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7P:101 Educational Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7F:107 History of Western Education or 7F:117 Principles of Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7X:170 Human Relation for the Classroom Teacher</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7S:151 Science Methods I: Individualizing Instruction in Science</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7S:152 Science Method II: Resources and Teaching Strategies</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7S:191-201 Observation and Laboratory Practice in the Secondary School</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>97:139 Meaning of Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:150 Science in Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Science (beyond 50-semester-hour undergraduate requirement)</td>
<td>10 s.h.</td>
</tr>
<tr>
<td>Minimum total</td>
<td>40 s.h.</td>
</tr>
</tbody>
</table>

**Master of Science without Thesis**

<table>
<thead>
<tr>
<th>Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced science education</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>Major field of science (beyond emphasis area for undergraduate major)</td>
<td>12-18 s.h.</td>
</tr>
<tr>
<td>Minor science field</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Applied science</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Minimum total</td>
<td>36 s.h.</td>
</tr>
</tbody>
</table>

**Master of Science with Thesis**

<table>
<thead>
<tr>
<th>Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced science education</td>
<td>10 s.h.</td>
</tr>
<tr>
<td>History/philosophy of science (when not part of undergraduate program)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Advanced science</td>
<td>14 s.h.</td>
</tr>
<tr>
<td>Applications of science</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Research</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

Minimum total | 20 s.h. |

**Educational Specialist**

Advanced science education | 18 s.h. |

History/philosophy/psychology of education | 10 s.h. |

Major area of science | 18 s.h. |

Practicum | 6 s.h. |

Applications of science | 4 s.h. |

Research | 4 s.h. |

Minimum total beyond masters degree | 30 s.h. |

**Doctor of Philosophy**

Advanced science education | 20 s.h. |

Research/doctorate Education Conference | 6 s.h. |

Major area of science | 28 s.h. |

"Corroboration studies | 14 s.h. |

Minimum total beyond masters degree | 72 s.h. |

(*includes intensified science preparation, enriched science preparation, environt professional preparation, intensive studies*)

**Admission**

Requirements for admission to graduate study in science education are identical to those of the Graduate College. The admission process is coordinated with the College of Education.

**Special Programs**

**Iowa-ASSIST**

Iowa-ASSIST is a special program in integrated 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 Special Education Conference that attracts more than 500 teachers, 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, supervisors, and administrators.

**Chautauqua Short Course Programs**

The Science Education Center also administers the NSF-sponsored and AAAS-organized 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
Plagiarism development psychology
Cross-cultural experiences
Health education
Instructional psychology
Teacher behavior
Mathematical activity
Inquiry processes
Instructional modes
Concept formation
Aperture X Treatment interaction (ATI)
Airthetical 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 sizable number of foreign students are enrolled. The faculty has been involved for extended periods in international programs and proceedings as well.

Facilities
The physical facilities for science education laboratories 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 focus 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 curriculums 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 faculty of the science education 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 teacher education seminars; including in the laboratory those of the Upper Step; multiple offices for graduate assistants; a common area for small group discussions 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 secondary 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
5970 Cooperative Education Internship 1-4 a.
5717 Fundamentals of Science 4-24 a.
5718 Science topics and laboratory investigations drawn from physics, life, and earth sciences; focus on problems arising from processes within the environment and on practical applications of research; not to be repeated.
5719 Special methods in science 2-4 a.
5732 Investigations in Science 4-24 a.
5733 Special projects in science for high-ability secondary school students. May be repeated.
5745 Science Surveys 4 a.
5755 Supervised research in current science and technology; admission to selected institutions of instruction; research projects based on original research as approved by the student's instructor. Research experience required of undergraduates; pending honors degree. Individual projects required.
5762 Science foundations I 4-12 a.
5763 Science foundations II 4-12 a.
5785 Honors Research Project 0-4 a.
Research experience required of undergraduates; pending honors degree. Individual projects required.

For Undergraduates
5182 Societal and Educational Applications of Earth Science Concepts and Topics 3 a.
5183 Review of major issues and principles of the earth sciences, with emphasis on current applications in today's world.
5185 Societal and Educational Applications of Biological Concepts 3 a.
5186 Review of basic concepts and themes characterizing the science of biology, and a review of pressing issues related to the science in dealing with major activity; is concerned with a current social issue related to biology.
5180 Science Foundations II 3 a.
5182 Societal and Educational Applications of Selected Concepts of Physics 3 a.
5182 Societal and Educational Applications of Chemical Concepts 3 a.
5183 Societal and Educational Applications of Biological Concepts 3 a.
5184 Review of major issues and principles of the earth sciences, with emphasis on current applications in today's world.
5185 Fundamentals of Science and Education Topics 0 a.
5186 Review of recent research in field; special reference to applications in teaching.
5187 Advanced Science Foundations 3 a.
5188 Special study 0 a.
5189 Special study 0 a.
5181 Critical examination of the scientific enterprise from social, ethical, cultural, and epistemological viewpoints.
5182 Science in Historical Perspective 3 a.
5183 Critical examination of the scientific enterprise from social, ethical, cultural, and epistemological viewpoints.
5184 Integrating the Teaching of Fundamental Science 3 a.
5185 Special projects in science for high-ability secondary school students. May be repeated.
5186 Science foundations I 4-24 a.
5187 Science foundations II 4-24 a.
5188 Science foundations III 4-24 a.
5189 Science foundations IV 4-24 a.
5180 Science Foundations V 4-24 a.
5181 Science Foundations VI 4-24 a.
5182 Science Foundations VII 4-24 a.
5183 Science Foundations VIII 4-24 a.
5184 Science Foundations IX 4-24 a.
5185 Science Foundations X 4-24 a.
5186 Science Foundations XI 4-24 a.
5187 Science Foundations XII 4-24 a.
5188 Science Foundations XIII 4-24 a.
5189 Science Foundations XIV 4-24 a.
5180 Science Foundations XV 4-24 a.
5181 Science Foundations XVI 4-24 a.
5182 Science Foundations XVII 4-24 a.
5183 Science Foundations XVIII 4-24 a.
5184 Science Foundations XIX 4-24 a.
5185 Science Foundations XX 4-24 a.
5186 Science Foundations XXI 4-24 a.
5187 Science Foundations XXII 4-24 a.
5188 Science Foundations XXIII 4-24 a.
5189 Science Foundations XXIV 4-24 a.
5190 Science Foundations XXV 4-24 a.
5191 Science Foundations XXVI 4-24 a.
5192 Science Foundations XXVII 4-24 a.
5193 Science Foundations XXVIII 4-24 a.
5194 Science Foundations XXIX 4-24 a.
5195 Science Foundations XXX 4-24 a.
5196 Science Foundations XXXI 4-24 a.
5197 Science Foundations XXXII 4-24 a.
5198 Science Foundations XXXIII 4-24 a.
5199 Science Foundations XXXIV 4-24 a.

Social Studies Education
Chair: Robert M. Fitch
Faculty: professor Robert M. Fitch
Associate professor; R. James Myers
Degree offered: B.A., M.A., Ph.D.

Bachelor of Arts
The major in social studies education is an interdisciplinary, nonprofessional 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

12
All candidates must also complete 98:201 Individual Instruction in Social Studies Education and 98:202 Seminar: Social Studies Education. The candidate must pass an oral and written comprehensive examination. The program offers a wide variety of educational experiences, depending on the candidate’s fields of study. Possibilities include small group instruction, seminar work, independent study and reading, computer experience, internships, and laboratory work.

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 undergraduate credit in one area 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 a 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. Some are department chairs in colleges of education or curriculum directors in large school districts. Many are engaged in graduate education programs in colleges and universities, while others are college instructors in 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. Depending upon the background and needs of the candidate, work in the disciplines chosen will comprise between 10 and 75 percent of the total 90 semester hours, with 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, internship, independent study, fieldwork, and laboratory and computer experience. Seminar and advanced work in courses numbered 200 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 field 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 Wieg Computing Center. The faculty members who serve as social studies education advisors and cooperate in the 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 curricular revision.

Courses
98:201 Individual Instruction in Social Studies Education
1.4 credits
Individualized readings, field studies, and individual projects in history and social sciences or in problems of professional education. May be repeated. Prerequisite: consent of instructor.

98:202 Seminar: Social Studies Education
1.6 credits
Reading and discussion in significant developments in the social studies education field. Seminar in social studies education, minimum investigation paper required. Offered fall semesters. Prerequisite: consent of instructor. Same as 76:277.
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:
- 42:40 Human Behavior in the Social Environment 3 s.h.
- 42:141 Social Work Practice I 3 s.h.
- 42:143 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.
- 42:296 Advanced Research Seminar 2 s.h.
- 42:127 Social Work and Racism 2 s.h.

General option: an additional course in each concentration 2-6 s.h.

Concentration option: at least three additional courses in the concentration including seminar or practicum 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 suitable for students who wish to focus in particular fields of practice rather than a particular level or system of intervention. Genevists are required to take at least 5 semester hours of course work in each concentration, including the required practicum course work in each. Gevenirer 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 is individual, family, and small group practice. Includes practice in small group services, family therapy, and social work with families, working with individuals and groups.
- The concentration in administration of human services is designed to develop practice competence in 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, grant development, administrative law, and health and family policy.
- The concentration in social work and community health is designed to prepare students for intervention in community health programs, community health agencies, and community organizations. An international perspective is part of this concentration. It focuses on developing a more systematic understanding of organizational and social norms, and on developing the skills and knowledge necessary to intervene in health programs effectively. Topics include international and global health, community health, population, 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 Schedules of Social Work faculty are available for student advising and teaching all required courses. Centers have three major purposes: to enroll the educational programs of full-time students by providing greater diversity of practical opportunities; to extend 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 at Iowa City. Depending on the student's program, 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 must be assigned to the Des Moines or Quad Cities Centers. This generally involves the student's relocation.

The Des Moines Center, 115 miles from Iowa City, is the location of the state capital. It is also the largest city in the state. Many fine practice opportunities are available in state government 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 practice 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 northwest corner of the state, provides opportunities for part-time degree study and continuing education. It is different from the other 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. Length and degree requirements are the same as for full-time students, but the program allows greater flexibility in the choice of courses, working people, and others unable to pursue a degree on a part-time basis to complete the program. Part-time students complete the program in more than two years. The program requires 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 City of Iowa City and the Department of Urban and Regional Planning for joint degrees. Students must be accepted by each department through its regular admissions process. Twelve credits in
Graduate Admission

The criteria for admission for 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 grade point average of 2.5 in the social sciences and humanities; and

At least a 3.0 grade point average for the junior and senior years of undergraduate study. Students who score less than 3.0 on the writing section of the Graduate Record Examination (GRE) may be admitted to the M.S.W. program with the approval of the Admissions Committee.

Graduate students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Other special projects students may become involved in are the National Resource Center on Family-Based Services operated by the school, the Iowa Gerontology Project, the Child Abuse and Neglect Resource Center, the Health Services Research Center, and the Institute on Urban and Regional Research.

Another feature of the school is the opportunity it affords to students to participate in travel study seminars. Each spring, a policy seminar travels to Washington, D.C. Other urban, rural, and (inter)national seminars are available when there is sufficient interest.

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Graduate students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Other special projects students may become involved in are the National Resource Center on Family-Based Services operated by the school, the Iowa Gerontology Project, the Child Abuse and Neglect Resource Center, the Health Services Research Center, and the Institute on Urban and Regional Research.

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Sociology

Chair: David A. Parker
Faculty: professors Jon D. Kim, Edward J. Lawler, James A. Parker, James L. Price, Lynde W. Shrum, J. Richard Woychik

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 schools.

The degree equips the student for study for transfer to graduate programs in sociology which qualify the graduate for college or university teaching and academic, 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 programs in joint consultation with a sociology adviser 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 24 semester hours of coursework in sociology, including:

34:1 Introduction to Sociology: Principles 4 a.h.
34:2 Introduction to Sociology: Problems 4 a.h.
14:10-11 Theory, Research, and Statistics 8 a.h.
Backchee 12 a.h.

The student should complete the two-semester theory, research, and statistics course work early, to maximize his or her capacity to benefit from the other sociology courses.

In addition to the sociology requirements listed above, the B.S. program in sociology requires the following:
26:103 Introduction to Symbolic Logic 3 a.h.
26:104 Introduction to Philosophy of Science 3 a.h.
225:26 Elementary Statistics and Inference 3 a.h.

One of these three combinations:
22:10 Fundamentals of College Mathematics I 4 a.h.
22:11 Fundamentals of College Mathematics II 4 a.h.
22:10 Fundamentals of College Mathematics and
22:20 Elementary Functions 3 a.h.
22:18 Introduction to Programming with PASCAL 4 a.h.
22:17 Programming with PASCAL 3 a.h.

Students with exceptionally strong high school backgrounds in mathematics may substitute 22M:26-26 Calculus I-IV for the mathematics option listed above. All majors are advised to take at least one basic course in history and philosophy, and at least six hours of course work in at least one of the three departments: anthropology, economics, geography, political science, or psychology. A list of complete requirements for a sociology major is available in the department office.

Departmental requirements are the same for transfer students as for other students. While some courses taken at other colleges are applicable toward the major, the department requires that transfer students majoring in sociology take at least 12 semester hours in sociology at The University of Iowa.

Minors

In addition to its major programs, the department provides supportive course work and several clusters of courses of value to undergraduate students who want to combine a minor in sociology with a major in another field, particularly another social science, business administration, elementary education, or nursing. A brochure describing minors in sociology is available in the department office.

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, American history, world history, political science, and/or psychology (20 semester hours required in psychology); and
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, include 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 students in careers. 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 prepares sociologists for positions in colleges and universities or in social research in academic, private, or governmental positions. Opportunities for research, teaching, survey, experimental, and observational methods, are available in the department.

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, 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 Jura 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 these hours are also credited toward the M.A. in sociology.

At the discretion of the student's M.A. committee, the Department of Sociology may waive up to 12 hours of law courses toward the M.A. degree. This cross-registration allows a student to receive the J.D. and the M.A. by taking less courses than would be necessary if the two degrees were pursued separately, and the program is highly individualized and allows the student to explore various aspects of the relationship between law and sociology.

Doctor of Philosophy

The Doctor of Philosophy degree in sociology requires a minimum of 72 semester hours of graduate-level work, including the post-M.A. courses 34:217 Introduction to Social Science Research Design, and 34:217 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—theory, 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 theory, demography, 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 (see the "Graduate College" section of the Catalog), the applicant completes a departmental application statement and uses its personal references forms in obtaining three letters of recommendation.

Applicants may be admitted at any time, but should be completed two months before the start of the academic session for which admission is requested. The deadline for applying for departmental financial support is March 15.

Admission decisions are based on a comparative consideration of prior quantitative 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 the M.A. or Ph.D. degrees in sociology. Inquiries concerning admission should be directed to the student's 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 2.0 and a total score of 1,000 from the quantitative plus verbal sections of the Graduate Record Examination (GRE) Aptitude Test. Applicants may be admitted at any time, but should be completed two months before the start of the academic session for which admission is requested. 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 encourages non-fall tuition scholarships to students.

Facilities

The department maintains four interactive terminals for communicating with the University's mainframe computer (IBM 370-158 and five PRIME 750As) and with the University's Hewlett-Packard 2000F educational computer. Also available for faculty and students are the facilities of the Department of Sociology Research Laboratory and data archives unit, and the Iowa Urban Community Research Center (CCSR). The Research Laboratory consists of 17 rooms specially designed for social psychological research. The facilities include a small-group laboratory with loudspeaker, videotape, and interactive 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 CCSR maintains a research library, data bank, and laboratory. Surveys in the data bank are accessible for secondary analysis. See the "Research Activities" section of the Catalog.

Courses

For Undergraduates Only

Courses open to freshmen without prerequisites: 34:1, 34:2, 34:15, 34:50, 34:84, and 34:12. All other undergraduate courses are open to freshmen with departmental approval.

34:1 Introduction to Sociology

Examination of the individual as organized into social groups, ranging from simple groups to more complex organizations. Structure, behavior, norms and institutions in traditional and modern society, religion, economics.

34:2 Sociology of Religion

Examination of the role of religious and religious behavior in social life. Historical and contemporary sociology may include population, inequality, female male roles, and social structure.

34:10 Theory, Research, and Evaluation

Introduction to social science inquiry; emphasis on theoretical thinking, the statement of research questions, and the analysis and reporting of empirical data by using complex social research methods. Opportunities for discussion, co-operation, and laboratory work. 34:10, 34:15, and a directed research in sociology.

34:10J Continuation of 34:10, which is prerequisite.

34:217 Introduction to Social Science Research Design

Logic and the design of social science research methods, emphasis on testing social science theories, collecting and analyzing like data, and interpreting results; problem to help students be critical consumers of social science research.

34:50 Women in Society

Analysis of the impact of society on women: selected aspects of interpersonal, structural, and institutional processes. Emphasis in the study of methodology, sociology or equivalent, or consent of instructor.
Social institutions and Social Change

3423 Introduction to Social Work
3422 Social Welfare as a social institution; settings and roles of social workers, professionals and paraprofessionals in social work; history and development of American social welfare and social work; Requirements include a minimum of 80 hours volunteer work. Prerequisite: exploration standing or consent of instructor. Same as 42:20.

3427 Sociology of the Third World
3428 Social analysis and measurement of "development/ progress"; sociological perspectives on the Third World in historical and cultural context. Also, the impact of the Third World in the Third world. Cross-disciplinary course in sociology, economics, or anthropology. Same as 4.12-01.

3433 Public Opinion
3434 Role of public opinion in making public policy; nature and change of public attitudes and values; political campaigning; measurement of public opinion. Same as 4.12-01.

3435 Sociology of Religion
3436 Introduction to the social and psychological field of study of sociology; sickness and the social context of health, sickness, and disability; mental illness, age, education and race; disability and social control. Prerequisites: Same as 4.12-01 or 3420, or consent of instructor.

3437 American Society
3438 Sociological perspectives on our society; the structure and integration; approaches to study of large, complex, modern societies; institutional interrelationships; institutions as agencies of social control; institutional disintegration as an aspect of social change. Prerequisite: Same as 4.12-01, or consent of instructor. Same as 4.12-01.

3438 Sociology of Religion
3439 Introduction to the social and psychological field of study of sociology; sickness and the social context of health, sickness, and disability; mental illness, age, education and race; disability and social control. Prerequisites: Same as 4.12-01 or 3420, or consent of instructor.

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Spanish and Portuguese

Department Chair: George De Mello
Professor: Francisca da Cunha, Oscar Fernandez, Joseph Scarpa

Spanish and Portuguese majors should complete the following requirements:

1. 36 credits in Spanish
2. 18 credits in English

Undergraduate Programs in Spanish

First- and second-semester Spanish courses include the four performance objectives: understanding, speaking, reading, and writing. Through four skill-formal and a policy of frequent testing of these skills, students thereby acquire a broadly based evaluation of their strengths and weaknesses and can calculate and plot their progress in preparation for future work.

Third- and fourth-semester courses are conducted on a dual-track basis, allowing students to elect in sections having either an oral-oral orientation or an emphasis on reading, writing, and content analysis.

Major in Spanish

The undergraduate major in Spanish consists of 36 semester hours of required coursework, according to the following program:

Language (12 s.h.)

36:117 First Year Language I 4 s.h.
36:118 Second Year Language I 4 s.h.
36:122 Third Year Language II 4 s.h.
36:123 Fourth Year Language II 4 s.h.

Literature (9 s.h.)

Three of the following (both the Peruvian and the Spanish American areas must be represented):
36:101 Renaissance and Golden Age Literature 3 s.h.
36:102 Modern Spanish Literature 3 s.h.
36:103 Contemporary Spanish American Fiction 3 s.h.
36:104 Spanish American Poetry 3 s.h.
36:120 Spanish American Drama 3 s.h.
36:106 Short Story of Spanish America 3 s.h.
36:107 Spanish American Literature of Fantasy 3 s.h.

Total Credit Hours: 36

Electives (9 s.h.)

The electives may be 36:100 Accelerated Portuguese or any college major numbered 36:100 or above, except that no more than 4 semester hours may be elected in 36:100 Spanish Conversational—Senior Level and 36:135 Spanish Conversation—Senior Level—no more than 3 semester hours may be earned in Spanish Work courses and the following courses may not be elected to fulfill this requirement:
36:125 Spanish Language Practice
36:150 Methods: Foreign Language
36:151 Language Laboratory Equipment Procedures
36:156 Language Teaching Practice
36:154 Accelerated Elementary Spanish
36:155 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 major who wish high school certification must complete the following requirements for the major in Spanish. Several courses in the Cultural Education are also required, as an one semester of practice teaching, taken in the senior year.

Minor

A minor in Spanish requires 18 semester hours of coursework in Spanish taken at the 3600 level or above, with at least 9 semester hours in the 3600 level. The minor is not an automatic or required prerequisite for the Spanish major or any other major. The minimum of 36 semester hours in credit may be taken toward the minor. No more than 3 semester hours of credit in Spanish may be taken toward the minor from the following courses:
36:125 Introduction to Spanish
36:127 Chicano/Puerto Rican Literature
36:129 Introduction to Don Quixote
36:130 Introduction to Basque Language and Culture
36:145 Chicano Language and Culture for Teachers

36:181 Masterpieces of Modern Spanish Literature 3 s.h.
36:180 Representative Works of Golden Age Fiction 3 s.h.

Civilization (3 s.h.)

One or two following:
36:114 Spanish Civilization 3 s.h.
36:118 Spanish American Civilization 3 s.h.

36:180 Masterpieces of Modern Spanish Literature 3 s.h.
36:180 Representative Works of Golden Age Fiction 3 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>38:109</td>
<td>Latin American Studies Seminar</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>38:179</td>
<td>Spanish Special Work</td>
<td>1-3 s.h.</td>
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<tr>
<td>38:175</td>
<td>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 38:127 Fourth-Year Language I or its equivalent, and to elect additional courses in Spanish phonology, and Hispanic literature and civilization.</td>
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<td></td>
<td><strong>Transfer Credit</strong></td>
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<td></td>
<td>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.</td>
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<tr>
<td></td>
<td><strong>Foreign Study Programs</strong></td>
<td></td>
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<td></td>
<td>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.</td>
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<td></td>
<td><strong>Honors</strong></td>
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<td></td>
<td>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 honors above, 8 semester hours earned in 38:121-122 Honors Literature and/or 38:123-124 Honors Spanish Language, an honor essay in Spanish, and an oral examination conducted in Spanish.</td>
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<tr>
<td></td>
<td><strong>Undergraduate Programs in Portuguese</strong></td>
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<tr>
<td>Major in Portuguese</td>
<td>Beginning courses in Portuguese are for students without previous foreign language study or experience. Classes are small, providing for a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking and comprehending basic Brazilian Portuguese 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.</td>
<td></td>
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<tr>
<td>Language (9 s.h.)</td>
<td>38:117 Advanced Portuguese I</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>38:116 Advanced Portuguese II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Literature (6 s.h.)</td>
<td>38:105 Brazilian Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>38:106 Brazilian Literature II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Civilization (6 s.h.)</td>
<td>38:115 Brazil: People and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>38:116 Modern Portuguese</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives (4 s.h.)</td>
<td>38:103 Modern Brazilian Fiction I: Short Story</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>38:104 Modern Brazilian Fiction II: Novel</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>38:107 Introduction to Portuguese Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>38:108 Black Literature of Portuguese Expression</td>
<td>3 s.h.</td>
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<td></td>
<td>38:109 Nineteenth-Century Brazilian Novel</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>38:118 Technics in Portuguese Linguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Minor in Portuguese</td>
<td>The undergraduate minor in Portuguese consists of 18 semester hours in Portuguese, including 12 semester hours of 100-level courses.</td>
<td></td>
</tr>
<tr>
<td>Offers for Undergraduate Nonmajors</td>
<td>Undergraduate students in other disciplines may meet part of the College of Liberal Arts humanities and foreign civilization and culture general education requirements with 38:6 Contemporary Latin American Narrative, readings in English. The department offers several other literature and culture survey courses which are taught in English and of general interest.</td>
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</tr>
<tr>
<td>Latin American Studies Program</td>
<td>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 satisfactorily competency in Spanish or Portuguese to be able to background readings in the language before enrolling in the required major seminar. For further information on the Latin American Studies Program see &quot;Latin American Studies Program&quot; in the Catalog.</td>
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</tr>
<tr>
<td>Master of Arts in Spanish</td>
<td>Candidates for the M.A. degree must have completed the equivalent of the undergraduate Spanish major.</td>
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<tr>
<td>Deficiencies may be remedied with the appropriate course work.</td>
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<tr>
<td>Required Course Work</td>
<td>Spanish phonology (either 38:157 Spanish Phonology I or phonology component of 38:200)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>38:208-209 Graduate Spanish Linguistics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td></td>
<td>38:220 Cervantes’s Don Quixote</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>38:233 Seminar in Teaching</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>38:251 Medieval Spanish Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>38:263 Historical Iberian-Romance Language I</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Course in Golden Age literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Course in Modern Spanish literature</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Courses in Spanish American literature</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td>Electives bringing student’s total to</td>
<td>required minimum of 36 semester hours in the M.A. program</td>
</tr>
<tr>
<td></td>
<td>The student is also responsible for the works listed in the departmental reading list.</td>
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</tr>
<tr>
<td>Maximum Study Loads</td>
<td>Maximum course registration is 15 graduate hours during the fall or spring semesters, and 8 graduate hours during the summer sessions. One-quarter and one-third time teaching assistants are permitted to register for the maximum study loads. One-half time teaching assistants may register for not more than 12 semester hours in the fall or spring semesters, and for not more than 6 semester hours in the summer sessions. Additional hours may be taken only with Graduate College approval.</td>
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</tr>
<tr>
<td>Transfer Credit</td>
<td>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.</td>
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<tr>
<td>Teaching Certification</td>
<td>Exclusive of the practice-teaching requirement, graduate students may take the course requirement for secondary teaching certification while completing M.A. requirements in the department.</td>
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</tr>
<tr>
<td>Examinations</td>
<td>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 Portuguese-American literature must be represented): I. Spanish linguistics; II. Medieval Spanish or Golden Age literature; and, III. Modern Spanish literature, Spanish-American literature or Luso-Brazilian literature.</td>
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</table>
Doctor of Philosophy in Spanish

Two doctoral programs are available. One is dedicated to Hispanic literatures. Before taking the written comprehensive 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 U.S. work was done at other institutions, consist of a two-hour written examination covering two to four literary works, or one major literary work and authoritative criticism of the works, as previously determined by the student and the department; an oral examination; 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 individual work must be 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 in two 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 or by the candidate at The University of Iowa. Students are 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
35:251 Medieval Spanish Literature I 3 s.h.
One additional course in Medieval Spanish literature 2 s.h.
35:253 Historical Ibero-Romance Languages I 2 s.h.
One additional course in Spanish or Romance linguistics 2 s.h.

Golden Age Literature
35:229 Drama at the Spanish Court 3 s.h.
35:226 Castilian’s Don Quixote 3 s.h.
One of the following: 3 s.h.
35:227 Ficcion of the Golden Age 3 s.h.
35:229 Lyric Poetry of the Golden Age 3 s.h.
35:262 The Picaresque Novel 3 s.h.

Modern Peninsular Literature
Three of the following (at least one course must be selected in each of the two centuries; a seminar may be substituted for one of the courses, provided the two-centurySup restriction is met): 3 s.h.
35:220 Nineteenth-Century Spanish Novel 3 s.h.
35:221 Nineteenth-Century Spanish Poetry and Drama 3 s.h.
35:223 Twentieth-Century Spanish Poetry 3 s.h.
35:226 Twentieth-Century Spanish Novel I 3 s.h.
35:224 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
35:246 Novel of the Mexican Revolution 3 s.h.
35:271-273 Spanish American Novel of the Twentieth Century I-III 9 s.h.
Area B
35:222 Spanish American Essays and Thinkers 3 s.h.
35:242 Spanish American Literature of the Nineteenth Century 3 s.h.
35:286 Images of Women in Latin American Literature 3 s.h.
Area C
35:238 Post-Modernist Spanish 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 A
35:231 Spanish American Drama 5 s.h.
35:245 Spanish American Short Story 5 s.h.
35:264 Spanish American Short Story of Century 3 s.h.

Area B
Course in Brazilian literature 3 s.h.
Contemporary Linguistics
35:208-209 Graduate Spanish Linguistics I-II 8 s.h.
35:167 Spanish Phonology I or Phonology components of 35:208

Literary Theory
35:264 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.
35:253 Historical Ibero-Romance Language I 2 s.h.
One additional course in Spanish or Romance linguistics, excluding courses listed below 3 s.h.

Comparative Linguistics
35:250 Comparative Romance Linguistics 3 s.h.

Golden Age Literature
35:229 Drama at the Golden Age 3 s.h.
35:226 Castilian’s Don Quixote 3 s.h.

308 LIBERAL ARTS/Spanish and Portuguese
Modern Peninsular Literature
One of the following:
35:200 Nineteenth-Century Spanish Novel
3 s.h.
35:221 Nineteenth-Century Spanish Poetry and Drama
3 s.h.
One of the following:
35:235 Twentieth-Century Spanish
3 s.h.
35:235 Twentieth-Century Spanish
3 s.h.
35:235 Twentieth-Century Spanish
3 s.h.
35:241 Twentieth-Century Spanish
3 s.h.
35:241 Twentieth-Century Spanish
3 s.h.
Latin American Literature
Three courses from at least two of the Latin American literature areas listed in Program 1
Contemporary Linguistics
35:197 Spanish Phonology
3 s.h.
Phonology component of 35:206
Graduate-level phonology/phonetics
2 s.h.
35:206-208 Graduate Spanish Linguistics
6 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 doctoral faculty.
The length of time during which the doctoral 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 (60 minutes total), and the PhD. 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 studies and performance meet 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 assist 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 60 dual-channel tape recorders providing a simultaneous recording of the dual-channel and a substitute record, an electronic classroom, a soundproof work room, 16mm and 8mm projection equipment and facilities, and a library of tapes and disc recordings. The department offers to its majors a special graduate or language laboratory procedure.
The department sponsors a 30-minute Spanish-American "Celebration program, "Music of Spain and the Americas," broadcast weekly over University radio station WDUK.
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 courses in Spanish at another institution will be placed according to courses previously completed.
A student majoring, 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.
35:100 Cooperative Education Internship
5 s.h.
35:110 Elementary Spanish I
4 s.h.
35:120 Elementary Spanish II
4 s.h.
Prerequisites: 35:1 or equivalent.
35:130 Intermediate I
4 s.h.
A complete three-year course series required for majoring, including one year of college-level foreign language.
35:140 World Languages
4 s.h.
Designed to introduce the broad diversity of Hispanic cultures in the Americas and the Americas, with an emphasis on discussions of Hispanic cultural influence in Africa and Asia; reading and speaking in major history, politics, art, and literature. Same as 24:40.
35:150 Spanish for Transfers
3 s.h.
Basic conversational Spanish developed to satisfy the language proficiency requirement for Hispanic-speaking students. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:160 Contemporary Latin American Narratives
3 s.h.
Primary focus on themes and narrative techniques in the major texts of the novel, 1950-1970, as an overview of cultural and sociopolitical aspects. Does not cover English, readings in English, for fulfillment of humanities and foreign language and culture general education requirements. Same as 24:40.
35:171 Latin American Intellectuals
4 s.h.
Continuation of 35:1. Same as 24:47.
35:180 Spanish for Health Professionals
3 s.h.
Intensive conversation course designed to equip students with basic vocabulary used in health professions. Emphasis is on professional and academic vocabulary. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:181 Accent Reduction for Spanish
2 s.h.
Intensive accent reduction course designed to equip students with basic vocabulary used in health professions. Emphasis is on professional and academic vocabulary. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:182 Spanish for Health Professionals II
3 s.h.
Directed to enhance knowledge of reading, writing, and speaking skills in general Spanish or specific areas of Spanish in general Spanish or specific areas of Spanish. Emphasis is on professional and academic vocabulary. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:193 Spanish for Developmental Students
6 s.h.
Designed for students who will be majoring in a social science or a humanities discipline. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:199 Successful Strategies for Advanced Spanish
2 s.h.
Directed to enhance the communication skill in Spanish of the student already proficient in the language. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:200 Intermediate Spanish I
3 s.h.
Prerequisites: 35:0 or equivalent.
35:201 Intermediate Spanish II
3 s.h.
Prerequisites: 35:0 or equivalent.
35:202 Advanced Intermediate Spanish
4 s.h.
Advanced second-year course, prepared in consultation with 35:210 and 35:215 to satisfy history language requirements.
35:210 Spanish Constitutional Law
3 s.h.
Directed to not only to equip students with basic vocabulary used in health professions. Emphasis is on professional and academic vocabulary. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:220 Spanish Language and Culture: A study of vowels and consonants, final 
3 s.h.
Directed to not only to equip students with basic vocabulary used in health professions. Emphasis is on professional and academic vocabulary. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:230 Spanish for Native Speakers
3 s.h.
Directed to not only to equip students with basic vocabulary used in health professions. Emphasis is on professional and academic vocabulary. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:240 Advanced Spanish
3 s.h.
Directed to enhance the communication skill in Spanish of the student already proficient in the language. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:250 Advanced Spanish
3 s.h.
Directed to enhance the communication skill in Spanish of the student already proficient in the language. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:255 Spanish for Native Speakers
3 s.h.
Directed to enhance the communication skill in Spanish of the student already proficient in the language. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
35:260 Advanced Spanish
3 s.h.
Directed to enhance the communication skill in Spanish of the student already proficient in the language. Does not satisfy The University of Iowa language requirements. Offered only for Development and Learning Class Program.
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 clinical study in residence after entering the senior year honors program; maintain a minimum grade-point average of 3.0 overall and a grade of A in the major, and in the required 8 semester hours of departmental honors courses for seniors (3.97 Honors Seminar and 3.98 Honors Thesis); 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 in preparation for graduate study for the Ph.D. degree. The programs for the professional M.A. are specified to ensure that upon graduation the student will meet 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 science, psychology of language, and human behavior, essentially equivalent to an undergraduate major in this field at The University of Iowa.

Before his or her first registration in the program, the entering M.A. degree candidate must take proficiency examinations covering the speech and hearing coursework considered prerequisite to 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 who will be able to function independently in a variety of clinical settings. A comprehensive professional M.A. program meet all academic requirements for clinical 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 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. Neurological Disorders of Speech and Language 3 s.h.
2. Auditory Disorders 4 s.h.
3. Hearing Loss and Audiology 4 s.h.
4. Rehabilitation Audiology 3 s.h.
5. Counseling for Related Professions 3 s.h.
6. Psychological Issues and Counseling Techniques for the Communication Disorders Professional 3 s.h.
7. Seminar: Introduction to Research in Speech and Hearing 2 s.h.
8. Advanced seminars or research 4 s.h.
9. Additional semester hours of practicum registration sufficient to meet supervisory, direct clinical experience requirements for the Certificate of Clinical Competence in the American Speech-Language-Hearing Association, and to provide broad supervised practicum experience.

**B. Speech-Language Pathology, General Clinical Emphasis Courses listed under A and:**

1. Stuttering 3 s.h.
2. Voice Disorders 3 s.h.
3. Neurophysiologic of Speech and Language 3 s.h.
4. Medical Speech Pathology 3 s.h.
5. Practicum, research, and elective courses to bring total to at least 36 semester hours.

**C. Speech-Language Pathology, Emphasis in Clinical Work in Elementary and Secondary Schools Courses listed under A and B and:**

1. Remedial Methods in Speech and Hearing 3 s.h.
2. Laboratory Practicum in Elementary School 5 s.h.

**D. Audiology, General Clinical Emphasis Courses listed under A and:**

1. Fundamentals of Auditory Instrumentation 3 s.h.
2. Auditory and Communication 1 s.h.
3. Clinical Audiology and Hearing Aid Diagnosis 3 s.h.
4. Advanced Audiology 3 s.h.
5. Audiology and Hearing Aid Practice 4 s.h.
6. Audiology Methods of Surgical Special Processes 3 s.h.
7. 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:

1. Remedial Methods in Speech and Hearing 2 s.h.
2. Laboratory Practice in Elementary School 3 s.h.
3. 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 persons 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 D above, will meet the certification requirements of Iowa and most other states:

1. Remedial Methods in Speech and Hearing 3 s.h.
2. Laboratory Practice in Elementary School 3 s.h.
3. Electives 11 s.h.

**General Program**

The general M.A. program for the student intending to continue in the Ph.D. degree usually includes a substantial portion of the courses in the professional M.A. program. Additional courses, 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 preparation for the scholar and researcher in speech and hearing processes and their disorders, and offers intensive specialization in...
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 adviser 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 adviser and the faculty, provided they clearly define their purposes and present adequate plans for study.

In addition to the M.A. courses listed above, or upon, their equivalents, the following coursework is 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 3 s.h.
3:290 Research Speech Pathology and Audiology 3 s.h.
3:591 Research Audiology 3 s.h.
3:592 Research Experimental Phonetics 3 s.h.
Statistics beyond introductory course
Courses in computer science
Courses in psychology (psychological, learning, motivation, personality)

B. Speech-Language Pathology

Seminars in areas of interest
Clinical practicum

C. Audiology

3:254 Psychoacoustics 3 s.h.
3:256 Psychoacoustics Laboratory 4 s.h.
3:256 Physiological Hearing 4 s.h.
Seminars in areas of interest
Clinical practicum

D. Speech and Language Science

3:254 Psychoacoustics 3 s.h.
3:256 Psychoacoustics Laboratory 4 s.h.
Seminars in areas of interest
Coursework in psycholinguistics and
disfluencies
Coursework in biological and physical
sciences and mathematics

E. Hearing Science

3:254 Psychoacoustics 3 s.h.
3:290 Psychoacoustics Laboratory 4 s.h.
3:296 Physiology of Hearing 4 s.h.
3:296 Sensory Processes 3 s.h.
Seminars 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 seminars, are drawn mainly from the areas of physics, engineering, mathematics, statistics, physiology, 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 study in the Department of Speech Pathology and Audiology must complete the departmental information 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 term. While an undergraduate grade-point average above 3.0 does not ensure admission, the department admits few applicants with undergraduate grade-point averages below 3.0.

Completed applications must be received no later than January 1 for admission in the next fall semester. Later applications will be considered only in special situations. 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-admission 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 semester, July 1 for fall semester, November 1 for spring semester. However, if an applicant wishes to be considered for graduate appointment, the admission application must be filed by the deadline for appointment applications specified below. All applicants will usually 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 appointments usually begin only in fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester.

Scope of the Graduate Record Examination (GRE) Aptitude Test are usually required for consideration for financial assistance. Appointment applications must be received by February 1 to insure consideration for an appointment beginning the following fall semester. Initial appointment offers are generally made in March; however, the department continues to make offers after this time.

Clinical Facilities

The clinical training program derives great benefit from the fact that Iowa City is the health center of the state, and that a large number of facilities are readily available for the clinical training of graduate students 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. Pediatric Specialized Child Health Services, Department of Pathology Service, Child Psychiatry; Audiology and Speech Pathology; Veterans Administration Hospital. Directories of these programs form the Council on Speech and Audiology at the University of Iowa.

The University of Iowa Speech and Hearing Clinics serves 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 in the Wandel Johnson Speech and Hearing Center include audiological testing suite, diagnostic and therapy suites, modern equipment for diagnosis and therapy, a closed-circuit television system, and laboratories for acoustics, phonology, and perceptual studies of speech. These facilities are available to students and faculty for research and therapy. Research and therapy personnel are available for assistance in research instrumentation.

Cooperation of various departments of the University Hospitals and the College of Dentistry makes available additional laboratory facilities available for research on problems in speech and hearing. The participation of departmental specialists from various fields, including psychology, child services, education, and engineering and medicine, further broadens opportunities for student research in speech and hearing.

Courses

3/15 Introduction to Speech and Hearing Processes and Disorders 3.0

Introduction to the normal and abnormal functions of the speech and hearing systems. Emphasis on the assessment and treatment of speech and hearing problems. Prerequisites: 2/15 or instructor consent.

3/15 Introduction to Phonetics 3.0

Introduction to the study of speech sounds. Focus on the classification of speech sounds. Prerequisite: 2/15.

3/15 Introduction to Hearing Science 3.0

Introduction to the basic principles, theories, and research concerning human hearing. Prerequisite: 2/15 or instructor consent.

3/15 Phonetics and Psycholinguistics 3.0

Study of the physical properties of sound and the mental processes involved in its production and perception. Prerequisites: 2/15 and 2/15.

3/15 Introduction to Auditory Research 3.0

Introduction to auditory research, including the basic principles, theories, and research concerning human hearing. Prerequisite: 2/15 or instructor consent.

3/15 Speech Disorders 3.0

A comprehensive introduction to the study of speech production and its disorders. Prerequisite: 2/15 or instructor consent.

3/15 Speech Perception 3.0

Introduction to the study of speech perception. Prerequisite: 2/15 or instructor consent.

3/15 Language Development 3.0

Study of the development of language in children. Prerequisite: 2/15 or instructor consent.

3/15 Language and Speech Disorders 3.0

Study of the nature and causes of language disorders. Prerequisite: 2/15 or instructor consent.

3/15 Developmental Disorders 3.0

Study of the nature and causes of developmental disorders. Prerequisite: 2/15 or instructor consent.

3/15 Clinical Language and Speech Disorders 3.0

Study of the nature and causes of clinical language and speech disorders. Prerequisite: 2/15 or instructor consent.

3/15 Introduction to Child Language 3.0

Introduction to the study of language development in children. Prerequisite: 2/15 or instructor consent.

3/15 Phonetics and Phonology 3.0

Study of the physical properties of sound and the mental processes involved in its production and perception. Prerequisites: 2/15 and 2/15.

3/15 Speech Disorders 3.0

A comprehensive introduction to the study of speech production and its disorders. Prerequisite: 2/15 or instructor consent.

3/15 Speech Perception 3.0

Introduction to the study of speech perception. Prerequisite: 2/15 or instructor consent.

3/15 Language Development 3.0

Study of the development of language in children. Prerequisite: 2/15 or instructor consent.

3/15 Language and Speech Disorders 3.0

Study of the nature and causes of language disorders. Prerequisite: 2/15 or instructor consent.

3/15 Developmental Disorders 3.0

Study of the nature and causes of developmental disorders. Prerequisite: 2/15 or instructor consent.

3/15 Clinical Language and Speech Disorders 3.0

Study of the nature and causes of clinical language and speech disorders. Prerequisite: 2/15 or instructor consent.

3/15 Introduction to Child Language 3.0

Introduction to the study of language development in children. Prerequisite: 2/15 or instructor consent.

3/15 Phonetics and Phonology 3.0

Study of the physical properties of sound and the mental processes involved in its production and perception. Prerequisites: 2/15 and 2/15.

3/15 Speech Disorders 3.0

A comprehensive introduction to the study of speech production and its disorders. Prerequisite: 2/15 or instructor consent.

3/15 Speech Perception 3.0

Introduction to the study of speech perception. Prerequisite: 2/15 or instructor consent.

3/15 Language Development 3.0

Study of the development of language in children. Prerequisite: 2/15 or instructor consent.

3/15 Language and Speech Disorders 3.0

Study of the nature and causes of language disorders. Prerequisite: 2/15 or instructor consent.

3/15 Developmental Disorders 3.0

Study of the nature and causes of developmental disorders. Prerequisite: 2/15 or instructor consent.

3/15 Clinical Language and Speech Disorders 3.0

Study of the nature and causes of clinical language and speech disorders. Prerequisite: 2/15 or instructor consent.

3/15 Introduction to Child Language 3.0

Introduction to the study of language development in children. Prerequisite: 2/15 or instructor consent.

3/15 Phonetics and Phonology 3.0

Study of the physical properties of sound and the mental processes involved in its production and perception. Prerequisites: 2/15 and 2/15.

3/15 Speech Disorders 3.0

A comprehensive introduction to the study of speech production and its disorders. Prerequisite: 2/15 or instructor consent.

3/15 Speech Perception 3.0

Introduction to the study of speech perception. Prerequisite: 2/15 or instructor consent.
Cultural and Prior Education: Finds representation within the faculty on the basis of previous training, including planning, architecture, public policy, economics, statistics, research, geography, engineering, political science, and law. The program's students have diverse undergraduate majors, including economics, political science, geography, architecture and landscape architecture, political science, engineering, anthropology, sociology, urban studies and planning, English, biology, history, classics, and philosophy. Almost half of the program's 65 graduate students are women, one-third are married, and two-thirds are from out-of-state. Largely because of the common core of courses students get to know each other, and a significant portion of the educational experience takes place in informal discussion.

Recent graduates of The University of Iowa planning program have assumed positions at city, metropolitan, and regional planning agencies, and in state and federal government. The past several years' graduates took positions in all geographic regions of the United States and in several foreign countries.

Curriculum Structure

The planning curriculum comprises a 48-seemester-hour, four-semester (plus internship) program, accomplishing two academic years. The curriculum is based on the following: students must develop the theoretical and analytical skills that enable them to identify issues and recommend alternative policies; develop the skills, methods, and techniques for creating models and plans; and develop the ability to plan for public and private sectors, and to advise public and private organizations.

Core Curriculum

At the heart of The University of Iowa planning program is the core curriculum, which occupies the first academic year. Its purpose is to provide a rigorous foundation for analyzing public and social issues. The core curriculum is a plan to develop a conceptual understanding of the issues present in resource allocation, understanding the institutions—the various social, economic, political, administrative, and legal systems —that provide the context for policy analysis and contribute public choices; and develop the ability to articulate social goals and normative criteria for organizing society's resources; and analytic skills, both quantitative (e.g., statistics, forecasting, surveys, regional analysis) and nonquantitative (e.g., scenario writing, impact assessment). In total, the core accounts for 27 semester hours.

Core Courses

First Semester
102:205 Economics for Policy Analysis I 3 s.h.
102:207 History and Theories of Planning 3 s.h.
102:209 Urban Law and Legislation 3 s.h.
102:210 Introduction to Analytic Methods 3 s.h.

Second Semester
102:204 Collective Decision Making 3 s.h.
102:218 Economics for Policy Analysis II 3 s.h.
102:220 Intermediate Analytic Methods 3 s.h.
102:320 Laboratory in Information Systems and Presentation 3 s.h.

Third Semester
102:301 Field Problems in Planning 3 s.h.

Courses in the first semester are derived primarily from traditional disciplines (particularly economics, political science, and statistics), together with an introduction to the theories and practices of planning. Later courses allow students to select, evaluate, and organize information and arrive at conclusions in planning case studies. As students proceed through the core, increasing reliance is placed on real or realistic planning problems. The intent here is to develop critical judgment and insight in the application of theory through case studies and extended field problems. Students must request a waiver of any core courses on the basis of previous training and experience.

The Sectoral Major

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 six 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. Sectoral majors are organized around public policy issues, 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 allows for a student 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.

Joint Programs

Law and Planning

The Urban and Regional Planning Program and the College of Law cooperate in administering a four-year program which satisfies the degree requirements leading to an M.J. or M.S. in planning and a J.D. in law. 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 program 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 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.
Urban Transportation

A number of departments and programs at the University of Iowa are pursuing various policies and activities that are intended to promote or facilitate urban transportation. These efforts span a wide range of academic fields and are aimed at addressing various aspects of urban transportation, including policy development, research, and education. The University has developed a variety of initiatives and programs to support these goals, each of which contributes to the overall vision of advancing urban transportation solutions.

Urban Transportation

As an integral part of the broader academic community, the University of Iowa is committed to fostering innovation and excellence in the field of urban transportation. The institution has established a range of programs and initiatives that focus on various aspects of urban transportation, from policy development and research to education and training. These efforts reflect a multidisciplinary approach, involving collaboration across different departments and faculties.

Urban Growth in Developing Countries

Program coordinator: Minoli L. Mahdy

A decade-long graduate program in interdisciplinary and cross-cultural seminars and courses focuses on the challenges and opportunities in urban problems of development in Third World countries is offered through the Center for Development Studies within the Institute of Urban and Regional Development. This program is designed to enable students to gain a deeper understanding of the complexities of urban issues and to develop the skills necessary to address them effectively.

In addition to a number of development-related courses offered in specific departments, the program includes a graduate core course, 120/275 Urban Growth in Developing Countries, which focuses on the departments of Anthropology, Economics, Geographical Sciences, Social Work, 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.

Curriculum Structure

The curriculum offers a comprehensive exploration of urban transportation issues, spanning a range of topics from policy analysis and planning to urban design and development. The courses are structured to provide students with a broad understanding of the urban transportation landscape, including the challenges and opportunities associated with it. The program is designed to equip students with the knowledge and skills necessary to contribute to the development of sustainable and equitable urban transportation systems.

The curriculum includes a diverse range of courses that cover various aspects of urban transportation. These courses are organized to provide a solid foundation in the principles and practices of urban transportation, as well as to foster critical thinking and problem-solving skills. The program also offers opportunities for students to engage in research and practical projects, thereby enhancing their understanding of the field and preparing them for careers in academia, government, and industry.

Urban Transportation

In addition to the core courses, the program offers a number of electives that allow students to tailor their studies to their specific interests and career goals. These electives cover a wide range of topics, including transportation policy, urban design, transportation planning, and urban economics. The program also encourages interdisciplinary collaboration, providing students with the opportunity to work on projects that span multiple fields.

The curriculum is designed to be flexible, allowing students to adapt their studies to their individual needs and preferences. The program offers a variety of options for students who wish to pursue advanced study in urban transportation, including a dissertation option for those who wish to conduct in-depth research on a specific topic.

Students who successfully complete the program will have a deep understanding of urban transportation issues and will be well-prepared to contribute to the field in a variety of roles, including those in academia, government, and industry.

The program is administered by the Department of Urban Studies and Planning, in collaboration with other departments and faculties at the University of Iowa. The program is open to students from a variety of disciplines and backgrounds, and welcomes inquiries from students who are interested in pursuing advanced study in urban transportation.
Program Seminar. The latter seminar may be repeated, and students are asked to take it for the first three semesters during their tenure in the urban transportation program. The seminar will be offered for discussion of various topics within the field of transportation.

Students are strongly encouraged to gain practical experience through internships with public and private transportation agencies. 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 methods, 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 102:261 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 spring semester students meet with an orientation staff to identify possible projects. At the end of the fall semester the students present their findings. Beyond the substantive knowledge acquired through concentration on the research topic, research methods 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 batchelor research campus. A selective collection of transportation materials, including census documentation, computer tapes, microfilms, and periodicals not available elsewhere on campus is maintained at the bulletin. The collection is augmented with extensive reference materials on transportation and related subjects at other locations on the campus. Additional interlibrary facilities exist at the University as well. The Weig Computer Lab has a complete library of software packages tied to IBM 370, PDP-11, and Hewlett-Packard 2000 computer systems.

Financial Aid
Research assistants 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 or 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 below. 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:

44:113 Introduction to Transportation 3.0 a.h.
(Bexam as 102:133.)

44:134 Urban Transportation 3.0 a.h.
(Exam as 102:134.)

955:113 Transportation Systems Analysis 3.0 a.h.

44:250 Urban Behavior in Therapy Areas 3.0 a.h.

102:200 Transportation Policy and Planning 3.0 a.h.

102:261 Problems in Transportation and Land Use 3.0 a.h.

102:263 Urban Transportation Planning Process 3.0 a.h.

102:265 Transportation Regulation and Finance 3.0 a.h.
(Exam as 44:265, 8E-2b.)

547:372 Urban Transportation Planning 3.0 a.h.

547:371 Transportation Program Seminar 1.0 a.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 37:199 Honors Laboratory Research. 37:199 Honors Readings in Zoology, and 37:168 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 courses, 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 governmental laboratories, or service involving some planning or administrative functions. More than 50 percent of the doctoral students graduating from this department in the last two decades have been engaged in college or university teaching. A substantial number of students completing their training with the M.S. degree have obtained terminal or professional positions, some of which require independent responsibility for performance or planning.

Prior to registration in August, all new graduate students in zoology take a diagnostic examination covering topics in developmental biology, genetics, and physiology with an emphasis on cell physiology, ecology, and evolution. 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 his own deficiencies in mathematics, chemistry, or physics during the first year. A student with a baccalaureate degree other than biology or zoology may request modification of certain 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, developmental biology, genetics, molecular biology, neurobiology, population biology, behavior, physiology, and parasitology. Most projects have salutary aspects 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 two general areas: (1) developmental biology, ecology, and behavior, genetics, and physiology. Each area reflects one of these major areas, for birds as his or her concentrations, 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 6 to 8 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 tailored 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 admissions 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 earned in the 34-semester-hour minimum required for research 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 for research and career goals. On completion of the hours requirement for the research report, the student’s faculty advisor may accept the student’s research program in zoology, including the area of the student’s report.

Master of Science in Biology
The M.B. program with thesis requires 30 semester hours of graduate credit. Ordinarily 6 to 8 semester hours are assigned to thesis research and writing. 12 to 12 semester hours to graduate courses in zoology, 8 semester hours to graduate courses in botany, and the remaining 5 semester hours to free electives.
Following acceptance of the thesis, the candidate must pass a written examination covering graduate programs in botany and zoology. This is followed by an oral examination based mainly on the work reported in the thesis.

Doctor of Philosophy in Zoology

Each Ph.D. student's formal course of proficiency requirements are determined by his or her departmental advisory committee on the basis of the student's background and current and prospective research interests.

The committee also determines what portion of the formal course work or proficiency requirements the student must complete before taking the comprehensive examination. In this examination, the student is expected to demonstrate a knowledge of the fundamentals of zoology and a mastery of one of two specialized fields in zoology.

The student's research culminates in a thesis or dissertation, whose acceptance by the department must precede the student's final examination. The examination covers the thesis and the specialized field the thesis represents.

Financial Aid

Nearly all of the graduate students in the department receive some support, the largest number from teaching assistantships, scholarships, and research assistantships. Provided by the University or by individual research grants administered by faculty members.

Graduate fellowships are available through federally-funded Interdisciplinary training programs in cell and molecular biology and neurobiology. These programs also support postdoctoral fellowships. Support through interdepartmental programs in genetics (postdoctoral) and cancer (postdoctoral) is available.

The department also participates in the University-sponsored program of teaching assistantships. Students who apply for any departmental award may be considered for others. In reviewing committee considers them eligible. The department provides some support each summer for students who arrange for training at state laboratories on the coast, or at other appropriate field stations.

Most graduate assistants and other appointments for the following academic year are filled by April 1. Thus, opportunities occasionally exist for appointments at other times, including the beginning of the spring semester.

Requests for appointment should include clear statements of research interest, if such interest has been defined at the time of application.

Admission

An applicant for graduate admission should have a grade-point average above 3.0 and a Graduate Record Examination (GRE) Analytic Test (verbal and quantitative) score above 1000. The applicant should also take the Graduate Record Examination Advanced biology test, and his/hers or her score. Although the department president prefers candidates who have completed undergraduate programs much like its own, It will consider applicants with backgrounds in biophysics, botany, biochemistry, and other related areas.

Facilities

The department is housed in a cluster of continuous installations. It has animal care facilities for mammals, birds, reptiles, amphibians, fishes, and invertebrates, including pronghorn, and special facilities for research with viruses, DNA sequencing, fruit flies, and marine organisms. It has 12 walk-in and reach-in environmental chambers for special culture or animal care needs. There are three transmission electron microscopes, including one for teaching and student research purposes, and one with high resolution capabilities. The department is equipped to carry out research in all areas in which graduate teaching is conducted. Light microscopes of a variety of types are available, including those with phase contrast and polarizing capacities, and those with Nomarski differential. Cultures of various sorts, including trypticase, high-speed, and ultra-high-speed models, are available.

Other special equipment includes electrophoresis, gas-liquid and high-pressure liquid, and gas chromatography apparatus; electron amplifying and recording equipment, and a number of electrophysiological studies; a PDP-12 computer, and other disk-top computers; gas-flow and liquid scintillation and gamma counters for radioisotope detection and analysis, including gas-flow chromatographic samplers; contact temperature high units; various types for metabolism and growth studies; and ice and incubators; recording ultraviolet and visible spectrophotometers; densitometers, Counter units, temperature for field work are physiological ecology; water tables, aquaria, and sea "instant oceans"; micromanipulators, The culture room, greenhouse, and cold rooms. Laboratories are also equipped for advanced work with animals, which can be specialized biological, biochemical, cytological, or physiological techniques.

Iowa Lakeside Laboratory

Courses in field biology and aquatic biology at the Iowa Lakeside Laboratory extend the on-campus work in zoology. See the "Iowa Lakeside Laboratory" section of the Catalog.

Courses

Primarily for Undergraduates

19101 Comparative Ecol. Intensive

19112 Principles of Limnology

19124 Fishes and their behavior

19136 Zoology of freshwater crustacea

19204 Basic Biology of the Lake

19206 Biology of the River

19216 Limnology, part 1: freshwater biology

19217 Limnology, part 2: marine biology

19224 Biology of freshwater animals

19226 Biology of marine animals

19302 Introductory Zoology

19306 Comparative Anatomy

19312 Animal Behavior

19314 Behavior of animals in social situations

19316 Behavioral and evolutionary ecology

19501 Vertebrate Zoology

19512 Comparative Vertebrate Anatomy

19516 Vertebrate Paleontology

19518 Extinction of species in geologic time

19522 Ecological Laboratory (for majors)

19524 Ecological Laboratory (for nonmajors)

19526 Animal Behavior Laboratory

19532 Marine Zoology Laboratory

19534 Tropics Zoology Laboratory

19536 Comparative Zoology Laboratory

19542 Animal Behavior Laboratory

19544 Behavioral Ecology Laboratory

19550 Vertebrate Zoology Laboratory

19554 Tropics Vertebrate Zoology Laboratory

19562 Marine Zoology Laboratory

19564 Tropics Vertebrate Zoology Laboratory

19566 Tropics Marine Zoology Laboratory

19572 Ecological Laboratory (for nonmajors)

19574 Behavioral Ecology Laboratory

19576 Marine Zoology Laboratory

19582 Tropics Vertebrate Zoology Laboratory

19584 Marine Zoology Laboratory

19586 Tropics Marine Zoology Laboratory

19601 Introduction to Marine Biology

19624 Marine Ecology Laboratory

19626 Marine Ecology Laboratory
LIBERAL ARTS/Zoology

31703 Ecological Genetics 2 h.
Lectures, readings, discussions on gene action in development. Offered irregularly. Prerequisite: 31705.

31705 Animal Behavior 3 h.
Study of the mechanisms and their value in relation to survival and reproduction. Lecture, discussion, and field work. Reading assignments from recent literature. Offered irregularly. Prerequisite: 31036 or consent of instructor.

31710 Comparative Animal Physiology 3 h.
Lectures on the comparative physiology of the major larae, emphasizing the invertebrates. Prerequisite: consent of instructor.

31720 Invertebrate Zoology 4 h.
A study of the major groups of invertebrates, emphasizing the understanding of the evolutionary significance of the major groups of animals. Lecture and laboratory work. Prerequisite: 31710 or consent of instructor.

31725 Evolutionary Biology 3 h.
A study of evolutionary processes as they are manifested in the living world. Prerequisite: consent of instructor.

31730 Freshwater Biology 3 h.
Lectures and laboratory work on major aspects of aquatic ecosystems. Prerequisite: 31710 or consent of instructor.

31735 Animal Ecology 3 h.
Lectures and laboratory work on the behavioral ecology of animals. Prerequisite: consent of instructor.

31740 Advanced Topics in Animal Behavior 3 h.
A study of advanced topics in animal behavior. Prerequisites: permission of instructor.

31745 Environmental Science 3 h.
A study of the interrelationships of living organisms and their environment. Prerequisite: consent of instructor.

31750 Environmental Biology 3 h.
Lectures, reading, discussion of current literature. Prerequisite: consent of instructor or consent of instructor.

31755 Ecological Genetics 3 h.
Lectures, reading, discussion of current literature. Prerequisite: consent of instructor or consent of instructor.

31760 Marine Zoology 3 h.
Study of the major groups of marine animals. Prerequisite: 31710 or consent of instructor.

31765 Animal Behavior 3 h.
Study of the mechanisms and their value in relation to survival and reproduction. Lecture, discussion, and field work. Reading assignments from recent literature. Offered irregularly. Prerequisite: 31705.

31770 Animal Physiology 3 h.
Study of the comparative physiology of the major larae, emphasizing the invertebrates. Prerequisite: consent of instructor.

31780 Comparative Animal Physiology 4 h.
Study of the comparative physiology of the major larae, emphasizing the invertebrates. Lecture and laboratory work. Prerequisite: 31710 or consent of instructor.

31785 Animal Ecology 3 h.
Study of the behavioral ecology of animals. Prerequisite: consent of instructor.

31790 Advanced Topics in Animal Behavior 3 h.
Study of advanced topics in animal behavior. Prerequisites: permission of instructor.

31795 Environmental Science 3 h.
Study of the interrelationships of living organisms and their environment. Prerequisite: consent of instructor.

31800 Environmental Biology 3 h.
Lectures, reading, discussion of current literature. Prerequisite: consent of instructor or consent of instructor.

31850 Evolutionary Biology 3 h.
A study of evolutionary processes as they are manifested in the living world. Prerequisite: consent of instructor.

31860 Animal Ecology 3 h.
Study of the behavioral ecology of animals. Prerequisite: consent of instructor.

32500 Animal Behavior 3 h.
Study of the mechanisms and their value in relation to survival and reproduction. Lecture, discussion, and field work. Reading assignments from recent literature. Offered irregularly. Prerequisite: 31705.

32510 Animal Physiology 3 h.
Study of the comparative physiology of the major larae, emphasizing the invertebrates. Prerequisite: consent of instructor.

32520 Comparative Animal Physiology 4 h.
Study of the comparative physiology of the major larae, emphasizing the invertebrates. Lecture and laboratory work. Prerequisite: 31710 or consent of instructor.

32530 Animal Ecology 3 h.
Study of the behavioral ecology of animals. Prerequisite: consent of instructor.

32540 Advanced Topics in Animal Behavior 3 h.
Study of advanced topics in animal behavior. Prerequisites: permission of instructor.

32550 Environmental Science 3 h.
Study of the interrelationships of living organisms and their environment. Prerequisite: consent of instructor.

32560 Environmental Biology 3 h.
Lectures, reading, discussion of current literature. Prerequisite: consent of instructor or consent of instructor.

32570 Marine Zoology 3 h.
Study of the major groups of marine animals. Prerequisite: 31710 or consent of instructor.

32580 Animal Behavior 3 h.
Study of the mechanisms and their value in relation to survival and reproduction. Lecture, discussion, and field work. Reading assignments from recent literature. Offered irregularly. Prerequisite: 31705.

32590 Comparative Animal Physiology 4 h.
Study of the comparative physiology of the major larae, emphasizing the invertebrates. Lecture and laboratory work. Prerequisite: 31710 or consent of instructor.

32600 Animal Ecology 3 h.
Study of the behavioral ecology of animals. Prerequisite: consent of instructor.

32610 Advanced Topics in Animal Behavior 3 h.
Study of advanced topics in animal behavior. Prerequisites: permission of instructor.

32620 Environmental Science 3 h.
Study of the interrelationships of living organisms and their environment. Prerequisite: consent of instructor.

32630 Environmental Biology 3 h.
Lectures, reading, discussion of current literature. Prerequisite: consent of instructor or consent of instructor.

32640 Marine Zoology 3 h.
Study of the major groups of marine animals. Prerequisite: 31710 or consent of instructor.

32650 Animal Behavior 3 h.
Study of the mechanisms and their value in relation to survival and reproduction. Lecture, discussion, and field work. Reading assignments from recent literature. Offered irregularly. Prerequisite: 31705.

32660 Comparative Animal Physiology 4 h.
Study of the comparative physiology of the major larae, emphasizing the invertebrates. Lecture and laboratory work. Prerequisite: 31710 or consent of instructor.

32670 Animal Ecology 3 h.
Study of the behavioral ecology of animals. Prerequisite: consent of instructor.

32680 Advanced Topics in Animal Behavior 3 h.
Study of advanced topics in animal behavior. Prerequisites: permission of instructor.

32690 Environmental Science 3 h.
Study of the interrelationships of living organisms and their environment. Prerequisite: consent of instructor.

32700 Environmental Biology 3 h.
Lectures, reading, discussion of current literature. Prerequisite: consent of instructor or consent of instructor.

32710 Marine Zoology 3 h.
Study of the major groups of marine animals. Prerequisite: 31710 or consent of instructor.

32720 Animal Behavior 3 h.
Study of the mechanisms and their value in relation to survival and reproduction. Lecture, discussion, and field work. Reading assignments from recent literature. Offered irregularly. Prerequisite: 31705.

32730 Comparative Animal Physiology 4 h.
Study of the comparative physiology of the major larae, emphasizing the invertebrates. Lecture and laboratory work. Prerequisite: 31710 or consent of instructor.

32740 Animal Ecology 3 h.
Study of the behavioral ecology of animals. Prerequisite: consent of instructor.

32750 Advanced Topics in Animal Behavior 3 h.
Study of advanced topics in animal behavior. Prerequisites: permission of instructor.

32760 Environmental Science 3 h.
Study of the interrelationships of living organisms and their environment. Prerequisite: consent of instructor.

32770 Environmental Biology 3 h.
Lectures, reading, discussion of current literature. Prerequisite: consent of instructor or consent of instructor.
College of Business Administration

The college is organized into six academic departments: Accounting, Economics, Finance, Industrial Relations and Human Resource Management, Science, and Marketing.

The undergraduate and graduate programs of the college are fully accredited by the American Assembly of Colleges Schools of Business.

Research, executive development, and continuing education activities are supported by the external programs of the college industrial relations institutes, institute for Economic Research, Institute for Entrepreneurial Management, 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 background studies either in the College of Liberal Arts or 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 in finance through the student's designated major.

The last 30 (or 45 of the last 80) semester hours must be earned in residence following admission to the College of Business Administration. At least 32 semester hours of credit in course 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 satisfactorily passed 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 2.5 grade-point average in all college work, and all course work attempted at the University, in all business and economics course work attempted at the University, in all course work attempted in the major, and in all course work attempted at the University in the major.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Business communications
- Historical-cultural
- Literature
- Natural sciences (excluding mathematics)
- Principles of psychology or sociology
- Social psychology
- Quantitative methods

BA 1 Introduction to Financial Accounting

SA 2 Introduction to Managerial Accounting

BE 1 Principles of Economics

BE 2 Principles of Economics

6F 100 Introduction to Financial Management

6F 102 Introduction to Marketing

SL 47 Introduction to Law

6L 100 Administrative Management

6K 70 Computer Analysis

One of these courses fulfilling the requirement for a course in administrative processes under uncertainty.

6L 165 Business Policy

6K 165 Business Policy

6P 128 Managing the New or Small Business

- Consult the college's undergraduate office concerning methods for meeting the requirements listed above.

In addition, the student must complete a major area of study. The requirements for a specific major are established by the departments of the college.

An undergraduate student in the College of Business Administration may elect to complete a minor in another college of the University. For the minor requirements, the student should consult with the department in which he or she wishes to minor. To have the minor recorded on his or her transcript, the student must inform the Registrar's Office when applying for the degree.

Business Minor

Students planning in another college of the University may elect a minor in business administration. Students must meet the general admission requirements of the College of Business Administration and are under the guidance of an advisor.
Requirements for Undergraduate Study

To be considered for admission to the business minor program, the course 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 225-0 or higher 3 s.h.

Principles of microeconomics 3 s.h.
Principles of macroeconomics 3 s.h.

Accounting 3 s.h.

Second-Grade-Only Option

*One of the above courses must be completed with a grade of C- or higher.
The grade earned (D or F) is recorded.

Second-Grade-Only Option

*Note: The second-grade-only option is designed for students who have completed at least one year of college and wish to pursue a career in business administration. This option allows students to enter the business minor program after completing a minimum of one year of college coursework. Students must be in good academic standing and have completed the following courses with a grade of C- or higher:

- Introduction to Business 3 s.h.
- Principles of Microeconomics 3 s.h.
- Introduction to Financial Management 3 s.h.

Eligibility: Students must be enrolled in an undergraduate degree program at the university and must have completed at least one year of college coursework. Students must also have completed the following courses with a grade of C- or higher:

- Principles of Macroeconomics 3 s.h.
- Accounting 3 s.h.

Admission

The college normally admits undergraduate students at the beginning of each academic year. The deadline for submitting applications is October 15. Students who are accepted into the program will be notified of their admission status by December 1. Students who are not accepted will be placed on a waiting list and will be notified if a position becomes available.

Credit by Examination

Students may earn up to 30 semester hours of credit by examination. The College of Business and Economics offers a variety of exam options, including the College-Level Examination Program (CLEP) and the Advanced Placement Program (AP). Students who wish to take the exam should contact the Office of Admissions for more information.

Maximum Schedule

Course schedules for the business minor program are available online at the University of Iowa's website. Students are encouraged to consult with their advisors to develop a plan of study that meets their academic and career goals.

Pass/Fail Grading

The pass/fail grading option is available for students enrolled in courses designated as Pass/Fail. Students who choose to take courses on a Pass/Fail basis must meet the same academic standards as those who choose to take courses on a traditional grade basis. However, students who choose the Pass/Fail option must meet the following requirements:

- Students must have a minimum grade point average of 2.0
- Students must complete at least 60% of the course requirements

Interdepartmental Graduate Programs

The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Business Administration (M.B.A.), Master of Science in Accounting, and Master of Science in Economics. Each program has a specific set of requirements that must be completed in order to be admitted to the program.

In the M.B.A. integrated core and elective courses, students are required to complete the full-time program. In the M.B.A. part-time program, students are required to complete the full-time program in two years. In the M.B.A. part-time program, students are required to complete the full-time program in three years. In the M.B.A. part-time program, students are required to complete the full-time program in four years.

In the M.B.A. integrated core and elective courses, students are required to complete the full-time program. In the M.B.A. part-time program, students are required to complete the full-time program in two years. In the M.B.A. part-time program, students are required to complete the full-time program in three years. In the M.B.A. part-time program, students are required to complete the full-time program in four years.
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)
6A: 214 Managerial Accounting—M.B.A. 3 s.h.
6E: 261 Administrative Science 3 s.h.
6E: 285 Administrative Policy—M.B.A. 3 s.h.
or
6L: 265 Administrative Policy—M.B.A. 3 s.h.
6K: 271 Statistical Methods—M.B.A. 3 s.h.
6K: 273 Managerial Economic Theory—M.B.A. 3 s.h.

Applied Core (9 semester hours) Three of the following, or two of the following and an approved elective:
6L: 295 Industrial Relations—M.B.A. 3 s.h.
6M: 322 Marketing Management II—M.B.A. 3 s.h.

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, managerial accounting, and marketing. Requests for other areas of concentration may be approved.

Evening courses offerings allow students to complete an M.B.A. degree on a part-time basis in Iowa City, 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 Iowa City followed by classes one day a week 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 Master of Arts degree program in business administration is designed for students seeking specialization in one of several areas of business administration. It permits a research emphasis which they satisfies students for research or teaching positions in academic institutions as well as for positions in business and government. The program is a basis for permitting students to develop a specialization according to their capabilities, background, and personal goals. The sufficient course work and related experience are provided so that students achieve competence in economics theory, statistical methods, teaching, and research as well as expertise in two areas of study.

Courses work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major, and minor areas of study, and dissertation research. Most students (including all with master’s degrees from AACSB accredited programs) take 60 semester hours of course work. Additional course work requirements may be imposed on others to guarantee satisfaction of business prerequisites or the Graduate College minimum basic requirements (72 semester hours of graduate credit, including 15 hours taken before entering the UI Ph.D. program).

Prerequisites Courses The common body of knowledge requirement of the AACSB must be satisfied in the undergraduate or graduate courses. The requirement includes courses in accounting, finance, management, marketing, organizational behavior, quantitative methods, and the economic and legal environment pertaining to profit and/or nonprofit organizations.

Requirements for the Master of Arts degree with thesis include:

Major area 9 s.h.
Minor area 6 s.h.
Economic theory and/or organizational behavior 6 s.h.
Electives 6 s.h.
Total 30 s.h.

Requirements for the Master of Arts degree without thesis include:

Major area 12 s.h.
Minor area 6 s.h.
Economic theory and/or organizational behavior 6 s.h.
Electives 6 s.h.
Research methodology 3 s.h.
Research reports (2nd) 2 s.h.
Total 35 s.h.

The minimum number of semester hours for either program is usually earned in courses exclusively for graduate students (200 level); but where appropriate, the student may take courses at the 100 level. Additional course work beyond the minimum semester hours may be required in order to meet the prerequisites for graduate courses in a major or minor area of study.

Students in the thesis program will be expected to defend the thesis in an oral examination, and may be required to take a written and/or oral comprehensive examination over course work. A final oral examination is required in the synthesis phase.

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 a basis for permitting students to develop a specialization according to their capabilities, background, and personal goals. The sufficient course work and related experience are provided so that students achieve competence in economics theory, statistical methods, teaching, and research as well as expertise in two areas of study.

Courses work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major, and minor areas of study, and dissertation research. Most students (including all with master’s degrees from AACSB accredited programs) take 60 semester hours of course work. Additional course work requirements may be imposed on others to guarantee satisfaction of business prerequisites or the Graduate College minimum basic requirements (72 semester hours of graduate credit, including 15 hours taken before entering the UI Ph.D. program).

Core Courses Core courses are designed to develop research methods competency and to provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (3 s.h.), economics (3 s.h.), issues in scientific inquiry (3 s.h.), and research methods/statistics/quantitative analysis (12 s.h.).

To reflect the background and interests of individual students, candidates are consulted with their advisors to establish satisfaction of core requirements.

Major Area of Study A minimum of 12 semester hours of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resources
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.A. 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 M.B.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 consult the Graduate Programs 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 Philips 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, a collection of a wide range of classroom facilities.

Extensive research materials for research 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 service 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 continuous basis to business 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 at the college's continuing education will be in the field of insurance. The institute conducts specialized and continuing education seminars throughout the year at The University of Iowa 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 constituencies. The staff members plan 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.

86600 Computer Education Military M.B.A. 8 s.h.
86361 Video Communication Skills - M.B.A. 8 s.h.
     Students are required to write business contracts.
       Restricted to M.B.A. candidates.
86320 Out Communication Skills - M.B.A. 8 s.h.
     Includes workshop on oral presentation skills for business contexts. Restricted to M.B.A. candidates.

Accounting
Department head: Russell J. Peterson
assistant professor Dennis P. Duong, Richard G. Gundersen, James R. Hathaway, administration professors Sue Campbell, Joan Y. State
Degrees offered: B.B.A., M.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 who wish only 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 course work 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 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 who wishes to apply for admission to the Professional Program in Accounting must complete 60 semester hours of course work, including the common requirements for the M.B.A. and the statistics, analysis, and after earning grades of A 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:119 Introduction to Taxation 3 s.h.
6A:131 Financial Accounting 1 3 s.h.
6A:176 Managerial Information Models 3 s.h.
6E:103 Microeconomics 3 s.h.

Electives 18 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:140C Cost Accounting for Management Analysis and Control 3 s.h.
6L:143 Law and Business 3 s.h.
Business policy elective 3 s.h.
Electives 12 s.h.

Third Year
6A:220 Accounting Theory I 3 s.h.
6A:221 Accounting Theory II 3 s.h.
Graduate accounting elective 0-9 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 earned bachelor's degrees with a major field in accounting at other institutions.

Students who wish to enter the Professional Program in Accounting after having completed bachelor's degrees with concentrations in accounting from other institutions 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 following with neither previous accounting or business courses, the following typical first-year courses include:

6A:102 Financial Accounting 3 s.h.
6A:214 Managerial Accounting 3 s.h.
6A:115 Introduction to Taxation 3 s.h.
6A:131 Financial Accounting II 3 s.h.
6A:102 Financial Accounting II 3 s.h.
6E:103 Price, Employment, and Production Theory 3 s.h.
6E:121 Methods of Management M.B.A. 3 s.h.
6E:124 Managerial Finance M.B.A. 3 s.h.
6M:105 Marketing Management M.B.A. 3 s.h.
6E:107 Quantitative Methods M.B.A. 3 s.h.
6C:271 Statistical Methods
M.B.A. 3 e.h.
6L:149 Law and Business
3 e.h.
These are the typical second-year courses:
6A:144 Auditing
3 e.h.
6A:220/251 Accounting Theory
6 e.h.
6A:270 Advanced Financial Accounting
Problems
3 e.h.
6C:281 Administrative Science
I
M.B.A. 3 e.h.
6C:285 Administrative
Policy—M.B.A.
3 e.h.
6C:278 Operations
Research—M.B.A.
3 e.h.
6C:273 Managerial Economic Theory
M.B.A. 3 e.h.
Graduate accounting electives
6 e.h.
6A:290 Accounting Issue Series
6 e.h.
Doctor of Philosophy
See the "College of Business Administration" section of the Catalog.

Courses
Unusual—otherwise indicated, courses in accounting are expected to be offered in the fall, spring, and summer sessions.

Primary for Undergraduates
M6000 Cooperative Education Training Internship
6 e.h.
6A:1 Introduction to Financial Accounting
Surveys and analyses of contemporary accounting informational systems, emphasis on external reporting, by a team to its investors and creditors. Prerequisite: satisfactory student performance during summer training (at least 20 semester hours earned).
6A:2 Introduction to Managerial Accounting
Surveys and analyses of contemporary accounting informational systems, emphasis on internal reporting and decision making, procedures for determination of information of management decision making. Prerequisite: satisfactory student performance during summer training (at least 20 semester hours earned).

Primary for Undergraduates and Graduates
6A:152 Introduction to Taxation
3 e.h.
Introduction to federal income taxation; coverage of corporate and personal income taxes and regulations; analysis on determining a best structure of the student's administration; and relevance of the federal income tax system. Prerequisites: grades of A or B in 6A:110 and 6A:120 and junior standing (at least 32 semester hours earned).
6A:190 Financial Accounting Reporting
Analysis of various accounting reporting practices in the context of decision by enterprise management, owners, creditors and external publics. Financial analyses, evaluation of utility of the reports, and criticism of the reporting systems. Recommended for students not majoring in accounting but who wish to attain a better understanding of current accounting report practices. Prerequisite: 6A:1 or equivalent.
6A:220 Cost Accounting for Management Analysis and Control
Selection and preparation of information which will serve the corporation and need management in planning effectively. Production, sales, and financial cost analyses; cost-volume-profit analysis, cost behaviors, cost classification and cost control. Quantitative techniques involved with mid-level responsibility. Prerequisites: admission to the Professional Program in Accounting, senior standing (at least 60 semester hours earned).
6A:151 Financial Accounting I
Review of income statement and balance sheet concepts, followed by intensive coverage of asset and liability concepts. Prerequisites: admission to the Professional Program in Accounting.
6A:152 Financial Accounting II
Application of financial accounting concepts to analysis of the financial statements and, the trend analysis, and special problems, such as working capital and bond issues, income reporting, price level adjustments. Prerequisites: 6A:151 and senior standing (at least 60 semester hours earned).
6A:166 Auditing
Develops an understanding of the auditing function as it relates to current business and government operations; audit standards, ethics, and liability; audit methods, including the application of audit data processing systems; and the integration of financial data processing into the audit process. Prerequisites: 6A:150, 6A:152, and senior standing (at least 100 semester hours earned).
6A:168 Financial Accounting III Business combinations, reorganizations and consolidations, as well as course in the theory of accounting. Prerequisites: 6A:150, 6A:152, and senior standing (at least 100 semester hours earned).
6A:192 Special Topics in Accounting
Special topics in accounting, topics selected on basis of student and faculty interest. Prerequisite consent of instructor.
6A:193 Financial Accounting—B.S.A.
Survey of current practice and thought relating to external reporting for tax in its functional, relative and cumulative functions in internal reporting and problems and their alternatives. Primarily for students without major in accounting or business administration. Prerequisites: 6A:150 and senior standing (at least 100 semester hours earned).

Primary for Graduates
6A:274 Managerial Accounting—B.A.
3 e.h.
Income tax information system, accounting systems of the managerial accounting and financial management systems and relations. Relevant to personal and corporate income taxes. Students analyzed as basis for decision making and analysis of accountant's role in corporate accounting are considered. Prerequisites: 6A:183/182. Concurrently: 6A:271.
6A:233 Accounting Theory
Includes decision theory, capital budgeting, risk analysis, and performance measurement. Offered fall semester. Prerequisites: grades of A or B in 6A:150 and 6A:120.
6A:235 Accounting Theory II
Includes alternative income and asset measurement models, social choice issues in the selection of information systems, alternative compensation methods, institutions and professional organizations. Prerequisites: grades of A or B in 6A:183 or 6A:182. Offered spring semester. Prerequisites: grades of A or B in 6A:142 or 6A:370.
6A:280 Accounting Information Systems
Evaluation and design of accounting information systems; in-depth analysis of accounting information systems; and study of development of information systems. Prerequisites: grades of A or B in 6A:120 and 6A:241.
6A:330 Auditing and Regulation of Accounting
Advanced auditing as a professional license, as well as governmental regulation and influence on current auditing regulation. Problems. Prerequisites: students with contemporary problems in auditing and the agency regulation of influence auditing practice. Prerequisites: grades of A or B in 6A:142 and 6A:220.
6A:365 Research in Accounting
Techniques and tax principles and procedures for conducting research on environments of taxation. Prerequisites: grades of A or B in 6A:150.
6A:393 Corporate Issues in Accounting
3 e.h.
Specific topics dealing with contemporary accounting issues, selection or nature of topics varies from semester to semester. Offered fall semester, evening classes under instructor's and students' interests. Prerequisites: grades of A or B in 6A:150.
6A:395 Corporate I
3 e.h.
The needs of a modern economy, an emphasis on various accounting concepts in private industry or government; integration of financial data and management control, analysis, statistics, control, and regulation. Offered spring semester. Prerequisites: 6A:220.
6A:396 Accounting Issue Series
3 e.h.
Through brief treatments lectures-research analysis of accounting practices with accounting practices from industry, government, and public accounting, subjects are exposed to taxes, practice and—where these practices lead—its effects on the economy accounting, ethics, and subjects of current interest with concerns and other economic issues. Prerequisites: grades of A or B in 6A:145 or do not have a current accounting degree. 6A:150.
6A:398 Student in Accounting Thought
Evolution of accounting thought as applied to the concept of the development of a conceptual framework of accounting; specific consideration of the impact of economic information, economic change, and accounting change. Offered spring semester. Prerequisites: 6A:393.
6A:399 Seminar in Managerial Accounting Thought
Evolution of accounting thought as applied to the concept of the development of a conceptual framework of accounting; specific consideration of the impact of economic information, economic change, and accounting change. Offered spring semester. Prerequisites: 6A:393.
6A:167 Financial Accounting Problems
Analysis of various financial accounting principles and contemporary problems, such as nonprofit accounting and recent accounting standards. Designed for students who have not completed 6A:145 or do not have a current accounting degree. 6A:150.
6A:176 Student in Accounting Thought
Evolution of accounting thought as applied to the concept of the development of a conceptual framework of accounting; specific consideration of the impact of economic information, economic change, and accounting change. Offered spring semester. Prerequisites: 6A:393.
6A:177 Student in Accounting Thought
Evolution of accounting thought as applied to the concept of the development of a conceptual framework of accounting; specific consideration of the impact of economic information, economic change, and accounting change. Offered spring semester. Prerequisites: 6A:393.
6A:178 Student in Accounting Thought
Evolution of accounting thought as applied to the concept of the development of a conceptual framework of accounting; specific consideration of the impact of economic information, economic change, and accounting change. Offered spring semester. Prerequisites: 6A:393.

Economics
Department chair: Donald R. McCloskey
Faculty: professors William F. Ackerman, Dean; John H. S. Mathews; Donald P. McCloskey; Thomas Anthony; Thomas Proppe; Stephen G. Sireci; Robert B. Y. Wu; and others.
Assistant professor: Anthony C. Consolvo; Paul Olson; George Zech
associate professors William Roche, Allyn; Mitchell, David; Benjamin W. Scoville; and others.

6A:156 Introduction to Macroeconomics
3 e.h.
Introduction to Macroeconomics. 3 e.h.
6A:162 Intermediate Microeconomics
3 e.h.
Intermediate Microeconomics. 3 e.h.
6A:163 Microeconomics
3 e.h.
Microeconomics. 3 e.h.
6A:164 Money and Banking
3 e.h.
Money and Banking. 3 e.h.
6A:166 International Economics
3 e.h.
International Economics. 3 e.h.
6A:168 Advanced Macroeconomics
3 e.h.
Advanced Macroeconomics. 3 e.h.
6A:170 Advanced Microeconomics
3 e.h.
Advanced Microeconomics. 3 e.h.
6A:172 Advanced International Economics
3 e.h.
Advanced International Economics. 3 e.h.
6A:173 Advanced Money and Banking
3 e.h.
Advanced Money and Banking. 3 e.h.
6A:174 Advanced International Economics
3 e.h.
Advanced International Economics. 3 e.h.
6A:175 Advanced Money and Banking
3 e.h.
Advanced Money and Banking. 3 e.h.
6A:176 Advanced Macroeconomics
3 e.h.
Advanced Macroeconomics. 3 e.h.
6A:177 Advanced Microeconomics
3 e.h.
Advanced Microeconomics. 3 e.h.
6A:178 Advanced International Economics
3 e.h.
Advanced International Economics. 3 e.h.
6A:179 Advanced Money and Banking
3 e.h.
Advanced Money and Banking. 3 e.h.
6A:180 Advanced Macroeconomics
3 e.h.
Advanced Macroeconomics. 3 e.h.
6A:181 Advanced Microeconomics
3 e.h.
Advanced Microeconomics. 3 e.h.
6A:182 Advanced International Economics
3 e.h.
Advanced International Economics. 3 e.h.
6A:183 Advanced Money and Banking
3 e.h.
Advanced Money and Banking. 3 e.h.
Economics/BUSINESS ADMINISTRATION

Economics/BUSINESS ADMINISTRATION

Third Semester
EE211 Mathematical
Economics 3 a.h.
EE221 Econometrics I 3 a.h.
Field course 3-6 a.h.

Fourth Semester
EE222 Econometrics II 3 a.h.
Field course 3-6 a.h.

An additional four semester hours in economic history, economic thought, or courses in microeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year complete the work 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 his or her 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 success of that defense. Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Teaching and Research

The Ph.D. program requires candidates to engage in teaching/research for at least two years (semesters or summer sessions). The typical load of service in each term is 25 hours per week.

Courses

Primary for Undergraduates

Note: EE1 and EE2 may be taken in either order or they may be taken simultaneously; they satisfy the general education requirement in social sciences.

Math Courses

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

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EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.

EE107 Microeconomics 3 a.h.
EE109 Macroeconomics 3 a.h.
Graduate Program

Refer to "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

6F:008 Cooperative Education Internship
6F:100 Introductory Financial Management
6F:101 Directing Businesses in Finance

Individualized readings in selected topics in business.

6F:102 General Insurance

Theory of risk and risk bearing; arrangements for dealing with risk; insurance industry; types of insurance, features of insurance and government regulation of insurance and reinsurance; death, accident, property, health. Prerequisites: 6F:100 and 6F:102.

6F:111 Investments

Activities involved in selecting among alternative financial assets from the viewpoint of the individual, present values, security market theory, industry development. Prerequisite: 6F:100 or consent of instructor.

6F:112 Social Security

The role of money and currency markets in the processes of choices and development; flow of funds in the economy. Prerequisite: 6F:100 or consent of instructor.

6F:113 Commercial Banking

Management of commercial banks and other financial intermediaries; principles and concepts of running a bank, its assets and liabilities. May use case studies. Prerequisite: 6F:111 or consent of instructor.

6F:114 Global Trade

Historical development of taxes in trading, trading practices and procedures, hedging and regulatory aspects. Prerequisite: 6F:100 or consent of instructor.


Assessment of financial decisions made by financial managers, e.g., capital structure, dividend policy, leverage, mergers, and takeover of new firms, Prerequisite: 6F:100 or consent of instructor.

6F:118 Case Problems in Financial Management

Case study approach, methods of analyzing and solving case problems, emphasis on case preparation, planning of security issues, and role of capital. Prerequisite: 6F:117 or consent of instructor.

6F:121 Advanced Topics in Finance

In-depth study of selected topics in Finance not covered by regular course; credit hours and course content determined by instructor. Prerequisite: consent of instructor.

6F:122 Property and Liability Insurance

Principles and techniques needed for insurance; fire, marine, motor insurance, and allied lines; policies, coverages, other property and liability coverages; insurance contracts and underwriting. Prerequisite: 6F:117.

6F:123 Life and Health Insurance

At least one of the following:

6F:125 20th Century Public Economic Security Programs

6F:126 Risk Management

Three additional hours of courses specified by the student's advisor.

Program Requirements

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 control or specialist work in non-financial businesses, in the entire range of financial businesses, or in non-profit or government organizations. Insurance specialists may find employment in a number of departments in public and private agencies, in large businesses, or in insurance companies. The education received is either area is concerned 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

6F:101 Statistical Analysis
6F:111 Investments
6F:113 Financial Markets and Institutions

At least 2 semester hours of accounting beyond the basic core, followed by any two of these:

6F:112 Security Analysis
6F:114 Commercial Banking
6F:115 Case Problems in Financial Management

Insurance

6F:271 Statistical Analysis
6F:272 Investments
6F:273 Property and Liability Insurance

6F:122 Life and Health Insurance

At least one of the following:

6F:125 20th Century Public Economic Security Programs
6F:126 Risk Management

Three additional hours of courses specified by the student's advisor.

Program Requirements

Refer to "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

6F:008 Cooperative Education Internship
6F:100 Introductory Financial Management
6F:101 Directing Businesses in Finance

Individualized readings in selected topics in business.

6F:102 General Insurance

Theory of risk and risk bearing; arrangements for dealing with risk; insurance industry; types of insurance, features of insurance and government regulation of insurance and reinsurance; death, accident, property, health. Prerequisites: 6F:100 and 6F:102.

6F:111 Investments

Activities involved in selecting among alternative financial assets from the viewpoint of the individual, present values, security market theory, industry development. Prerequisite: 6F:100 or consent of instructor.

6F:112 Social Security

The role of money and currency markets in the processes of choices and development; flow of funds in the economy. Prerequisite: 6F:100 or consent of instructor.

6F:113 Commercial Banking

Management of commercial banks and other financial intermediaries; principles and concepts of running a bank, its assets and liabilities. May use case studies. Prerequisite: 6F:111 or consent of instructor.

6F:114 Global Trade

Historical development of taxes in trading, trading practices and procedures, hedging and regulatory aspects. Prerequisite: 6F:100 or consent of instructor.


Assessment of financial decisions made by financial managers, e.g., capital structure, dividend policy, leverage, mergers, and takeover of new firms, Prerequisite: 6F:100 or consent of instructor.

6F:118 Case Problems in Financial Management

Case study approach, methods of analyzing and solving case problems, emphasis on case preparation, planning of security issues, and role of capital. Prerequisite: 6F:117 or consent of instructor.

6F:119 Advanced Topics in Finance

In-depth study of selected topics in Finance not covered by regular course; credit hours and course content determined by instructor. Prerequisite: consent of instructor.

6F:121 Property and Liability Insurance

Principles and techniques needed for insurance; fire, marine, motor insurance, and allied lines; policies, coverages, other property and liability coverages; insurance contracts and underwriting. Prerequisite: 6F:117.

6F:123 Life and Health Insurance

At least one of the following:

6F:125 20th Century Public Economic Security Programs
6F:126 Risk Management

Three additional hours of courses specified by the student's advisor.


Management Sciences

Using tools: Colin B. Hall Faculty: professor Colin B. Hall, William L. Barry, Charles R. Agnew, Michael L. Doherty, and Kent A. S. Bickerstaff. Research is conducted in departments of business administration, economics, and sociology. The program is designed to provide training in various areas of management and to prepare students for professional careers in management and related fields.

Management Sciences majors participate in a variety of educational experiences that develop their knowledge about complex managerial systems. Skills in applying this knowledge are acquired by developing and evaluating cost models, utilizing computer technology, creating data bases, and examining the behavioral attributes of work organizations. Each degree track is one of several career options open to departmental majors.

Management sciences majors are prepared for a variety of career opportunities in both manufacturing and service-oriented organizations. Typical starting positions include computer programmers, systems analysts, sales representatives, computer companies, and management trainees. Management sciences majors are well prepared for positions in operations management as well as many other more traditional positions.

Three tracks of study are available for the management sciences major: administrative studies, management information systems, and operations management. Course requirements are listed below for each track.

Administrative Studies Track

EC 161A Individual Behavior in Organizations
EC 163 Decision and Management Models
EC 165 Information Systems

Management Information Systems Track

EC 701 Statistical Analysis
EC 702 Management Information Systems
EC 706A Decision Science

Operations Management Track

EC 701 Statistical Analysis
EC 704 Decision Science
EC 716A Individual Behavior in Organizations

EC 718A Management Information Systems

EC 718A Management Information Systems

EC 718A Management Information Systems
Marketing

Chair: Peter C. Rice
Faculty: P. Peter C. Rice, associate professors Page J. Barrow, David J. Curry, James E. Wooldridge; associate professor J. Daniel Jannov; associate professor Mark M. Monez

M.S. in Marketing

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 almost exclusively with business activities involved in the flow of goods from production to consumption. Today the study of marketing includes not only these principles that are widely applicable, they are as relevant in the marketing of the arts, athletics, and social causes as they are in the marketing of goods and services. A major in marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods.

Students graduating in majors in marketing may find first opportunities for employment in jobs such as market analyst, merchandiser buyer, community action agent, purchasing agent, advertising trainee, or sales representative, in a variety of organizations, both profit and nonprofit.

The requirements for the Bachelor of Business Administration degree in a major in marketing are as follows:

- 60-71 Statistical Analysis
- 641-194 Marketing Research
- In addition to the minimum common requirements for the B.B.A. degree, the student must choose at least three, but no more than four, of the following:
  - 641-192 Marketing Distribution Systems
  - 641-150 Consumer Behavior
  - 641-137 Advertising Theory and Technique
  - 641-138 Marketing Communications
  - 641-126 Service Management
  - 641-147 Marketing Management
  - 641-190 Experimental Course

Graduate Programs

See "Interdepartmental Graduate Programs" in the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>630-100</td>
<td>Business Education Internship</td>
</tr>
<tr>
<td>631-200</td>
<td>Marketing</td>
</tr>
<tr>
<td>630-200</td>
<td>Introduction to Marketing</td>
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</tbody>
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For Undergraduates and Graduates

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>631-510</td>
<td>Chartered Life Underwriting</td>
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Graduate Students in Marketing

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>641-100</td>
<td>Business Administration Internship</td>
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<tr>
<td>641-200</td>
<td>Marketing</td>
</tr>
<tr>
<td>641-300</td>
<td>Special Topics in Marketing</td>
</tr>
<tr>
<td>641-400</td>
<td>Seminar in Marketing Management</td>
</tr>
<tr>
<td>641-500</td>
<td>Advanced Topics in Marketing</td>
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<tr>
<td>641-600</td>
<td>Thesis in Marketing</td>
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</table>

Graduate Students in Education

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<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>601-100</td>
<td>Educational Research Internship</td>
</tr>
<tr>
<td>601-200</td>
<td>Educational Administration</td>
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<tr>
<td>601-300</td>
<td>Educational Psychology</td>
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<tr>
<td>601-400</td>
<td>Seminar in Educational Administration</td>
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<tr>
<td>601-500</td>
<td>Advanced Topics in Educational Administration</td>
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<tr>
<td>601-600</td>
<td>Thesis in Educational Administration</td>
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Graduate Students in Business Administration

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<th>Course</th>
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<tbody>
<tr>
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<td>600-300</td>
<td>Special Topics in Business Administration</td>
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<td>600-400</td>
<td>Seminar in Business Administration</td>
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<td>600-500</td>
<td>Advanced Topics in Business Administration</td>
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<td>600-600</td>
<td>Thesis in Business Administration</td>
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Graduate Students in Economics

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<tbody>
<tr>
<td>610-100</td>
<td>Economics Internship</td>
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<tr>
<td>610-200</td>
<td>Economics</td>
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<td>Special Topics in Economics</td>
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<td>610-400</td>
<td>Seminar in Economics</td>
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<td>Advanced Topics in Economics</td>
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<td>Thesis in Economics</td>
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Graduate Students in Management Science

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<tbody>
<tr>
<td>620-100</td>
<td>Management Science Internship</td>
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<tr>
<td>620-200</td>
<td>Management Science</td>
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<tr>
<td>620-300</td>
<td>Special Topics in Management Science</td>
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<td>Seminar in Management Science</td>
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<td>Advanced Topics in Management Science</td>
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<td>Thesis in Management Science</td>
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Graduate Students in Marketing

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<th>Course</th>
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<tbody>
<tr>
<td>640-100</td>
<td>Marketing Internship</td>
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<td>Marketing</td>
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<td>640-300</td>
<td>Special Topics in Marketing</td>
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<td>Seminar in Marketing</td>
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<td>Advanced Topics in Marketing</td>
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<td>640-600</td>
<td>Thesis in Marketing</td>
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Graduate Students in Statistics

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<tr>
<td>605-100</td>
<td>Statistics Internship</td>
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<tr>
<td>605-200</td>
<td>Statistics</td>
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<tr>
<td>605-300</td>
<td>Special Topics in Statistics</td>
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<td>605-400</td>
<td>Seminar in Statistics</td>
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<tr>
<td>605-500</td>
<td>Advanced Topics in Statistics</td>
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<tr>
<td>605-600</td>
<td>Thesis in Statistics</td>
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</table>
Primarily for Graduates

MG 501 Directed Readings in Marketing  3 a,b
Individually guided readings in selected topics in marketing. Prerequisite: consent of instructor.

MG 522 B.A. Research Report  1 a,b
Student writes a major paper. For northeast M.A. candidates only. Prerequisite: consent of instructor.

MG 555 Contemporary Topics in Marketing  3 a,b
Special topics of contemporary interest at the graduate level. Prerequisite: consent of instructor.

MG 559 Special Projects in Marketing  3 a,b
Internal and external environment of marketing decision; behavioral science applied to consumer behavior; effects and micro versus macro; marketing goals; place, and promotion. Prerequisites: 559.201 and 559.202.

MG 581 Marketing Research Methods  3 a,b
Methods of design and analysis of marketing research studies, including surveys and laboratory and market experiments, design and evaluation of experiments, and decision making. Prerequisite: consent of instructor.

MG 582 Behavior in Marketing  3 a,b
Study of behavior of consumers and industrial buyers; examination of research methods and findings in behavioral sciences. Prerequisite: consent of instructor.

MG 596 Product Management  3 a,b
Introduction of product planning, development, and management in corporate strategic markets; application of market portfolio theory, search for new product ideas and their evaluation, development and introduction of new products, and development of marketing programs for new products. Prerequisites: for A.B.A. students. Prerequisite: consent of instructor.

MG 597 Marketing Communications  3 a,b
Examination of marketing communications as dialogues between producers and consumers and how promotional mix variables influence responses. Emphasis on advertising, sales promotion, and direct marketing. For M.B.A. students with an open course in marketing, consent of instructor.

MG 598 Multivariate Methods in Marketing  3 a,b
A survey of basic multivariate methods and concentration in those methods as they relate to marketing problems: regression analysis, factor analysis, discriminant analysis, canonical analysis, cluster analysis, and computer software for marketing literature. Prerequisite: consent of instructor.

MG 599 Marketing Models  3 a,b
Examination of theoretical and observational models in marketing with emphasis on recent advances; logical flow and qualitative models which have been developed to some extent in current marketing literature. Examination of trends and contributions of a number of models and participation in model-development projects. Prerequisite: consent of instructor.

MG 599A Psychological Scaling for Marketing Applications  3 a
Survey of number of psychophysical scaling techniques which have applications in consumer research in marketing. Topics include the Thurstone, B. C. technique, principal component analysis, multidimensional scaling models, nominal scales and cluster analysis; some empirical data collection methods and computer algorithms such as ALSCAL and MACH 10. Prerequisite: consent of instructor.

MG 599B Seminar in Marketing  3 a
Examination of current marketing literature and current research interests of faculty and students. Prerequisite: consent of instructor.

MG 599C Research in Marketing  3 a
Individually guided research projects on appropriate topics in marketing. Prerequisite: consent of instructor.

MG 599D Thesis in Marketing  3 a,b
Prerequisite: consent of instructor.

MG 599E Field Studies in Marketing  3 a
Supervised knowledge regarding various aspects of marketing acquired in real problems in ongoing business firms, individual 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 the basic 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; anesthesiology 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 departments.

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, they are preceptors in which fourth-year dental students assist in selected dental offices throughout Iowa. The preceptors expose students to facets of dentistry usually not observable in an academic setting, such as practice management, procedures, appointment-schedula 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 committee 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 dental profession.

**Committee for Appeals**

When a student has been asked to withdraw from the college, or has 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 the basis of: academic achievement, promotion, absences, 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, Iowa, 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 in lieu of individual state's 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 interdisciplinary communication in health center teaching, research, and patient-care activities. The health center includes the colleges of dentistry, 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 disciplines. In addition to 275 dental journals the college currently receives. This library receives a total of 2,800 journals from the combined health profession.

The Dental Science Building consists of two connected four-story wings located on either side of a mall. The south wing is devoted to clinical teaching, with various departmental clinic facilities, support laboratories, clinical research space, office and study areas. The north wing houses a variety of teaching, administrative, and research facilities, including teaching laboratories, research laboratories, administrative areas, 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 chapter, 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 dentistry society. Dental student professional fraternities, Delta Sigma Delta and Pat Omega, have chapter houses at Iowa, and both have spouses' organizations.

There is also a Dental Student Wives Club.

Expenses
The College of Dentistry maintains a Supply- Instrument 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 per the first three years of the program. A fee for expendable laboratory supplies is charged each of the first six years. A $1000 prepayment is also required; the remainder is refundable upon graduation or termination of appointment.

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 concludes 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 welfare committee in the College of Dentistry. See 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 related documents 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 not less than 96 semester hours of academic study at an accredited college. In exceptional circumstances, candidates with fewer than 96 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 communication, 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 18 semester hours) of which one-half (equivalent to eight semester hours) must be organic chemistry, and of which one-fourth must be laboratory work.

Biology
One year (equivalent to eight semester hours) which must include appropriate laboratory work; or completion of a four-year course in general biology or zoology and botany (botany store)

Electives
Sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.

The dental admission committees 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
possible for the student who enters the College of Dentistry to obtain the Bachelor of Science degree from the College of Liberal Arts upon successful completion of the freshman year in dentistry. To take advantage of this plan, the student must fulfill all specific requirements for the bachelor's degree, including the requirements for a major in some department or area of concentration. The accelerated combination of 21 hours in the College of Liberal Arts with the successful completion of the freshman year in dentistry satisfies the College of Liberal Arts residence requirement.

Grade-Point Requirement
The applicant should have a cumulative grade-point average of at least 2.5 (A=4). In addition to the cumulative grade-point average, the admissions committee gives special consideration to the quality of the applicant's coursework in the preclinical sciences.

Interviews
Personal interviews are required of applicants for admission to the College of Dentistry. Applicants will be notified when to appear for interviews.

Required Dental Admission Test
All applicants must complete the Dental Admission Test sponsored by the Council on Dental Education of the American Dental Association. Applicants must take the test no later than the end of the junior year of college. Applicants may obtain test dates and locations by writing to the University Office of Admissions or the American Dental Association, 211 East Chicago Avenue, Chicago, Ill. 60611. Test results are usually available within 3 months.

Deposit by Accepted Applicants
An accepted applicant is required to submit a deposit within 30 days after notification of favorable action on his or her application until April 15. Applicants admitted after April 15 must submit the deposit within two weeks after notification of acceptance. The deposit is nonrefundable, but is credited toward the first fee payment. An applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Additional Admission Considerations
Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From the applications and related minimum requirements, the admissions committee selects those applicants best qualified for the study of dentistry. The committee considers applicants' academic averages, science averages, the scores on the required Dental Admission Test, and several other factors. Since the available places in the freshman class of the College of Dentistry are limited, preference is given to applicants who are residents of Iowa under the University's regulations on residence. If it is found possible to consider applicants who are not residents of Iowa, preference is given to nonresident applicants from states without dental schools, and to other nonresident applicants who have demonstrated outstanding scholarship and promise. Nonresidents whose grade-point averages are below 3.0 are discouraged from applying.

Graduate and Postgraduate Study
Programs of study leading to the Master of Science degree are offered by the College of Dentistry's departments of Dental Hygiene, Fixed Prosthodontics, Operative Dentistry, Endodontics, Oral Pathology and Diagnosis, Oral Surgery, Orthodontics, Pedodontics, Periodontics, Preventive and Community Dentistry, and Removable Prosthodontics. Admission to any of the graduate programs requires satisfactory completion of all requirements for admission to the Graduate College, possession of the Doctor of Dental Surgery degree or its equivalent, and determination of fitness by the department. Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. Prerequisites for admission to the postgraduate programs are the same as for graduate programs. A certificate is awarded upon satisfactory completion of the postgraduate program.

Basic Sciences in the Dental Curriculum
The following science courses are offered by departments in colleges other than Dentistry, and are a required part of the dental curriculum:

- 60:101 Human Gross Anatomy for Dental Students
- 60:112 General Pathology for Dental Students
- 60:114 Oral Microscopic Anatomy and Physiology
- 61:102 Dental Microbiology
- 69:210 Introduction to Human Pathology
- 71:121 Pharmacology for Health Sciences/Dental Students
- 72:162 Mammalian Physiology
- 92:010 Biochemistry for Dental Students

Nondepartmental Courses
- 112:010 First-Year Continuation Seminar
- 112:130 Introduction to General Dentistry
- 112:140 Oral Surgery/General Dentistry
- 112:150 Second-Year Continuation Seminar
- 112:160 Basic Science Options

Teach a series of elective mini-courses to emphasize the scientific basis of dental practice.

Clinical Management Concepts
Faculty: professor Thomas V. Gartner, clinical instructors Donald Scott, Richard Rachnow, and others.

Clinical Management Concepts
- 112:140 Oral Surgery/General Dentistry
- 112:150 Second-Year Continuation Seminar
- 112:160 Basic Science Options

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Clinical Management Concepts
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- 112:150 Second-Year Continuation Seminar
- 112:160 Basic Science Options

Teach a series of elective mini-courses to emphasize the scientific basis of dental practice.
Clinical Dental Hygiene. In 68:85
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 periapical 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.

Senior students receive additional clinical experience in 86:85 Clinical Dental Hygiene for Dental Hygiene Students. Weekly
lectures and seminars reinforce clinical learning in 86:85 Seminar: Dental Hygiene Concepts and Practice.

Senior students are also enrolled in 86:87 Practicum: Community Dental Health; 86:88 Seminar: Community Dental Health; 78:121 Designing and Developing Instructional Materials; and 220:101 Biostatistics.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and audiovisual media, are interconnected in 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 and research techniques and to design, implement, and evaluate the effectiveness of health care and educational programs.

Admission Requirements

High School Preparation

Although there are no 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 social studies.

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—4:7 General Chemistry I;

Five semester hours of organic chemistry, including biochemistry—4:8 General Chemistry II, 4:9 General Chemistry Laboratory;

Four semester hours of microbiology—51:1 Microbiology;

Three semester hours of nutrition—17:123 Nutrition;

Three semester hours of anatomy—50:1 Elementary Anatomy;

Three semester hours of sociology—34:1 Introduction to Sociology Principles;

Four semester hours of anatomy—50:1 Elementary Human Anatomy;

Four semester hours of physiology—72:150 or 72:146 A/B General Pharmacology. These prerequisites provide the educational base for the dental hygiene courses of study. In addition, students admitted and/or 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 admissions 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 graduate school offers 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 and experience in conducting research.

The curriculum design provides the student with major concentration in advanced dental hygiene theory. In the biological field, this involves the pathophysiology of dental plaque, including plaque microbiology and biochemistry, and the relationship of plaque to caries and periodontal disease. The course requires the host to dental plaque, emphasizing immunologic and systemic, 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 official transcripts 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 of 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 directorship of the faculty, undertake research projects related to these interest areas.

Facilities

University of Iowa dental hygiene majors receive their preprofessional preparation in the University’s School of Dental Science Building. This building is part of The University of Iowa Health Care complex, one of the nation’s leading health services 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

8851 Dental Hygiene 1 credit
Detailed study of human dental anatomy, physiology, and function; role of dental hygiene student in the prevention of dental disease; overview of basic dental hygiene terminology and utilization of primary and periodontal dentistry.

8941 Dental Hygiene Core 5 credits
Introduction to dental hygiene theory, clinical skills, health, nutrition, behavior, and dental hygiene research. Clinical emphasis includes didactic and clinical experiences related to comprehensive hygiene and prophylaxis and dental hygiene program planning.

8942 Dental Hygiene Core 5 credits
Emphasis on application of dental hygiene theory in the performance of comprehensive dental hygiene procedures. Clinical emphasis includes didactic and clinical experiences related to comprehensive hygiene and periodontal procedures.

8943 Dental Hygiene Core 5 credits
Practice of advanced dental hygiene procedures with emphasis on providing comprehensive preventive and restorative care.

8944 Seminar: Dental Hygiene Concepts and Functions

8945 Preventive Community Dental Health
Knowledge of office hygiene, dental care, educational and research techniques is applied in field experiences to develop, implement, and evaluate health care and educational programs.

8946 Seminar: Community Dental Health
Study of factors influencing health, health care delivery and utilization, dental epidemiology, new and current dental care, dental care system, and research techniques are emphasized.

8951 Independent Study
An independent study program for students who plan to pursue additional study or to explore career interest in dental hygiene education, research, or public health.

For Graduates

8951 Seminar: Dental Hygiene Literature Review
An analysis of dental hygiene literature on oral and general health, and educational factors influencing trends and current status of knowledge in field of dental hygiene.

8952 Seminar: Dental Hygiene Research
Evaluation of biological and clinical research in dental hygiene. Emphasis on research design, and the effects of research findings on theory and practice of dental hygiene.

8953 Seminar: Dental Hygiene Education
Theory and research applied in specific areas of dental hygiene education in clinical, didactic, or didactic settings. Emphasis on theoretical and methodological foundations.

8955 Seminar: Oral Health
Evaluation of current research conducted on oral, anatomic, and microanatomic structures influencing oral health.

8956 Thesis Dental Hygiene
Thesis of the student.

Endodontics

Department head: Kenneth L. Zickel
Professor: John E. Long
Associate professor: Kenneth L. Zickel
Registrar: Arthur L. Zickel

Predoctoral Program

Course work and clinical experiences in endodontics are of vital importance in the overall education of a dental student.

Postgraduate Program

Predoctoral endodontics is taught during the first year of graduate school and includes both didactic and laboratory courses. In clinical endodontics, the student studies
both normal and pathological conditions of the dental pulp, emphasizing the areas of prevention and diagnosis of pulpal disease. Students will end the course with direct supervision of the department's faculty and staff.

Graduate Program in Endodontics

The graduate program offered by the Department of Endodontics is designed to prepare qualified dentists for the practice of endodontics and to become training faculty in dental education and research. The department offers two types of graduate (post-D.D.S.) programs.

The Master of Science degree program requires a minimum of three graduate credit hours, including an original research project and thesis. The student follows a plan of study which may involve a total of 60 semester hours. The certificate program requires no formal thesis. The candidate is expected to write a scientific paper of publishable quality, based on original research.

The certificate program involves course study for up to 60 semester hours of credit. An individual plan of study is prepared for each student.

Both programs are for a minimum of two years. After oral and written examinations are administered. Completion of the program requires satisfactory performance in a comprehensive written and/or oral examination which is a functional character and does not duplicate seminar examination. Therefore, these programs satisfy the training requirements for eligibility for the American Board of Endodontics.

The Board of Trustees of the College are to allow the dentist to develop his skills and acquire a broad knowledge of the specialty of endodontics for teaching and practice purposes; to gain sufficient knowledge and experience in the educational program so that he or she may function confidently as a dental educator; to recognize the value of the pursuit of academic research and to develop the ability to plan, conduct, and report the results of research investigations.

As a necessary part of the graduate program, the student must be a graduate of an accredited college of dentistry and must continue his or her professional education in the graduate College of the University of Iowa.

The graduate programs in endodontics normally begin July 1. However, it is also possible to start a program at the beginning of either the spring or summer session. Applications should be made no later than two semester periods in advance of anticipated starting date.

Students who have met the requirements for admission to the Graduate College must also be accepted into the program by the faculty of the Department of Endodontics. A personal interview with the applicant may be requested.

Each student in the program must maintain a grade-point average of 3.0 to receive a certificate or degrees. A student who fails below this level will be allowed one semester to attain it. The circumstances creating the deficiency will receive clerical consideration.

Students enrolled in the graduate programs in endodontics may not involve themselves in private practice expectates outside the college. A student who does go will be asked to obligate himself or herself exclusively either to the program or the practice.

Persons applying to the graduate program in endodontics must be able to support themselves financially for the time required to complete the program.

D.D.S. Program

02-140 Endodontics

Lectures, seminars, and laboratory projects designed to develop understanding of basic principles, concepts, and technical procedures necessary for treatment of minor problems in human teeth.

02-160 Clinical Endodontic I

Clinical endodontic practical clinical situations; emphasis on treatment of each individual case followed by student's actual treatment on single canines. Prerequisite: 02-140 and third year.
146-168 Clinical Practice Management 2.5 H.
Application of the principles of management of a dental office in a clinical environment of patient care. Provides the student with an understanding of the importance of efficiency and organization in delivering high quality care in patients.

146-167 Family Dentistry Clinic I 6.0 H.
Treatment of patient cases in the Family Dentistry Clinic, incorporating preventive, diagnostic, and restorative care for an integrated and comprehensive system of dental health care management.

146-168 Family Dentistry Clinic II 3.0 H.
Clinical experience in diagnosis, treatment planning, and treatment therapy II. 0.5 H. Synthesis and comprehensive system of dental health care management.

146-169 Family Dentistry Clinic III 4.0 H.
Continuation of 146-169.

146-160 Family Dentistry Clinic IV 4.0 H.
Continuation of 146-160.

146-165 Family Dentistry Lectures 1.0 H.
Synthetic analysis, and evaluation of preventive, diagnostic, and restorative care for an integrated and comprehensive system of dental health care management.

146-166 Group Practice Seminar 1.0 H.
Clinical dynamics of a dental group practice, with discussion of treatment plans of patients seen in the group. The methods are explored and developed in order to enhance the effectiveness and efficiency of total patient treatment by members of the group.

146-164 Specialties in General Practice 1.0 H.
Guest lectures from the various dental specialties to be recognized in the practice of general dentistry and discuss applications for the general practice. Informative about selection of graduate specialty programs.

146-161 Special Problems and Treatment Planning Seminar 1.0 H.
Students present documentation of diagnostic procedures used in the development of a treatment plan and sequence for selected clinical patients. Summarize and discuss exploratory problems on selected findings and recommendations.

Fixed Prosthodontics
Department Head: Kenneth A. Turner
Faculty: Associate ProfessorThomas W. Brown, Kenneth A. Turner
Assistant ProfessorLawrence Holter
Adjunct FacultyFrederick R. Draper, David Fritz, Gary Shetler, Robert Welle, Arto Holmstro, Lisa Waithman
Degree: Certified M.S. or Certificate

Proedoral Program
The department participates in the D.D.S. program for dental students at all levels. Predental courses at the first and second level prepare the student with a background in materials and techniques used in fixed prosthodontics. Third-level students participate in a certified clinic program of dental treatment in the aerospace industry. The department provides a consultation service to students in the fourth-curricular level.

Postdoctoral Programs
The department offers Master of Science and Certificate programs. The primary purpose of the Master of Science program in fixed prosthodontics is to train and preserve dentists for careers in fixed prosthodontics education and/or research. The certificate program is designed primarily for individuals wishing to further prepare for 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 core course in research methodology, a core in biostatistics or elementary statistical inference in medicine, and course work in the general area of basic science. A research project and thesis is also required for the master's degree.

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 comply 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
110150 Prosthodontia, Indivisual Laboratory 1.5 H.
The student learns to fabricate and manipulate dental materials through fabrication of various projects. Same as 101.
110121 Dental Materials 2.0 H.
Basic principles of metals, substrates, and plastic materials to the utilization and properties of various dental materials.
110125 Occlusion I 1.0 H.
Interdisciplinary introduction to concepts of occlusion and maxillofacial anatomy.
110140 Fixed Prosthodontic Technique Laboratory 3.0 H.
Technique procedures required in the fabrication of fixed prostheses.
110145 Fixed Prosthodontic Technique Laboratory II 3.0 H.
Advanced technique procedures required in the fabrication of fixed prostheses.
110150 Prosthodontic Clinical Practice 1.5 H.
Practical application of the concepts of occlusion and maxillofacial anatomy in the oral cavity.
110150 Fixed Prosthodontic Clinical Practice II 3.0 H.
Practical in Dental Pathology supplemented by individual supervision and demonstration.

110150 Fixed Prosthodontic Seminar 1.5 H.
Seminar covering various supplied knowledge in designed and final service and discussion of critical clinical and fixed prosthodontic procedures.

Primary for Graduates
110130 Fixed Prosthodontic Research Conference and discussion on assigned research topics.
110135 Seminar: Research 1.5 H.
Conference and discussion on assigned research topics.
110137 Seminar: Dental Materials 1.5 H.
Conference and discussion on assigned research topics.
110135 Seminar: Fixed Prosthodontic Topics 1.5 H.
Conference and discussion on selected topics for student seminars.
110137 Research: Fixed Prosthodontics 1.5 H.
Research design and collection of data on selected research topics.
110137 Thesis Preparation: Fixed Prosthodontics 1.5 H.
Prepare in accordance with regulations of the Graduate College.
110140 Clinical Fixed Prosthodontics 1.0 H.
Student clinical special report in sequence of selected clinical procedures. 
110140 Technique Methods: Fixed Prosthodontics 1.0 H.
Advanced technical procedures.
110140 Library Assignment: Fixed Prosthodontics 1.0 H.
Library search and preparation of bibliographies and abstracts.
110140 Practice Teaching: Fixed Prosthodontics 1.0 H.
Teaching assignments for credit.

Operative Dentistry
Department Head: Matthew W. Anderson
Assistant Professor: Ken Chen, Gerald Deveney, Jack Hendry, James E. David, Dennis J. Anderson
Assistant Professor: Dar Brown, Satish Khurana
Assistant Professor: Fred Osbald, John Hendry
Clinical Associate: Thomas Schou
Degree offered: M.S.

Predoctoral Program
Course work and clinical experiences in operative dentistry are fundamental to the overall education of a dental student. The operative dentistry curriculum is designed so that the didactic material presented relates closely to the laboratory and clinical experiences. The program will provide students with the knowledge and the necessary to proceed through operative dentistry during the fifth year of training.

Graduate Program
The Department of Operative Dentistry offers a program of advanced training designed to prepare dentists for teaching, research, and practice. Since operative dentistry is not a specialty area of dentistry, there is ample opportunity in the graduate program for the student to pursue courses which are of particular interest. Students may take the program for either a Master's degree or for a certificate in operative dentistry.
Oral and Maxillofacial Surgery/DENTISTRY

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 (applicants from the dean of the dental college from which the applicant graduated, and from two professional references).

Interviews are not required but are strongly recommended.

Applicants may be appointed any time after the application has been complete and the candidate will be notified of the final decision.

The graduate admission office will send an appointment form to the applicant to be completed for the Graduate College by approximately March 1.

Facilities

The University Health Center has outstanding surgical and clinical science department 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

The organizational structure at the University Hospitals includes a Hospital Dental Clinical Services with divisions of Oral Surgery, Family Dentistry, Pediatric Dentistry, Orthodontics, Periodontics, Oral Facial Anomalies, Prosthodontics, Endodontology, and Dental Radiology. The oral surgery residency program and a one-year general pediatrics residency program are conducted under the auspices of the Division of Oral Surgery and Division of Family Dentistry.

Courses

Predoctoral

8711 Anesthesiology 1.5 h.
8712 Dental Hygiene 2.0 h.
8713 Oral Surgery 4.0 h.
8714 Radiology 1.0 h.
8715 Restorative Dentistry 3.0 h.
8716 Periodontics 2.0 h.
8717 Prosthodontics 2.0 h.
8718 Preventive Dentistry 1.0 h.
8719 Oral Pathology 1.0 h.
8720 Oral Surgery 5.0 h.
8721 Oral Surgery I 2.0 h.
8722 Oral Surgery II 2.0 h.
8723 Oral Surgery III 2.0 h.
8724 Oral Surgery IV 2.0 h.
8725 Oral Surgery V 2.0 h.
8726 Oral Surgery VI 2.0 h.
8727 Oral Surgery VII 2.0 h.
8728 Oral Surgery VIII 2.0 h.
8729 Oral Surgery IX 2.0 h.
8730 Oral Surgery X 2.0 h.
8731 Oral Surgery XI 2.0 h.
8732 Oral Surgery XII 2.0 h.
8733 Oral Surgery XIII 2.0 h.
8734 Oral Surgery XIV 2.0 h.
8735 Oral Surgery XV 2.0 h.
8736 Oral Surgery XVI 2.0 h.
8737 Oral Surgery XVII 2.0 h.
8738 Oral Surgery XVIII 2.0 h.
8739 Oral Surgery XIX 2.0 h.
8740 Oral Surgery XX 2.0 h.
8741 Oral Surgery XXI 2.0 h.
8742 Oral Surgery XXII 2.0 h.
8743 Oral Surgery XXIII 2.0 h.
8744 Oral Surgery XXIV 2.0 h.
8745 Oral Surgery XXV 2.0 h.
8746 Oral Surgery XXVI 2.0 h.
8747 Oral Surgery XXVII 2.0 h.
8748 Oral Surgery XXVIII 2.0 h.
8749 Oral Surgery XXIX 2.0 h.
8750 Oral Surgery XXX 2.0 h.
8751 Oral Surgery XXXI 2.0 h.
8752 Oral Surgery XXXII 2.0 h.
8753 Oral Surgery XXXIII 2.0 h.
8754 Oral Surgery XXXIV 2.0 h.
8755 Oral Surgery XXXV 2.0 h.
8756 Oral Surgery XXXVI 2.0 h.
8757 Oral Surgery XXXVII 2.0 h.
8758 Oral Surgery XXXVIII 2.0 h.
8759 Oral Surgery XXXIX 2.0 h.
8760 Oral Surgery XL 2.0 h.
8761 Oral Surgery XLI 2.0 h.
8762 Oral Surgery XLII 2.0 h.
8763 Oral Surgery XLIII 2.0 h.
8764 Oral Surgery XLIV 2.0 h.
8765 Oral Surgery XLV 2.0 h.
8766 Oral Surgery XLVI 2.0 h.
8767 Oral Surgery XLVII 2.0 h.
8768 Oral Surgery XLVIII 2.0 h.
8769 Oral Surgery XLIX 2.0 h.
8770 Oral Surgery L 2.0 h.
8771 Oral Surgery LI 2.0 h.
8772 Oral Surgery LII 2.0 h.
8773 Oral Surgery LIII 2.0 h.
8774 Oral Surgery LIV 2.0 h.
8775 Oral Surgery LV 2.0 h.
8776 Oral Surgery LX 2.0 h.
8777 Oral Surgery LXI 2.0 h.
8778 Oral Surgery LXII 2.0 h.
8779 Oral Surgery LXIII 2.0 h.
8780 Oral Surgery LXIV 2.0 h.
8781 Oral Surgery LXV 2.0 h.
8782 Oral Surgery LXVI 2.0 h.
8783 Oral Surgery LXVII 2.0 h.
8784 Oral Surgery LXVIII 2.0 h.
8785 Oral Surgery LXIX 2.0 h.
8786 Oral Surgery LXX 2.0 h.
8787 Oral Surgery LXXI 2.0 h.
8788 Oral Surgery LXXII 2.0 h.
8789 Oral Surgery LXXIII 2.0 h.
8790 Oral Surgery LXXIV 2.0 h.
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8792 Oral Surgery LXXVI 2.0 h.
8793 Oral Surgery LXXVII 2.0 h.
8794 Oral Surgery LXXVIII 2.0 h.
8795 Oral Surgery LXXIX 2.0 h.
8796 Oral Surgery LXXX 2.0 h.
8797 Oral Surgery LXXXI 2.0 h.
8798 Oral Surgery LXXXII 2.0 h.
8799 Oral Surgery LXXXIII 2.0 h.
8800 Oral Surgery LXXXIV 2.0 h.
8801 Oral Surgery LXXXV 2.0 h.
8802 Oral Surgery LXXXVI 2.0 h.
8803 Oral Surgery LXXXVII 2.0 h.
8804 Oral Surgery LXXXVIII 2.0 h.
8805 Oral Surgery LXXXIX 2.0 h.
8806 Oral Surgery XC 2.0 h.
8807 Oral Surgery XCI 2.0 h.
8808 Oral Surgery XCII 2.0 h.
8809 Oral Surgery XCIII 2.0 h.
8810 Oral Surgery XCIV 2.0 h.
8811 Oral Surgery XCV 2.0 h.
8812 Oral Surgery XCVI 2.0 h.
8813 Oral Surgery XCVII 2.0 h.
8814 Oral Surgery XCVIII 2.0 h.
8815 Oral Surgery XCIX 2.0 h.
8816 Oral Surgery C 2.0 h.
8817 Oral Surgery CI 2.0 h.
8818 Oral Surgery CII 2.0 h.
8819 Oral Surgery CIII 2.0 h.
8820 Oral Surgery CIV 2.0 h.
8821 Oral Surgery CV 2.0 h.
8822 Oral Surgery CVI 2.0 h.
8823 Oral Surgery CVII 2.0 h.
8824 Oral Surgery CVIII 2.0 h.
8825 Oral Surgery CIX 2.0 h.
8826 Oral Surgery CX 2.0 h.
8827 Oral Surgery CXI 2.0 h.
8828 Oral Surgery CXII 2.0 h.
8829 Oral Surgery CXIII 2.0 h.
8830 Oral Surgery CXIV 2.0 h.
8831 Oral Surgery CXV 2.0 h.
8832 Oral Surgery CXVI 2.0 h.
8833 Oral Surgery CXVII 2.0 h.
8834 Oral Surgery CXVIII 2.0 h.
8835 Oral Surgery CXIX 2.0 h.
8836 Oral Surgery CXX 2.0 h.
8837 Oral Surgery CXXI 2.0 h.
8838 Oral Surgery CXXII 2.0 h.
8839 Oral Surgery CXXIII 2.0 h.
8840 Oral Surgery CXXIV 2.0 h.
8841 Oral Surgery CXXV 2.0 h.
8842 Oral Surgery CXXVI 2.0 h.
8843 Oral Surgery CXXVII 2.0 h.
8844 Oral Surgery CXXVIII 2.0 h.
8845 Oral Surgery CXXIX 2.0 h.
8846 Oral Surgery CXXX 2.0 h.
8847 Oral Surgery CXXXI 2.0 h.
8848 Oral Surgery CXXXII 2.0 h.
8849 Oral Surgery CXXXIII 2.0 h.
8850 Oral Surgery CXXXIV 2.0 h.
8851 Oral Surgery CXXXV 2.0 h.
8852 Oral Surgery CXXXVI 2.0 h.
8853 Oral Surgery CXXXVII 2.0 h.
8854 Oral Surgery CXXXVIII 2.0 h.
8855 Oral Surgery CXXXIX 2.0 h.
8856 Oral Surgery CXL 2.0 h.
8857 Oral Surgery CXLI 2.0 h.
8858 Oral Surgery CXLI 2.0 h.
8859 Oral Surgery CXLII 2.0 h.
8860 Oral Surgery CXLIII 2.0 h.
8861 Oral Surgery CXLIV 2.0 h.
8862 Oral Surgery CXLV 2.0 h.
8863 Oral Surgery CXLVI 2.0 h.
8864 Oral Surgery CXLVII 2.0 h.
8865 Oral Surgery CXLVIII 2.0 h.
8866 Oral Surgery CXLIX 2.0 h.
8867 Oral Surgery CL 2.0 h.
8868 Oral Surgery CLI 2.0 h.
8869 Oral Surgery CLI 2.0 h.
8870 Oral Surgery CLII 2.0 h.
8871 Oral Surgery CLIII 2.0 h.
8872 Oral Surgery CLIV 2.0 h.
8873 Oral Surgery CLV 2.0 h.
8874 Oral Surgery CLVI 2.0 h.
Department Head: John S. Driver

Orthodontics

The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, and treat with competence 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 including 1 year of research, 3 years of clinical research, a research paper, and a research paper, qualifies a student for the Certificate, of Orthodontics. If a student satisfactorily 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 1 for the class starting July 1. Applicants will be required to come to the University for interviews with the faculty of the department.

Courses

8115 Growth and Development 1.5

Introduction to growth and development with emphasis on craniofacial growth and development.

8115 Orthodontics Diagnosis and Biologic 1.5

Introduction to concepts of biomechanics involved in orthodontic diagnosis and the philosophy of management of orthodontic problems, with specific development of general principles of orthodontics.

8116 Orthodontic Treatment 1.5

Practitioner's experience is based on evaluating orthodontic records, developing treatment plans, and constructing treatment.

8116 Orthodontic Treatment 1.5

Practitioner's experience is based on evaluating orthodontic records, developing treatment plans, and constructing treatment.

8124 Orthodontics in General Practice 1.5

Case studies designed to develop in students a capacity to differentiate simple to complex orthodontic problems, orthodontic classification, and treatment planning policies that are based on the principles of orthodontic diagnosis and treatment.

8170 Orthodontic Clinics 1.5

Clinical experience in all aspects of orthodontic diagnosis, treatment planning, and treatment, with emphasis on the role of the orthodontist as a consultant in the diagnosis and treatment of patients with craniofacial malformations.

8170 Orthodontic Clinic 1.5

Clinical experience in all aspects of orthodontic diagnosis, treatment planning, and treatment, with emphasis on the role of the orthodontist as a consultant in the diagnosis and treatment of patients with craniofacial malformations.

For Graduate Students

8303 General Theory and Orthodontic Biomechanics 3.0

Principle concepts of general biological principles, orthodontics, with emphasis on the role of orthodontics in the development of the craniofacial skeleton.

8305 Orthodontic Diagnosis and Treatment 3.0

Readings pertaining to art and science of orthodontics.

8306 Diagnostic Orthodontic Treatment 1.5

Seminars concerning orthodontic treatment, with emphasis on the treatment of malocclusions in patients with various types of craniofacial malformations.

8306 Biomaterials 1.5

Readings pertaining to art and science of orthodontics.

8306 Oral Health 1.5

Different theories and processes related to the growth of the bone.

8306 Oral and Dental Health 1.5

Children's and adults' concepts of oral health in the treatment and education of patients with various types of malocclusions during their active growth period.

8306 Oral Health 1.5

Different theories and processes related to the growth of the bone.

8306 Oral and Dental Health 1.5

Children's and adults' concepts of oral health in the treatment and education of patients with various types of malocclusions during their active growth period.

8306 Oral Health 1.5

Different theories and processes related to the growth of the bone.

8306 Oral and Dental Health 1.5

Children's and adults' concepts of oral health in the treatment and education of patients with various types of malocclusions during their active growth period.

Pedodontics

Department Head: Stephen K.Y. Wei

Pedodontics is the branch of dentistry concerned with the study of the dental health and care of children, from birth to adolescence.

The Department of Pediatric Dentistry provides instruction for dental students in the prevention and treatment of oral diseases in infants and children.

The Graduate Program

Study in pedodontics leads either to certification or a master's degree. The program gives special emphasis to preparation for certification by the American Board of Pediatrics. It is fully accredited by the Commission on Dental Education of the American Dental Association.

Students are trained in all phases of pedodontics, to permit them career...
choices in practice, education, or research. Approximately 50 percent of the program is devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 20 percent to original research.

The program comprises a core of clinical and basic science courses, supplemented by elective selections determined by the student's individual interests. Development of a minor subject area is recommended.

Dual degree programs have been arranged with several other departments. Close association with the Department of Pediatrics in the College of Medicine, and with the University Hospital School of Medicine and the Clinics, permits amorphous on rehabilitation under general anesthesia, instruction in physical medicine, and management of developmentally disabled children.

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 areas of orthodontics and prosthetics for handicapped persons, fluoride therapy, and the behavior management.

Quality of Faculty

Faculty members hold numerous national and state offices, and are in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate actively in continuing education programs and other health science curricula. Several members are Fellows of the American Board of Pedodontics.

Financial Aid

Support is available to qualified students through a grant from the Office of Maternal Child Health, Bureau of Community Health Services, Department of Health and Human Services.

Admission

Appreciate to the Graduate College.
Courses

Predoctoral

0518: Dentistry in Periodontology 3 cr.
Fundamental concepts of endodontics, periodontal theory and practice. Presented in a lecture and seminar format augmented by slide-tape series.

0519: Advanced Periodontics/Dental Hygiene Students

0519A: Basic Periodontics 3 cr.
Fundamental concepts in periodontics, presented in a lecture and seminar format augmented by slide-tape series.

0519B: Periodontics 3 cr.
Comprehensive clinical management of the periodontal patient.

0519C: Comprehensive periodontics and the clinical management of patients covered by alternate study topics.

Graduate

0625A: Advanced Periodontics 3 cr.
Provides incoming graduate student with comprehensive review of periodontal therapy. Offered summer sessions.

0625B: Clinical Seminar in Periodontics 3 cr.
Clinical management of periodontal patient, presented with emphasis on treatment planning and case documentation and preparation for complete dental therapy; conducted with scientific updating included. Required each fall and spring session.

0625C: Methods of Instructing in Periodontics 3 cr.
Experience in course design in periodontics, including practical objectives and methods of assessment.

0625D: Practice Teaching in Periodontics 3 cr.
Practical experience in teaching, seminar direction, and student's teaching in periodontics.

0625E: Board Seminar in Periodontics 3 cr.
Offers spring seminar.

0825A: Periodontology Research Seminar 3 cr.
Review and assessment of student's knowledge of oral health science and periodontal diseases.

0825B: Clinical Aids in Periodontics 3 cr.
Additional course work in special topics in periodontology. Offered fall semester of odd years.

0925A: Advanced Oral Embryology 3 cr.
Anatomical and histological studies of human dental development emphasizing factors related to dental research. Offered summer sessions.

0925B: Dynamics of Oral Soft Tissue 3 cr.
Review of methods and literature associated with oral soft tissue structures and function.

0925C: Methods for Advanced Studies of Oral Soft Tissue 3 cr.
Examination of advanced research techniques addressed to advances in the anatomic concept of structure and function of oral soft tissues and the development of assessment techniques. Offered spring semester of odd years.

0925D: Periodontal Literature Review I 1 cr.
Offered fall semester of even years.

0925E: Periodontal Literature Review II 1 cr.
Offered spring semester of even years.

0925F: Periodontal Literature Review III 1 cr.
Offered fall semester of odd years.

0925G: Periodontal Literature Review IV 1 cr.
Offered spring semester of odd years.

0925H: Periodontal Literature Review V 1 cr.
Offered fall semester of even years.

0925I: Periodontal Literature Review VI 1 cr.
Offered spring semester of even years.

0925J: Periodontal Literature Review VII 1 cr.
Offered fall semester of odd years.

0925K: Periodontal Literature Review VIII 1 cr.
Offered spring semester of even years.

0925L: Periodontal Literature Review IX 1 cr.
Offered fall semester of odd years.

0925M: Periodontal Literature Review X 1 cr.
Offered spring semester of even years.

Programs in preventive and community dentistry are designed to increase dental students' awareness of unmet health needs and to encourage them to develop and implement approaches to alleviate these needs. Extramural programs provide students with opportunities to interact with health care teams and members of communities in Iowa. The department conducts five full-time off-site extramural programs throughout the state.

Using the community as the classroom, students are able to observe and participate in a variety of activities aimed at making them aware of the societalOLLNeEds that must be addressed in order to practice effectively.

Included in the department's resources are two mobile dental vans, one with five operators and a second smaller unit designed for prevention programs. The vans are operated throughout Iowa, and give senior dental and dental hygiene students and graduate students an experience which closely simulates community dental practice.

Master of Science Program

The Master of Science degree program is designed to prepare students in community dentistry and dental public health, with emphasis on research, teaching, or administration. The program objective is to help students achieve a high degree of professional competence in their respective areas of special interest. Candidates will have had prior educational preparation necessary to establish 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 12 months of course work and summers.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>64.395</td>
<td>Complete Denture Seminar I</td>
<td>1.5 h</td>
</tr>
<tr>
<td>64.395</td>
<td>Review of current research in principles, practices, and concepts of complete denture construction.</td>
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<tr>
<td>64.396</td>
<td>Partial Denture Seminar I</td>
<td>1.5 h</td>
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<tr>
<td>64.396</td>
<td>Review of current research in principles, practices, and concepts of removable partial denture construction.</td>
<td></td>
</tr>
<tr>
<td>64.397</td>
<td>Complete Denture Seminar II</td>
<td>1.5 h</td>
</tr>
<tr>
<td>64.397</td>
<td>Review of past research in principles, practices, and concepts of complete denture construction.</td>
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<tr>
<td>64.399</td>
<td>Removable Partial Denture Seminar II</td>
<td>1.5 h</td>
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<tr>
<td>64.399</td>
<td>Review of past research in principles, practices, and concepts of removable partial denture construction.</td>
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<tr>
<td>64.520</td>
<td>Research Removable Prosthodontics</td>
<td>3 h</td>
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<tr>
<td>64.520</td>
<td>Literature review, critiquing preparation, and data collection for selected research project.</td>
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<tr>
<td>64.521</td>
<td>Teeth Preparation: Removable Prosthodontics</td>
<td>3 h</td>
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<tr>
<td>64.521</td>
<td>Preparation and delivery of thesis-burn research project.</td>
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<tr>
<td>64.540</td>
<td>Advanced Clinical Removable Prosthodontics</td>
<td>3 h</td>
</tr>
<tr>
<td>64.540</td>
<td>Treatment of patients requiring complete and removable partial dentures.</td>
<td></td>
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<tr>
<td>64.541</td>
<td>Technique Methods Removable Prosthodontics</td>
<td>3 h</td>
</tr>
<tr>
<td>64.541</td>
<td>Assigned problems involving technical methods in construction of complete and removable partial dentures.</td>
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</tr>
<tr>
<td>64.542</td>
<td>Practice Teaching: Removable Prosthodontics</td>
<td>3 h</td>
</tr>
<tr>
<td>64.542</td>
<td>Clinical and classroom teaching experience assigned by advisor.</td>
<td></td>
</tr>
<tr>
<td>64.543</td>
<td>Journal Club</td>
<td>1.5 h</td>
</tr>
<tr>
<td>64.551</td>
<td>Library Assignment: Removable Prosthodontics</td>
<td>3 h</td>
</tr>
<tr>
<td>64.551</td>
<td>Discussion of assigned readings that are considered classics in removable prosthodontics literature.</td>
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</tbody>
</table>
College of Education

The nation's first university-level professorial chair in education was established at The University of Iowa in 1912. 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 educational testing and measurement industry. This making Iowa City one of the best known centers for this educational specialty.

The college has seven divisions: Foundations, Professional, Counseling and Continuing Education; Educational Administration; Early Childhood and Elementary Education; Psychological and Quantitative Foundations; Secondary Education; Counselor 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 teaching, secondary school teaching, teaching in special education for mentally retarded 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 baccalaureate 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 Shaffer 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 practice 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 readmitted 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 students, 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 on a first-come first-served basis 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 a high school standing of 80 hours or better 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.
average on all course work attempted and completed shall be at least
have submitted an Application for Admission to the Teacher Education
Program (see date above).
Graduate students must:
have been admitted to the Graduate College;
have a cumulative grade-point average of not less than 2.5 (3.7 for M.A.T.) on undergraduate course work; and
have been admitted to a specified 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 approval in advance.
To register for student teaching, the student must have:
Satisfactorily completed 8 semester hours during one academic session at The University of Iowa; and
Satisfactorily completed 70-75 Educational Measurement, 7W-91 Instructional Equipment for Instruction (Elementary), and 7E-100 Introduction: Elementary and Early Childhood Teaching or 7S-100 Introduction: Secondary School Teaching, and 7E-91 Pre-
Education Practicum; and
properly completed the appropriate methods courses; and
Maintained a cumulative grade-point average of not less than 2.5 if an undergraduate student, 3.0 if a graduate student, or 3.7 if an M.A.T. candidate, on all college work attempted, all college work attempted at The University of Iowa, and all work attempted in his or her teaching major; and
Filed application for an assignment by March 10 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 inner-city youth, 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 Illinois City inner-city system. The program is open to 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 Australia, England, Republic of Ireland, Scotland, or Wales). Students must make their own travel arrangements. Housing will be located for the students by the on-air 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-110 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 both before his or her certificate can be renewed. Graduate students therefore encouraged to include such a course in their course work. Any of the following courses will satisfy the requirement:
30:1 Introduction to American Politics 3 s.h.
30:10 The American Political System 3 s.h.
Up to 4 semester hours may also be used toward the general education requirement in social sciences of the College of Liberal Arts
18:91 American History 1490-1877 3 s.h.
18:92 American History 1877-Present 3 s.h.
18:161 The Colonial Period in America 3 s.h.
18:182 American Revolution Period 1740-1789 3 s.h.
18:183 United States in the Early Republic 3 s.h.
18:184 Civil War and Reconstruction 3 s.h.
16:167 The New Era and the New Deal 3 s.h.
16:104 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 99. 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-165 U.S. Educational System and Society 2-3 s.h.
7E-100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
7F-110 Introduction to Secondary Education 3 s.h.
7H-100 Problems and Policies in Higher Education 3 s.h.
7S-100 Introduction: Secondary School Teaching 3 s.h.
7T-101 Introduction to Education 3 s.h.

History, Philosophy, and Sociology of Education
7F-102 History of American Education 2-3 s.h.
7F-124 History of Western Education 2-3 s.h.
7F-128 The Psychology of Education 2-3 s.h.
7F-130 Educational Sociology 2-3 s.h.
7H-17 Foundations of Vocational Education 2 s.h.

Psychology of Education
7P-75 Educational Psychology and Measurement 3 s.h.
7P-107 Educational Psychology 3 s.h.
7P-107 Psychological Bases of Instructional Design 3 s.h.
7P-108 Socialization of the School-Age Child 3 s.h.
7P-131 Educational Psychology 3-4 s.h.
7U-130 Exceptional Children 3 s.h.

Curriculum Foundations
7W-120 Introduction to Instructional Design and Technology 3 s.h.
7E-166 Curriculum Foundations 2-3 s.h.
7S-183 Curriculum Foundations 2 s.h.
Cross-cultural Factors
7U-133 The University Different in Cultural Settings 3 s.h.
7C-154 Education, Race, and Ethnicity
arr.
7C-155 Psychological Aspects of Black Behavior and Personality 3 s.h.
7C-156 Multicultural Concepts and Educational Systems 3 s.h.

Teaching Methodology
7C-160 Methods: Elementary School Language Arts 3 s.h.
7S-170 Methods: Social Studies 3 s.h.
7W-122 Choosing Cultural Perspectives 3 s.h.
7F-112 Teaching of Adults 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):
97-102 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h.
97-103 Societal and Educational Applications of Biological Concepts 3 s.h.
97-105 Societal and Educational Applications of Chemical Concepts 3 s.h.
97-106 Societal and Educational Applications of Selected Concepts of Physics 3 s.h.
97-108 Societal and Educational Applications of Chemical Concepts 3 s.h.
97-100 Integrating the Teaching of Environmental Science 3 s.h.
97-129 Measuring of Science 2-3 s.h.
97-130 Science in Historical Perspective 2-3 s.h.
97-110 Seminar: Selected Science and Education Topics 3 s.h.
7S-181 New Activities for K-12 Science 2-3 s.h.

Human Relations
This minor area emphasizes human relations education is designed to acquaint individuals 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:
Any of the following:
7C-190 Training Group 3 s.h.
7C-198 Counseling for Related Professions 3 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.
7C-192 The Culturally Different in Educational Settings 3 s.h.
7C-193 Psychological Aspects of Women's and Men's Roles 1-3 s.h.
7C-194 Psychological Aspects of Black Behavior and Personality 3 s.h.
7C-195 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
7C-186 The Drug Culture 2-3 s.h.
7C-183 Individual Instruction in Counselor Education: Teaching Undergraduate 3 s.h.
7C-170 Human Relations for the Classroom Teacher 3 s.h.

Educational Psychology
This minor is designed by the student and a faculty member of the student's choice within the Division of Psychological and Quantitative Foundations. The minor can consist of course work in measurement and test development, statistics and research student development, learning and motivation, or a combination of these areas.

Graduate Programs
Graduate study in the College of Education is guided by the general regulations of 38 Graduate College, with certain additional requirements imposed by the faculty of the College of Education. Graduate students in education are assigned a graduate registrar in the Graduate College and receive their degrees from that college. The College of Education offers these specialized degree programs.

Master of Arts
The College of Education offers a Master of Arts degree on both a thesis and non-thesis basis in each of the divisions. The non-thesis M.A. program usually provides more specialized course work than is found in the M.A. thesis program. The nonthesis program is not necessarily a terminal program, but students who expect to continue their studies on a doctoral program are urged to select the M.A. thesis program, which offers more experience in research procedures. Students who complete a non-thesis 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 in 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 38 semester-hour (minimum) nonthesis program designed for academically superior liberal arts graduates who held 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 language, home economics, mathematics, science, and speech and drama. A grade-point average of at least 2.7 on an undergraduate course work is required for admission. At least 10 semester hours of graduate course work in the student's proposed teaching field must be completed. A sufficient number of semester hours of graduate work in education (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 of 30 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 report and requirements and regulations applicable to the Ed.S. are the same as for the master's degree, except that 15 semester hours of required work are required in one 12-month period or in two summer semesters. Course work completed ten years prior to the final examination must be evaluated to determine the amount of credit that may be accepted toward completion of the program requirements.

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 required 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 of a limited course work rather than a degree program. This program provides for individual advisement and is appropriate for professional educators, who are undecided about career plans, or whose qualifications are too late to permit 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 enrollment 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 so 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 qualify 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 Programs in Early Childhood Development, and Evaluation develops proposes, conducts studies, solicits funds, and monographs, and provides pre- and post-secondary education related 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 sources to provide students and institutions with the latest in planning and assessing programs for early childhood development and services. The Computer Resources Laboratory offers students and faculty research support for 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 to be integrated in curricular problems. It brings into a convenient central location approximately 20,000 elementary and secondary textbooks, periodicals, reference books, courses of study, bibliographies, pamphlets, and non-print media such as filmstrips, games, 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, slides, super-8 films, thermocopies, 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 micro-teaching 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, films, ERIC microfiche, tests, and a reserved book box for students' 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 symposiums, provides consulting services to school systems, and provides training experience 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 educational work in the elementary, secondary, and collegiate levels by self-evaluation of educational programs, verification by evaluation teams and adherence to policies and standards for continued membership.

The University of Iowa Hospital supports the office of the chair of the Iowa NCA State Committee.

The James B.ustrud Educational Services Center makes available multidisciplinary services for students who have questions about the cognitive, affective, educational, and vocational aspects of their lives. In addition, consultation resources 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 learning and research 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 research. University Counseling Services are facilities available to students in counseling psychology for research and practicum purposes.

University Hospital School is a University-affiliated facility and, as such, it strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities, 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 students and trainees, the University Hospital School has two other general related 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 and teacher 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 services of the college 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. Graduates Mansfield.

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 dean of the college 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, his 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, on the program area of the assistantship.

Special Graduate Assistantships in Education

The Iowa Teachers College and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships. 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 terms, 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 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 stipend form which may be obtained from the director of the Iowa Testing Program, Lindquist Center, College of Education. The application deadline is February 1.

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 students, colleagues, and other friends of Associate Dean Emeritus L. A. Van Dyke in recognition of his significant contribution to the development of the college and the nation, and is available to degree candidates in the field of secondary education with superior performance records as scholars and as teachers or administrators. For further information and application blanks, contact the dean of the college, 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 McLennahan Award: To the outstanding candidate for an advanced degree in educational administration;
- Paul C. Pachmeyer 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 Davis Memorial Award: To an outstanding graduate student who is developing significant specialization in adult and continuing education;
- James and Coretta Strowd 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;
- Phi 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 ability in 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 have held academic rank in the College of Liberal Arts. A major reason for the strength of the teaching secondary school methods have developed with the help of experienced, 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 distinguished 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 grants 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 attitudes in such organizations at the national level. Systemic research programs are sponsored through the Center for Educational Experimentation, Development, and Evaluation which is described above.

Intervenational Courses

7500 roading Career Development

The Center provides research and consulting work with expertise in job analysis, and a wide spectrum of instructional activities, ranging from classroom methods and use of community resources with applications.
Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor education, research, associate dean or dean of students, or as director of advisement, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling, adult counseling, educational and external degree programs.

The M.A. field of study is equivalent to the Ph.D. program, but to take the Ph.D. comprehensive examination, the student must offer an M.A. thesis or equivalent 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 phenomena. Thus the students will be prepared to teach courses in counseling psychology, conduct independent research and direct that of their students, supervise counselors, and consult with other professionals.

Graduates also take service positions in community mental health agencies, health settings, or private practice.

Rehabilitation Counseling

Master of Arts

The M.A. program, accredited by the Council on Rehabilitation Education, provides preparation for work in state rehabilitation agencies, sheltered workshops, rehabilitation centers, etc.
private rehabilitation agencies, mental hospitals, prisons, and in other public and private agencies concerned with the rehabilitation of the handicapped.

Admission requirements are the same as the minimum requirements of the Graduate College. In addition, a personal interview is desirable. Applications are reviewed March 1 for fall admission.

Doctor of Philosophy

The Ph.D. program provides preparation for leadership in college and university rehabilitation counselor education and research programs in universities and state agencies.

Admission requirements for the Ph.D. program are the same as the minimum requirements of the Graduate College, plus an M.A. thesis or equivalent.

Applicants who have recently graduated from an M.A. program in rehabilitation counseling, and who have not had at least one year of full-time work experience in rehabilitation counseling, will not be considered. Such work experience is viewed as highly desirable, and will enhance the application. Applications are reviewed March 1 for fall admissions.

Counseling and Human Development

Master of Arts

The M.A. program provides preparation for counseling in a variety of settings. Minimum requirements for regular admission to the M.A. program are a 3.0 grade-point average over the last 60 undergraduate semester hours or a 3.3 grade-point average over 12 semester hours of graduate work or a 2.75 undergraduate grade-point average with a GRE Aptitude Test score of at least 1500. Occasionally, admission is sometimes granted.

Educational Specialist

The purpose of the Ed.S. program is to enable counselors and counselor supervisors to increase their competence beyond the master's level. Minimum admission requirements are a master's degree in counseling and experience as a counselor and a 3.0 minimum grade-point average in the graduate study.

Doctor of Philosophy

The Ph.D. program provides preparation for teaching, leadership, and research positions in counseling.

Admission requirements are a 3.25 minimum grade-point average and satisfactory performance on the Graduate Record Examination (GRE) Aptitude Test; and a master's degree or its equivalent in a counseling area.

Substance Abuse Counseling

Master of Arts

The purpose of the M.A. program in substance abuse counseling is to prepare individuals to function in a wide variety of community counseling settings. The emphasis is on individual, group, and family counseling.

Admission requirements are the same as the minimum requirements of the Graduate College. In addition, a personal interview and recent experience in the field are highly desirable.

Facilities

A wide variety of counselor education practicum experiences are available in a large number of settings in neighboring community agencies, schools, and colleges, as well as in many agencies throughout the University.

Financial Aid

Depending on federal funding, graduate teaching fellowships may be available for students entering rehabilitation counseling. Many other graduate students in the Division of Counseling Education hold a variety of graduate assistantships. For example, many of the University's student service units award part-time assistantships to graduate students in the division. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

Courses

For Undergraduates and Graduates

Counseling and Guidance

7010: Helping a Nondisabled Individual 3 s.h.

7015: Introduction to Person-Centred Counseling 3 s.h.

7030: Process of Change and the Counselor 3 s.h.

7092: Exploration of Psychological and Psychosocial Factors in Professional Practice 3 s.h.

7013: Human Sexuality 3 s.h.

7050: Contributions of the Social Science Disciplines to Counseling Practice 3 s.h.

7060: Process of Change and the Counselor 3 s.h.

7092: Exploration of Psychological and Psychosocial Factors in Professional Practice 3 s.h.

7013: Human Sexuality 3 s.h.
Early Childhood and Elementary Education

Chair: William H. Nisbett
Faculty: professors: Jack Bagdall, Lauree Balsamo, Berenice A. Funer, Jerri L. Kelt, William Nisselius, Richard Stegman, James Stimpson, Lloyd Stoddard, Dorothy T. McMechen, Daniel P. Siwiec, assistant professor: Kay Crews
Department Chair: Kay Crews

The division's programs are designed to prepare graduates for employment in specific positions related to PK-5 schools and institutions of higher learning. Its programs have approval by the Department of Public Instruction and meet National Council for Accreditation of Teacher Education approval standards.

Undergraduate Programs

Students pursuing a major in elementary education may elect to meet requirements for either the B.A. or the B.S. degrees. The B.A. degree requires four semesters of study or the equivalent in one foreign language. The B.S. degree requires two semesters of study or the equivalent in a foreign language, and in all other respects the B.A. and B.S. degree requirements are identical.

Required for both programs are the following four core courses, which should be completed by the end of the sophomore year:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>97:7 Fundamentals of Science</td>
<td>4 h.</td>
<td></td>
</tr>
</tbody>
</table>

22M:80 Theory of Arithmetic | 3 h. |
27:76 Educational Psychology and Measurement | 3 h. |
7E:100 Introduction: Elementary and Early Childhood Teaching | 3 h. |
7W9:41 Audio-Visual Equipment for Education | 1 h. |
A course in American history or American politics | 3-4 h. |
Also required, usually completed during the junior or senior year is the following:
7X:170 Humans Relations for the Classroom Teacher | 1-3 h. |

Undergraduate Programs in Early Childhood Education

Early childhood teachers serve in a variety of organizations, including pre-kindergarten and kindergarten 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 implementation of child care centers in addition to appropriate curriculum and methodology for young children. The program requires a minimum of four practicum 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 02 for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level at the elementary or kindergarten 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 53. Students interested in dual certification as teachers of pre-kindergarten and kindergarten 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 admission to the program:
17:10 Growth and Development of the Young Child | 3 h. |
7P:106 Child Development | 3 h. |
17:124 Nutrition with Children | 3 h. |

7E:120 Methods and Materials: Music for the Classroom Teacher | 3 h. |
7E:123 Literature for Children I | 3 h. |
7E:157 Methods: Early Childhood Education | 3 h. |
7E:92 Pre- Education Practicum | 1 h. |
7E:157 Methods: Early Childhood Education | 3 h. |
7E:93 Pre- Education Practicum | 1 h. |
(Conquista: 7E:187)

Additional courses, required to complete the early childhood education major, which may be taken before or after student teaching, follow:
17:114 Parent-Child Relationships | 3 h. |
7U:133 The Culturally Different in Educational Settings | 3 h. |
7E:165 Methods, Multicultural-Bilingual Education | 3 h. |
7E:165 Multicultural-Concepts and Educational Systems | 3 h. |
7E:166 Development and Administration of Child Care Centers | 3 h. |

Students must also take a minimum of three courses (9 semester hours) in one of the following areas of specialization: child and family services, the family, child development, and pre-school handicapped children. Copies of specialization requirements are available in the Early Childhood and Elementary Division office. These courses may be taken pass-fail if they are offered with that option.

One full semester of general teaching (15 semester hours) is required. The appropriate state certification teaching requirement is determined by the student's academic advisor in consultation with the student. Students will submit student teaching applications to the College of Education by March 15 preceding the academic year during which they plan to do their student teaching.

Undergraduate Programs in Elementary Education

Elementary teachers serve in a variety of school settings, including self-contained rooms in which the teacher assumes responsibility for most of the curricular areas, departmental placements in which their responsibilities are concentrated in one or two subject areas, and team teaching assignments in which two or more teachers assume shared responsibility for the total instructional endeavor. Preparation for elementary teaching involves the acquisition of a broad general education education, an in-depth study of at least one elementary core subject, and professional study of the learning process, of the selection and structure
of curricular materials suitable for school age children, and of the methodological procedures most appropriate for presenting these materials. Print of this 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 to 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:91 Pre-Education Practicum, Elementary Education

(to meet the foundations requirements, graduate students may elect equivalent graduate-level courses with the approval of their adviser.)

The student must complete the following elements of the curriculum to be eligible for student teaching:

7E:180 Methods: Elementary School Language Arts

2 s.h.

7E:181 Methods: Elementary School Language Arts

3 s.h.

7E:182 Methods: Elementary School Language Arts

3 s.h.

7E:183 Methods: Elementary School Mathematics

2 s.h.

7E:184 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 and early childhood, bilingual education, early childhood, health education, elementary language arts, elementary mathematics, multicultural education, elementary music, elementary reading, elementary physical education, elementary science, social science, special education, and elementary general.

The student should consult his or her adviser concerning courses which will serve to strengthen preparation for teaching in these areas and meet the specific requirements for that area. Costs 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-credit if they are offered with the pass-credit option. Research is done in the 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 adviser 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, or colleges of education, home economics, social work, or child development. A core of courses for their equivalents is required of all students:

7E:180 Development and Administration of Child Care Centers

3 s.h.

7E:264 Building Foundations for Reading: Pre-Primary and Primary

2-3 s.h.

7E:267 Supervision and Curriculum Development in the Pre-Kindergarten and Early Childhood

2-3 s.h.

7E:268 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 adviser.

Master of Arts in Elementary Education

This degree program, which may be taken with thesis (32 semester hours minimum) or without (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 consultants. 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 a 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 1-2. 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 (32 semester hours minimum) and without (32 semester hours minimum).

The following are required of all candidates:

7E:171 Reading Clinic: Teaching Techniques

2-3 s.h.

7E:172 Reading Clinic: Teaching Practicum

2-3 s.h.

7E:264 Building Foundations for Reading: Pre-Primary and Primary

2-3 s.h.

7E:265 Supervision of Intermediate Reading

2-3 s.h.

7E:184 Methods: High School Reading

3 s.h.

2-3 s.h.

7E:284 Seminar: Secondary Reading

or

7E:308 Seminar: Research and Current Issues in Reading

or

In addition, candidates must complete one or more courses each in the curriculum, supervision, and social foundations area. The student selects the required number of hours with the adviser'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 specialists. This program may be taken with thesis (32 semester hours minimum) or without (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-205 Science Education: Issues, History and Rationale 3 s.h.
7E-206 Science Education: The Nature of Science 3 s.h.
7E-235 Science Education: Teaching, Learning and Curriculum: Models 3 s.h.
7E-265 Science Education: Research, Models and Conceptual Framework 3 s.h.
7E-262 Advanced Techniques of Teaching and Social Studies 3 s.h.

Science courses to complete the required number of 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 grades and dissertation. Contact the advisor and the dean chair.

As a general guideline, each student is expected to have a good general background in all facets of elementary school 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 study. The student may be a professional specialization, such as educational administration, measurement and evaluation, special education, or general school administration, or it may be a subject field, such as English.

In addition, all students must demonstrate competency in 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 social studies and elementary education. Specific assignments vary. Some involve supervising undergraduate majors enrolled 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 allows students to register for a maximum of 12 semester hours of credit per semester. 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-71 Growth and Motor Development 3 s.h.
7E-205 Science Education: Issues, History and Rationale 3 s.h.
7E-206 Science Education: The Nature of Science 3 s.h.
7E-235 Science Education: Teaching, Learning and Curriculum: Models 3 s.h.
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7E-206 Science Education: The Nature of Science 3 s.h.
7E-235 Science Education: Teaching, Learning and Curriculum: Models 3 s.h.
7E-265 Science Education: Research, Models and Conceptual Framework 3 s.h.
7E-262 Advanced Techniques of Teaching and Social Studies 3 s.h.

Science courses to complete the required number of semester hours are selected by the candidate in consultation with the academic advisor.
Permanent Professional Teaching Certificate

Have a minimum of four years of successful teaching experience at the elementary school level with a holding a valid teaching certificate; and have earned at least 30 semester hours of graduate credit in a planned program in general school administration at The University of Iowa; and have a master's degree (60 semester hours for superintendent).

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 from that characterizing prior student preparation and experience should be planned with an advisor. Superintendent (Endorsement 61): 90 semester hours in a planned graduate program 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, central positions with state departments of education, or positions with any school district. 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

72:201 Functions of School Administration 3 s.h.
72:202 Computer Applications in Education 2-3 s.h.
72:295 Legal Aspects of School Personnel 2-3 s.h.
72:383 Supervision of Instruction 2-3 s.h.

The student must meet the human relations requirement of the State of Iowa and specialize in elementary, secondary, or central staff administration by completing one of the programs outlined below. The candidate may choose electives approved by the advisor to satisfy degree requirements:

Elementary Level

70:261 Elementary School Principal 3 s.h.
72:280 Design and Organization Curriculum or Early Childhood, Elementary, and Middle Schools 3 s.h.
72:292 Field Service Project in Educational Administration (elementary) 3 s.h.

Secondary Level

70:280 Secondary School Principal 3 s.h.
72:280 Secondary School Curriculum 2-3 s.h.
72:292 Field Service Project in Educational Administration (secondary) 3 s.h.
Program Electives

Elementary

7F:117 Philosophies of Education 2, 3, 5 s.h.
7F:150 Introduction to Educational Measurement 3 s.h.
72:261 Elementary School Organization Patterns 3 s.h.
7F:282 Advanced Techniques in Teaching Science in the Elementary School 2 s.h.
7F:287 Supervision and Curriculum Development in the Kindergarten and Early Primary 2 s.h.
72:292 Junior High School and Junior High School Organization and Administration 2 s.h.
72:322 Seminar: Administration and Coordination of Guidance 2 s.h.
72:304 Seminar: Elementary Supervision and Administration 2-3 s.h.
72:381 Aims and Appraisal of Curriculum 2 s.h.
72:283 Supervision of Elementary School Language Arts 2-3 s.h.
7F:281 Supervision of Elementary Social Studies 2 s.h.
72:283 Supervision of Elementary School Mathematics 2 s.h.
7F:285 Supervision of Intermediate Grade Reading 3 s.h.
7F:285 Supervision and Curriculum Development in Pre-Kindergartens and Early Primary 3 s.h.
7F:292 Supervision of Student Teachers and Auxiliary Personnel 2-3 s.h.

Secondary

7F:117 Philosophies of Education 2, 3, 5 s.h.
7F:131 Educational Psychology 3 s.h.
7F:283 The Adolescent and Young Adult 3 s.h.
7F:143 Introduction to Statistical Methods 3 s.h.
6L:151 Employment Rights 3 s.h.
6L:153 Collective Bargaining 3 s.h.
7S:166 Curriculum Foundations 2-3 s.h.
7F:242 Specified Applications of Statistical Techniques 3 s.h.
7F:282 Installation and Use of Evaluation Instruments 3 s.h.
7F:270 Issues and Trends in School Guidance 3 s.h.
7D:280 Improving Instruction in the Secondary School 3 s.h.
7D:281 Administration of Professional Personnel 2-3 s.h.
7D:285 Financial Management of Local School Systems 3 s.h.
7D:287 Theory in Administration 3 s.h.
7D:289 Legal Aspects of School Administration 2-3 s.h.

Central Staff Administration

7F:143 Introduction to Statistical Methods 3 s.h.
72:202 Computer Applications in Education 2-3 s.h.
7D:285 Financial Management of Local School Systems 3 s.h.

Thesis

A student selecting the M.A. program with thesis must take 72:292 M.A. Thesis in Education Administration and a final oral examination on the thesis.

Comprehensive Examinations

The student takes three-hour examinations in areas of emphasis with the approval of his or her advisor.

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, superintendent, 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

7F:131 Educational Psychology 3-4 s.h.
7F:177 Philosophies of Education 2 s.h.
7D:291 Foundations of School Administration 3 s.h.
7D:287 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
Electives
The student chooses electives completing the 60-semester-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 technology.

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 four-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 educational administration, and to teach educational administration at the college or university level. All prior preparation and experience is carefully analyzed and a sequence of courses determined for each individual in their career objectives. As a general guideline, the student is expected to have a general background in educational administration, and an area of specialization in at least one aspect of educational administration. Commonly selected specialization areas are: general administration, elementary school administration, secondary school administration, systems analysis and research, school finance, curriculum, and school personnel. Students specializing in general and secondary administration must complete a nine-semester-hour cognate outside the College of Education. Proficiency in two tool research areas must be demonstrated.

Comprehensive Examinations
Each doctoral student must complete satisfactorily an extensive comprehensive examination in areas approved by the student’s adviser and the examination chair. The examination will be based on the general field of educational administration and the student’s areas of specialization.

Students pursuing doctoral programs in areas other than educational administration desiring to utilize some aspect of educational administration as an area of concentration for which they would request a comprehensive examination should consult with an adviser in the College of Educational Administration early in their sequence of study.

Any of the areas of specialization open to doctoral students in educational administration are open for this purpose to other doctoral students provided they meet the necessary prerequisites for specific course registration. The student should complete approximately 12 semester hours in one area of specialization before requesting a comprehensive examination. If the student decides to use a field of educational administration as a related comprehensive area, the student should plan to complete approximately 18 semester hours of diversified course work in educational administration.

Research
Dissertation Prospectus
The student must write a formal dissertation prospectus and present it to a doctoral committee for approval. The student and adviser determine the time for completing the prospectus. Final evaluation of the prospectus is made at a meeting of the committee.

Completion of the Dissertation and Final Examination
The student must accumulate a minimum of 10 semester hours of course work and complete the final oral defense of the dissertation. A student must usually take the examination within a month of his or her anticipated time of graduation. Registration of the student must be recorded at the University during the session in which he or she graduates.

Admission
Applicants must satisfy minimum requirements of the Graduate College. Candidates are selected through a faculty 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 15 or 16 hours
Electives: 24 or 25 hours
9 hours Examinations, principles, responsibilities, and techniques of teachers and students, and techniques of research and study. Designed primarily for prospective teachers. For undergraduate students.
Foundations, Postsecondary and Continuing Education

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, education of society and sociology of education.

General requirements for admission are as stated by the Graduate College. A minimum of 90 semester hours of course work is required. All 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 15 semester hours of work in social foundations, which should include at least two courses in each of three of the following areas of specialization.

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 of course work in social foundations which must include at least 12 semester hours in the major area of specialization and a minimum of 6 semester hours from each of two minor areas.

The programs in the division are designed to prepare administrators and professional personnel as well as teachers and researchers in the fields of social foundations and postsecondary and continuing education. The academic programs in the division reflect this diversity of purpose.

Foundations, Postsecondary and Continuing Education

Chair: William E. Dutty

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The Ph.D. program requires a minimum of 90 semester hours. Students are required to take a minimum of 24 semester hours of course work in social foundations which must include at least 12 semester hours in the major area of specialization and a minimum of 6 semester hours from each of two minor areas.

Approximately one third to one half (30 to 60 semester hours) of each student's program is devoted to course work in depth from at least one other area program in the University, such as history, philosophy, sociology, psychology, etc. These areas are individually tailored by the student, in consultation with the advisor, to meet the student's educational objectives.

Two research tools are required and are selected from the following alternative in accordance with the individual student's interests and program: two courses in a graduate level statistics sequence; philosophy of science and methodology of sociological investigations; and foreign language

In addition, all students are required to successfully complete 7240 Seminar: Alternative Research Strategies and 7905 Research in Higher Education. Dissertation research is normally taken for 12 to 15 semester hours of credit.

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 teaching 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 required in professional education and in allied health occupations education courses in health occupations education specialty fields 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, etc. The program in health occupations education major is designed to prepare students for the state's certification and the national certification exam.
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-108 Application to Community College and Health Careers 3 s.h.
7H-112 Teaching of Adults 3 s.h.
7H-117 Foundations of Vocational Education 2 s.h.
Additional Requirements
7H-191 New Community College Teaching Internship 1-2 s.h.
7H-190 Seminar in Health Occupations Education 1 s.h.
7X-170 Human Relations for the Classroom Teacher 3 s.h.
Specialty area course work in health occupations education
Students may select themselves or specific 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 adviser.
Graduate Programs
Master of Arts Without Thesis
The purposes of the M.A. program in higher education is to prepare individuals for entry- and mid-level administration, curriculum and instruction, or continuing education positions in two- and four-year institutions, and to prepare for positions such as supervisors, administrative training, business manager, development officer, assistant to the president, director, in-service director, and division or program chair 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.S. 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 adviser 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 candidate; and
Ten semester hours of electives to be approved by the adviser.
Research conducted under registration in 7M-160 Educational Specialization 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;
7X-100 Internship Seminar 3 s.h.
7H-370 College Teaching Internship 9 s.h.
7X-175 Post-High School Staff Development Workshop 1-2 s.h.
7X-170 Workshop 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 adviser;
Research conducted under registration in 7M-385 Educational Specialization 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 selected 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 at the college level in higher education should consult with the higher education adviser early in their studies. Plans of study will be developed individually for each student.
Teaching Interests
Program participants teach—at least one-half—time for a full semester at community colleges, with the supervision of an experienced faculty member and with field supervision from The University of Iowa. Interns participate as fully as possible in the academic life of the host community college, and usually gather data for their Ed.S. research project during the summer months. Participants are required to register at an Iowa community college, with a teaching orientation that meets the requirements for the program. Participants will be required to register at a college community and reside there for the entire semester. Participants are assigned orientation and work experience that are designed to those willing to travel for the program.
Doctor of Philosophy
The Ph.D. program continues to attract persons who are likely to serve as administrators, specialists, 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 assured by the student
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). 7P-25
Elementary Statistics and Inference may
be used to satisfy this requirement. Students who wish to use the course for
talk 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
program is designed to prepare the student
for entry into a specific vocational
career. It contributes to a broad understanding of
the interdisciplinary approaches on which
educational research builds. Students may
have this degree with or without thesis. The degree without thesis requires a minimum of
32 semester hours of course work. The degree with thesis requires a minimum of
28 semester hours of course work plus 2 to 4 semester hours of thesis credit. Both programs require 7P-143
Introduction to Statistical Methods or the equivalent.

Students plan the remainder of the
program in consultation with their
advisors, choosing courses from the
following four areas: teaching and
learning, application of psychological
principles, 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
specialize in one or more 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
advisory 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 may be found 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 in
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 2 to 4 semester hours of
thesis credit). All students must complete a core of courses totaling 18 to 20
semester hours. Included is this core
are a graduate-level survey course in
educational psychology, elementary
and intermediate courses in classical
statistical methods, an introduction to
Bayesian statistical 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 course in elementary, secondary,
or post-secondary education. The
remaining electives 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 both a four-hour examination 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
four-hour examination in an
attributional psychology or a subfield area. Three
examinations assume a minimum of
two courses in the area. Two-hour examinations assume a minimum of
one course in the area.

Grade-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 not be
accepted. However, if there is objective evidence of superior ability, the faculty
may approve acceptance on a
conditional basis. Applicants should have at least one course in college
calculus. 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, reading
teachers, or reading

completion of the thesis program typically expect to enter doctoral programs in the field of
reading.

The nonthesis program requires a
minimum of 32 semester hours including
the following core courses:

7P-77 Introduction to Psychology of
Reading

3 s.h.

7P-173 Survey of Diagnostic
Programmatic Approaches to Reading
Instruction in Grades K-12

4 s.h.

7P-251 Individual Intelligence
Testing

3 s.h.

Students must also complete at least 4
semester hours of practicum courses
chosen with the advisor's approval from the following:

7E-171 Reading Clinic: Teaching
Techniques

2 s.h.

7E-172 Reading Clinic: Teaching
Practicum

2-3 s.h.

7E-272 Advanced Reading Clinic
Techniques

2-3 s.h.

7E-272 Advanced Reading Clinic
Practicum

2-3 s.h.

7E-365 Reading Clinic: Supervision
Lab.

3-4 s.h.

7P-370 Teaching in a Reading
Language Laboratory

3 s.h.

7E-290 Reading Clinic: Teaching
Practicum-Special Education

3 s.h.

All students must complete a minimum of 14
semester hours in elective courses,
choose with the adviser's approval from the list of statistics, psychology, 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 Methods 4 s.h.

7P:250 Advanced Psychology of Reading 4 s.h.

7P:273 Reading Clinic: Diagnostic and Practicum 3 s.h.

102:120 Introduction to Linguistics 3 s.h.

7P:360 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 a 60-minute examination in related fields. With the advisor'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. Where the student's total score on the verbal and quantitative parts of the Graduate Record Examination (GRE) Aptitude Test is below 600, and no offsetting evidence of superior ability is available, the applicant 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, business and industry, hospitals, government, and private enterprises. In addition, it may be taken either with or without thesis. Regular admission requires a minimum grade-point-average of at least 2.6 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:

7W:130 Introduction to Instructional Design and Technology 3 s.h.

7W:135 Behavior and Use of Media for Instruction 3 s.h.

7W:135 Design and Production of Media for Instruction 3 s.h.

7P:177 Psychological Bases of Instructional Design 3 s.h.

7P:160 Introduction to Educational Measurement 3 s.h.

If the degree is not given with thesis the student is also required to take 7P:143 Introduction to Statistical Methods or 7W:291 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 (Endorsement 39)

Training and human resource development

Visual studies

If a student has not had previous experience in instructional design, he or she must 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

Area of emphasis

Other

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 E.D.S. is ordinarily considered to be a terminal degree.

Admission to the E.D.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 E.D.S. program must submit a letter to the division chair at the time of filing contents 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, areas 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:291 Research Methods in Instructional Design and Technology 3 s.h.

7W:295 Survey of Research in Instructional Design and Technology 2 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 (Endorsement 39)

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.D. also requires a final Ed.D. project. The exact nature of the project will depend on the program, interests, and career plans of the student involved. Comprehensives are the same as those for the M.A.

Doctor of Philosophy in Educational Psychology

The doctoral program prepares graduates for a variety of careers that demand a 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, leading organizations, and the public schools. A comprehension of the area of reading disabilities is a good preparation for careers as reading consultants, directors of reading programs, and professor or dean of special education. The program includes emphasis 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 last 24 semester hours following admission to the program:

278 EDUCATION/Psychological and Quantitative Foundations
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 generally occur in agencies of educational, social work, and related professions, and in school districts, colleges of education, and research centers.

Every student must complete the following core courses or their equivalents:

TP: 287, 290 Educational Research Methodology 3 s.h.

The student's advisor will suggest additional courses to be taken appropriate to the student's interests and vocational objectives. These courses typically include additional work in education measurement, statistical methods, scaling, and statistics.

Applications for admission to the program must hold an M.A. degree from an accredited institution. The grade-point average requirement for admission is the same as that established by the Graduate School.

The grade-point average for the first year is generally set at 3.0. The second year is generally set at 3.2. The third year is generally set at 3.3. The fourth year is generally set at 3.4.
Doctor of Philosophy in Educational Psychology with Concentration in Reading Disability

This program prepares graduates for careers as college teachers, as directors of reading clinics, and as supervisors of remedial reading programs in larger school systems. The course requirements are essentially the same as those for the doctoral program in educational psychology. The educational emphasis, however, will include those phases of the area of reading and related courses offered by the divisions of Special Education, Early Childhood and Elementary Education, and Secondary Education, and the departments of Speech Pathology and Audiology, Linguistics, and Psychology. One of the comprehensive examinations must be in the area of reading disability.

The admission requirements are the same as those for the Ph.D. program in educational psychology.

Doctor of Philosophy in Instructional Design and Technology

The Ph.D. in Instructional Design and Technology is a 90-semester hour program designed to provide a broad background for students interested in teaching, research, and leadership positions in the field. There is a relatively heavy emphasis on helping students acquire the knowledge and skills necessary to expand understanding of learning and instruction and those factors which influence them. The degree requirements are the same as for the Ed.D. degree except that a minimum grade-point average of 3.5 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ph.D. program must submit a letter to the division chair at the time of filing complete admission forms with the University's Office of Enrollment Services. The letter should describe the applicant's interests in the field of study and the program at the University of Iowa, area of potential dissertation topics, tentative future plans, and any additional information which may be helpful in the admissions process.

It is also recommended that applicants for the Ph.D. degree arrange a personal interview with the program faculty members after submitting admission forms.

All students in the Ph.D. program must complete the following course work or approved equivalents:

M.A. core without dissertation plus:

TP/14: Introduction to Statistical Methods
TP/24: Selected Applications of Statistical Methods
TP/26: Research Methods in Instructional Design and Technology
Research-related courses.

In addition, the program requires completion of 18 semester hours of prescribed course work in one of the following areas:

- Computer applications
- Instructional development
- Media center administration
- Training and human resource development
- Visual studies

All students are also required to complete 2 semester hours in one area outside the College of Education. All students must successfully pass a nine-hour set of final comprehensive examinations. These examinations are divided so 2-, 4-, or 6-hour segments distributed as follows:

- General instructional design: 3-4 credit hours
- Area of specialization: 3-5 credit hours
- Others: 0-3 credit hours

Financial Aid

The division normally employs a number of graduate students as teaching, research, and production assistants. These are normally half-time academic year appointments and holders are permitted to carry a study and/or research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair of the division.

Other types of graduate assistantships are supported by the Iowa Tests of Basic Skills and the Iowa Tests of Educational Development. Duties are varied, including such responsibilities as test development, test norming, and consulting with teachers in the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs which are not specific to the programs cited above, inquiries should be directed to the program directors.

Courses

Educational Psychology, Measurement and Statistics

TP/21: Research Methods and Statistics
TP/23: Graphical techniques for presenting data, descriptive statistics, sampling distribution models, limits of statistical inference, interval estimation procedure, tests of significance, correlation and prediction. Prerequisite: TP/201 or equivalent. Same as EEB/55.
TP/28: Educational Psychology
TP/31: Factors in mental development and classroom learning: child and adolescence characteristics, progress in classroom management, environmental, social, emotional, and intellectual development of children. Prerequisite: TP/14 or equivalent. Same as EEB/150.
TP/12: Learning Characteristics
Overview of individual differences found to have direct implications for teaching.
TP/13: Child Development
Developmental issues of infancy and childhood: learning and motivational processes; intellectual and personality development; child guidance.
TP/17: Psychological Issues of Instructional Design
Same as TP/107.
TP/19: The Socialization of the Schoolchild
Social development, peer influences, development of attitudes and interests, effects of social roles on social development.
TP/21: Understanding the Role of Educational Media
Factors influencing motivational states and behaviors, including personal characteristics, thought patterns, success and failure, reward and punishment, dissection techniques, peer pressure, nature of child's mental judgment and control, and nature and salience of society's social behaviors.
TP/15: The Socialization of Children
Factors influencing social behaviors or children: models of "normal"/"deviant" behavior; effects of competitive and cooperative activities, use of reward, punishment, and punishment techniques; peer pressure; nature of children's moral judgment and control, and nature and salience of society's social roles.
TP/16: The Socialization of Children
Factors influencing social behaviors or children: models of "normal"/"deviant" behavior; effects of competitive and cooperative activities, use of reward, punishment, and punishment techniques; peer pressure; nature of children's moral judgment and control, and nature and salience of society's social roles.
Secondary Education

Chair: Margaret J. Zweng

Teacher Certification

Program Requirements
Undergraduate students seeking secondary school certification 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 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 semester hours of coursework in a subject area taught in the secondary school.
Course requirements for each major are listed in the College of Education's publication, Teacher Education Programs. Candidates for secondary school teaching certification may also receive approval to teach in additional subject areas by completing an approved program of 20 or more semester hours of coursework in those areas.
Secondary school teacher preparation programs are provided in the following areas:

Art
* Athletic training
* Coaching
Communication and Theatre Area (Speech)
English
Foreign Languages - Spanish, French, German, Russian, and Latin
* Health Education
Home Economics

Journalism
Mathematics
Music
Physical Education (two programs: one in the Department of Physical Education-Field House and one in the Department of Physical Education and Device-Hale Gymnasium)
* Reading
Science, including general science, physical sciences, biology, chemistry, physics, and earth science
Social Science, including social studies, economics, geography, history, political science, psychology, and sociology
* Available as an additional approval area only. A major in another subject matter area is required for certification.
Students planning to teach art, music, or physical education typically complete a program which prepares them for both elementary and secondary level certification.
Undergraduate candidates for certification to teach in secondary schools must complete the following requirements, in addition to the requirements in their major:
78-10 Pre-Examination Procedures 2 a.h.
78-100 Introduction to Secondary School Teaching 3 a.h.
77-76 Educational Psychology and Measurement 3 a.h.
77-170 Human Relations for the Classroom Teacher 3 a.h.
77-124 The methods of teaching courses in the major field 3-4 a.h.
Student teaching
* With their advisor's approval, graduate students may select equivalent graduate courses in lieu of 78-91, 78-100 and 78-75. Students must complete the methods course in the major field prior to student teaching.
Students in secondary education may do their student teaching at the Center for Urban Education (CUTS), through the Regents' Exchange Program, via the Consortium for Overseas Student Teaching, at the College of Education. An exception to student teaching in the customary contractual area is considered only if the proposed student teaching area (a) provides the student with a specific program opportunity not available in the contractual area or (b) utilizes apopular cooperating teacher expertise. Additional information about the various alternatives for student teaching and application procedures may be obtained in the Office of Student Services, N310 Lindquist Center. Application for student teaching must be filed in the Office of Student Services by March 18, prior to the academic year during which student teaching is desired.

Admission
Prior to taking most professional education courses (courses numbered 78, 79, or 7X) 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 to the College of Liberal Arts Advising Office, 116 Suberhaue 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 a College of Education advisor in their subject matter field, or the Division of Secondary Education Office, N383 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. That 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 courses in the departments in the College of Liberal Arts, advanced degree programs in the following areas: art education, communication and theater education, computer education, counseling and supervision, developmental reading, English education, family and consumer education, home economics education, mathematics education, music education, physical education, science education, social studies education, and special education.
In some fields, only master's level programs are offered, whereas in other fields, both master's and specialized art Ph.D. degree programs are also offered. All degree offerings are listed below, grouped by program area.

Art Education

Master of Arts
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 by 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
creative artist to become highly literate in the history 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 or degree in art. Applications must be accompanied by a representative portfolio of the candidate's work consisting of eight 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. Definitions in undergraduate art or courses recommended 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 (B.S.): Either 12 semester hours of studio art and 6 semester hours of art history or 12 semester hours of art history and 8 semester hours of studio art; Art Education Seminars (B.S.)—The course 75/357 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. clearance in the School of Art and Art History; Comprehensive Examinations—A written and/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 program is administered by the Graduate College in Education with the cooperation of the School of Art and Art History. Students make application for admission to the Graduate College.

The purpose of the program is to prepare college teachers and researchers in art education and supervisors of art in state departments of education and school systems. To provide an opportunity for continuing inquiry into the entire work in art 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 may be 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 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 pass M.A. clearance in the School of Art and Art History, 15 semester hours in art education seminars, 15 semester hours in courses meeting the individual's needs (to be specified after the student begins the program); 75/360 or 75/360 Introduction to Research in Art Education; or 75/361 Seminar: Current Issues in Art Education

Comprehensive examinations, both oral and written: The written examination consists of five in-depth research problems 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 problem. 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 defense it before the dissertation committee; an 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 courses 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 graduate course work, at least 24 of them at this institution; A graduate level course in communication education; 26:300 Introduction to Research; A graduate-level seminar in the Department of Communication and Theatre Arts; At least 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 committee prior to the comprehensive examination; A comprehensive examination consisting of three 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 provides students to enrich their backgrounds by completing graduate courses in a 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 pronunciation) or evidence of adequate previous training; a high school undergraduate grade-point average of 2.7; satisfactory scores 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:

26:500 Introduction to Research

The master's degree includes the course is offered during the student's period of residence.

A graduate examination 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 sequence in the College of Education.
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 education 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 (22-33 s.h.):
7S:186 Curriculum Foundations 2-3 s.h.
7S:187 Seminar: Curriculum and Student Teaching 3 s.h.
7S: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 Education 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 (22-33 s.h.):
7S:186 Curriculum Foundations 2-3 s.h.
7S:170 Human Relations for the Classroom Teacher 3 s.h.
7S:257 Educational Measurement and Evaluation 5 s.h.
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.
7S:300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
Research tool(s)—selected in consultation with the advisor.
Cognate (4-6 s.h.)—in a subject field such as English; Electives—selected in consultation with advisor to complete a total of 30-32 hours.
Thesis— for students electing a thesis program.
7S:131 Educational Psychology 3 s.h.
7S:117 Philosophy of Education 3 s.h.
7S:118 History of Western Education 3 s.h.
7S:160 Methods of Communication 3 s.h.
7S:181-182 Observation and Lab Practice in the Secondary Schools 12 s.h.
7S:187 Seminar: Curriculum and Student Teaching 3 s.h.
7S: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 Education 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 (22-33 s.h.):
7S:186 Curriculum Foundations 2-3 s.h.
7S:291 Secondary School Curriculum 3 s.h.
7S:300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
7S:381 Problems of Curriculum Planning 3 s.h.
At least two advanced supervision courses in secondary or elementary school subject fields 6 s.h.
7S:257 Educational Measurement and Evaluation 3 s.h.
or
7S:258 Construction and Use of Evaluation Instruments 3 s.h.
7S:380 Problems in Supervision 2 s.h.
7S:130 Educational Sociology 2 s.h.
7S:117 Philosophies of Education 2 s.h.
7S:131 Educational Psychology 3-4 s.h.
7S:170 Introduction to Psychology of Reading 3 s.h.
7S:242 Selected Applications of Statistical Techniques 3 s.h.
7S:203 Computer Applications in Education 3 s.h.
7S:287 Theory in Administration 3 s.h.
7S:260 Secondary School Principal 3 s.h.
7S:297 After High School and Middle School Curriculum 2-3 s.h.
7S:120 Introduction to Instructional Design and Technology 3 s.h.
7S:130 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; Dissertation 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 adviser.
7S:480 Ph.D. Thesis 10-18 s.h.
Candidates take three three-hour comprehensive examinations in secondary school curriculum, secondary school administration, and one related field in education or in a cognate field.

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 this program is complemented 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. Enrollments should be made to the director of graduate studies, Department of English.

Admission
A secondary school teaching certificate is required for admission to major in English. Preferred undergraduate grade point average of 3.0 in English and GED 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 of the master’s degree is required prior to 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 chairs, 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 8th percentile on the GRE 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 one of the other areas. The other areas 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 competency 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.

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 not more than 6 hours of courses in education or professional education 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 supplement the undergraduate major; and at least four of the following professional education courses:
7P:151 Educational Psychology 3 s.h.
7P:107 History of Western Education 3 s.h.
7P:117 Philosophies of Education 2-3 s.h.
7S:59 Pre-education Practice 1-2 s.h.
7S:170 Student Teaching for the Classroom Teacher 3 s.h.
7S:194 Methods of High School Reading 3 s.h.
7S:118 Methods: English 3 s.h.
7S:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
A two-part comprehensive examination: one covering reading 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 residencies for secondary and junior college levels, and coordinators/supervisors of language 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 GRE Aptitude Test score above the fifteenth percentile on verbal (at least 500), and two years successful teaching experience. A student admitted to the program is expected to provide evidence of sustained completeness for a substantial research paper, and to complete the fifteen-residency period before entering the program. 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.
7E:215 Seminar: Teaching English in Middle School and Junior High School 3 s.h.
7F:518 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 (56-63 s.h.) may include reading, school curriculum, literature for young people, literature of a particular period or genre, educational psychology, special education, educational media, music and drama, pedagogy, language, literacy, criticism, educational measurement, speech and drama. 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 per year in one area.

Facility is 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. The minimal requirements for eligibility to write comprehensive exams are as follows: 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 in foreign languages is 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:151 Educational Psychology 3 s.h.
7P:107 History of Western Education 3 s.h.
7P:117 Philosophies of Education 2 s.h.
7S:118 Methods of Foreign Language Instruction 3 s.h.
7S:181-182 Observation and Laboratory Practice in the Secondary School 12 s.h.
7S:187 Seminar in Curriculum and Student Teaching 1 s.h.
7S:170 Human Relations for the Classroom Teacher 3 s.h.

A four-part comprehensive examination covering the candidate's knowledge of and proficiency in French or German, and the candidate's ability to read 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 under 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 who are not intending doctoral studies, or 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 2-3 s.h.
75:235 Current Issues, Approaches, and Materials in Secondary School Mathematics Teaching 1-3 s.h.
75:238 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 Lower Achiever in Mathematics 2-3 s.h.
75:335 Seminar: Mathematics Education 2 s.h.

Note: Additional courses may be available later.

Two courses missed from a cognate area in education suggested areas are educational psychology, educational statistics, area of 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 are 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 career teachers with advanced specialization in mathematics and mathematics education. This program is especially recommended for students preparing 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 over the required courses in analysis, algebra, and education. The examination will assess the student's knowledge of mathematics and his or her knowledge of the relevance of specific concepts relating to the teaching of secondary school mathematics.

Doctor of Philosophy
The program for the Ph.D. in mathematics education is administered by the College of Education. The 72-semester-hour program includes 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 80 semester hours.

The purpose of the program is to prepare others, 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 courses numbered 201 and 202.

Students must complete a minimum of 6 additional semester hours of graduate 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 to be selected from mathematics education and from other professional education courses approved in the candidate's career plan.

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 on all graduate work.

Have a cumulative grade-point average of 3.0 on all University of Iowa graduate work.

Three-semester 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 12 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 Master of Arts degree program is designed to provide students with deeper insights into music, the theory and practice of music education, and the role of music in the liberal arts curriculum.

Admission
The student must be a certified music teacher or be enrolled in a process of completing certification requirements. A grade-point average of 3.5, excluding grades in ensembles, is required for admission to the regular M.A.

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 Gregorian Specific form and course requirements in the theory area are determined by
scores on the advisory examinations. Music History and Literature: 26:301 Advanced History and Literature of Music I 3 s.h. 26:302 Advanced History and Literature of Music II 3 s.h. 26:303-317 Electives 8 s.h. Specific hour and course requirements in the advisory and literature area are determined by scores on the advisory examinations.

Musical Education: 26:101-102 s.h. 26:240 Supervision and Administration of Music Programs 3 s.h. 26:344 Special Topics in Music 1 s.h. Electives to be selected from music education is consultation with the advisor. 4-8 s.h. Two semester hours of ensemble credit. Two to four semester hours of applied music. The amount of elective credit applicable toward the M.M. 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 expects to complete the degree, the candidate must take a final written master's degree examination (10 semester hours). Areas of concentration in which the major examinations may be written normally cover music pedagogy, music literature, and music history and literature.

Doctor of Philosophy

The purpose of the program is to prepare students for teaching, research, or administrative functions in the following type of positions:

- College positions—teachers of music at college classes and activities, band, choir, and orchestra directors; and administrators of music departments and schools of music; 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 (2-29 s.h.)

General

- 26:321 Introduction to Graduate Study in Music 3 s.h. 26:320 Physics of Sound and Music 3 s.h. 26:145 Counterpoint Forms 3 s.h. 26:147 Tonal Forms 3 s.h. Elective (25:145-163) 3 s.h. Music History and Literature

- 26:301 Advanced History and Literature of the Music I 3 s.h. 26:302 Advanced History and Literature of the Music II Elective (26:203-314) 3 s.h. * Applied and Ensembles 4 s.h. * Electives 0-2 s.h. Music Education (29-24 s.h.)

- 26:240 Supervision and Administration of Music Programs 3 s.h. 78:444 Psychology of Music 2 s.h. * Electives 4-6 s.h. 78:445 Social and Psychological Factors in Music Education 3 s.h. 78:141 Seminar: Contemporary Music Education 3 s.h. 78:342 Seminar: Special Topics in Music Education

Education (8 s.h.)

- 77:143 Introduction to Statistical Methods 3 s.h.

- 77:242 Selected Applications of Statistical Techniques 3 s.h.

Electives

- M.A. level requirements

Electives

Selected in consultation with the student's advisor on basis of advisory examination scores and 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.

Disertation

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. Candidate must demonstrate maturity and scholarship in the areas of theory and practice of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis. The examination typically is divided as follows: music education theory and practice, 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. Under "Degree of Professional Education and Dance—Haley 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. 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 administration.

Admission

Applicants must have a minimum of 20 semester hours of undergraduate credit in the area of history and/or 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 1500 composite of verbal and quantitative.

Degree Requirements
Thesis-eighth semester hours distributed among history, social sciences, or
related areas, with a minimum of 10
semester hours in each of the fields
chosen.

Thirteen-eighth semester hours distributed among disciplines 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 fields
selected for concentration. A minimum of
9 to 13 semester hours of
98:201, 98:202, or 75:293 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 investigative problem
in history, the social sciences, or related areas in which the thesis
director will be a member of the
senior 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 fields to be included in the
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;
master’s degree in the social sciences, or education. They must satisfy
the requirements for admission to a
department in the Graduate College;
and have a grade-point average of
3.0 or above. A minimum GRE Aptitude Test score of 1200 Composite of verbal and quantitative is preferred.

Seminar papers or field research are
required as part of the thesis. The thesis
was written 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 credit for regular
requirements.

The 90 semester hours are to be
distributed among history, social
sciences or related areas, and
discipline. 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.

Seminar 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 75:293 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 requirements are tailored to the
individual’s program and may consist of
two foreign languages or 10 courses in
other fields.

10 courses in the three fields
(excluding seminars) are required.

Comprehensive Examinations:

Normally three or four-hour examinations, one in each of the fields,
will be required. Depending on the
distribution of work taken, the
three or four-hour examinations may be
repeated.

The P.L.D. examining committee consists of a minimum of one faculty
member from the academic disciplines and
one from social studies education. The
remaining members (to make the
minimum of five required by the
Graduate College) will be selected with
regard to education will constitute the
student’s Ph.D. program and
direction of course work. An oral
examination in defense of the
dissertation will be conducted by the
committee as a whole.

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 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
candidate: grade-point average of
3.0 plus annual reevaluation.

Assistantships
A limited number of half-time
assistantships is available for students pursuing Ph.D. degrees in secondary
education. Holders of these assistantships may register for no more
than 12 hours per semester, and, except
with special permission, must register
for at least 6 hours per semest. 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

75:10 Pre-Education Practice 1-2 s.h.

Involves observing and assisting students and
receives in preparing daily tasks in schools.

75:15 Education 24 s.h.

A Select course that includes both field work
and study of teaching techniques in the
senior area.

75:10 Introduction to Public School Teaching 2 s.h.

Quarter course on elementary and secondary
education, including needs and characteristics of
children and teachers, the nature of the life in schools;

75:10 Introduction to Education 2 s.h.

Basic orientation in the field of education;
consideration of administrative organization;
administrative procedures, and contemporary problems at both
elementary and secondary areas.

75:15 Introduction to Educational Staff for K-12 2 s.h.

A course designed to prepare candidates for
environmental activities in the K-12 curriculum as a commitment to
continuous teaching in the existing curricula.

75:90 Survey of Educational Policies for K-12 2 s.h.

A course designed to prepare candidates for
environmental activities in the K-12 curriculum as a commitment to
continuous teaching in the existing curricula.

75:90 Survey of Educational Policies for K-12 2 s.h.

A course designed to prepare candidates for
environmental activities in the K-12 curriculum as a commitment to
continuous teaching in the existing curricula.

75:293 Educational Policies and Practices for K-12 2 s.h.

A course designed to prepare candidates for
environmental activities in the K-12 curriculum as a commitment to
continuous teaching in the existing curricula.

75:10 Introduction to Educational Staff for K-12 2 s.h.

A course designed to prepare candidates for
environmental activities in the K-12 curriculum as a commitment to
continuous teaching in the existing curricula.

75:90 Survey of Educational Policies for K-12 2 s.h.

A course designed to prepare candidates for
environmental activities in the K-12 curriculum as a commitment to
continuous teaching in the existing curricula.

75:293 Educational Policies and Practices for K-12 2 s.h.

A course designed to prepare candidates for
environmental activities in the K-12 curriculum as a commitment to
continuous teaching in the existing curricula.
Second Year
7U:134 Teaching Severely/Profoundly Handicapped 3 s.h.
7U:35 Practice with Severely/Profoundly Handicapped 2 s.h.
Third Year
7U:194 Supervised Teaching with Severely/Profoundly Handicapped 7 s.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 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 classes for the handicapped.

Document 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 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.S., 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 are in special education 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 classrooms, 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 Commission encourages institutions 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 36 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; a minimum of one year 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 (State of Iowa Endorsement 61) certification in general school administration. Graduates are
certifiable and employable as administrators of special education generally work through 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 experiences 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 Inspections 174). 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 as least a 3.0 grade-point average on their undergraduate degree.

Doctor of Philosophy

The purpose of the Ph.D. program in special education is to prepare students as competent school psychologists, as directors of special education, and as university personnel who permit students to study and practice research in an area of 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 evidence that the applicant will have children except the school psychology program. The admissions committee gives preference to applicants with seven years of experience.

Facilities

Special facilities available to students in special education include the University Hospital School (for mentally and physically disabled) and the University Specialized Psychiatric 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 Jane Zeber Memorial Tuition Stipend is available 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

7203 Introduction to Assessment Special Education 3 h.

Students develop assessment skills in screening, program placement, program planning, and student progress evaluation. Introduction to behavior modification. Introduction to LEAP development. Prerequisites: admission to graduate special education program.

7211 Teaching mildly Handicapped Elementary 3 h.

Methods of assessing and teaching mildly handicapped in regular classroom, preschool, and special education programs. Prerequisites: 7350, 7351, and 7352.

7221 Teaching mildly Handicapped Secondary 3 h.

Methods of assessing and teaching mildly handicapped in regular classroom, preschool, and special education programs. Prerequisites: 7350, 7351, and 7352.

7232 Handicapped Education 3 h.

An overview of the major categories of handicaps and appropriate teaching methods. Prerequisites: admission to graduate special education program.

7233 Practice with MILDLY HANDICAPPED 3 h.

An overview of the major categories of handicaps and appropriate teaching methods. Prerequisites: admission to graduate special education program.

7234 Practice with Moderately HANDICAPPED 3 h.

Supervised practicum with mildly handicapped for approximately 60 hours. Prerequisites or co-requisites: 7351 or 7352.

7235 Practice with Severe/Profoundly Handicapped 3 h.

Supervised practicum with severely/profoundly handicapped for approximately 60 hours. Prerequisites or co-requisites: 7351 or 7352.

7250 Integrating mildly Handicapped into Regular Education 3 h.

Designed to give educators involved with mildly handicapped students broader knowledge of handicapped children and the skills to identify and develop instruction for mild handicapping trends.

7251 Internship 3 h.

Introduction to autism including diagnosis, assessment, and research information, characteristics of autism, assessment and treatment of autism, and the development of autistic persons. Prerequisite: consent of instructor.

7252 Internship 3 h.

Research and service experience for teaching autistic persons. Information for working with parents of autistic persons, professional problems and social role of autistic persons. Prerequisite: 7211 or consent of instructor.

7253 Methods of Teaching Exceptional Handicapped 3 h.

7254 Internship in the Job Placement and Counseling for Exceptional Students 3 h.

The Job Placement and Counseling for Exceptional Students course is designed to provide job placement and counseling services for exceptional students. Prerequisites: admission to graduate program.

7255 Internship in the Classroom Teacher 3 h.

Introduction to the characteristics of exceptional students in classroom settings, association with teaching strategies useful for enrolling the exceptional student in general classroom settings.

7256 Internship in the General Education Teacher 3 h.

Introduction to the characteristics of exceptional students in classroom settings, association with teaching strategies useful for enrolling the exceptional student in general classroom settings.

7257 Handicapped Education 3 h.

An overview of the major categories of handicaps and appropriate teaching methods. Prerequisites: admission to graduate special education program.

7258 Practice with MILDLY HANDICAPPED 3 h.

An overview of the major categories of handicaps and appropriate teaching methods. Prerequisites: admission to graduate special education program.

7259 Practice with Severe/Profoundly Handicapped 3 h.

Supervised practicum with severely/profoundly handicapped for approximately 60 hours. Prerequisites or co-requisites: 7351 or 7352.

7260 Integrating mildly Handicapped into Regular Education 3 h.

Designed to give educators involved with mildly handicapped students broader knowledge of handicapped children and the skills to identify and develop instruction for mild handicapping trends.

7261 Internship 3 h.

Introduction to autism including diagnosis, assessment, and research information, characteristics of autism, assessment and treatment of autism, and the development of autistic persons. Prerequisite: consent of instructor.

7262 Internship 3 h.

Research and service experience for teaching autistic persons. Information for working with parents of autistic persons, professional problems and social role of autistic persons. Prerequisite: 7211 or consent of instructor.

7303 Methods of Teaching Exceptional Handicapped 3 h.

7304 Internship in the Job Placement and Counseling for Exceptional Students 3 h.

The Job Placement and Counseling for Exceptional Students course is designed to provide job placement and counseling services for exceptional students. Prerequisites: admission to graduate program.

7305 Internship in the Classroom Teacher 3 h.

Introduction to the characteristics of exceptional students in classroom settings, association with teaching strategies useful for enrolling the exceptional student in general classroom settings.

7306 Internship in the General Education Teacher 3 h.

Introduction to the characteristics of exceptional students in classroom settings, association with teaching strategies useful for enrolling the exceptional student in general classroom settings.
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 curriculums 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 at the limits of a creative nature which are expected to result in original contributions to the literature at the postgraduate 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 six years. In addition, a minor in the College of Business Administration or a minor in any degree-granting department or approved 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 satisfaction 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 at least 60 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/25 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 freshmen, 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 Ranked in the upper one-half of his or her high school graduating class.
Engineering

High school physics and chemistry are recommended for all applicants. Transfer applicants must submit a formal application and an official report from the college or university attended at other institutions. Each applicant should have:

- Completed at least one semester of calculus or its equivalent; and
- Maintained a cumulative or point average of at least 2.25, based on a 4-point marking system.

A minimum of 64 semester hours credit (or the equivalent) from a community or junior college will be accepted toward a baccalaureate degree.

Eligibility for minimum time 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 curriculum programs 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 preparation in an engineering specialty appropriate to the challenge presented by today's complex and difficult technological problems. The overall objective of the curriculum programs is to provide an integrated education, emphasize the development of the ability to apply pertinent knowledge, provide a coherent and logical 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 streams are called basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences, humanities and social sciences develop the background required for engineers. 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 stems. The core sequence in this stem begins with 565.1 Introduction to Engineering in the first semester of the freshman year and terminates with junior-level design courses during the senior year.

Approximately one-half of the courses in the four parallel streams are offered by all of 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 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 at the senior level.

The curriculum for the freshman year is:

**First Semester**
- 4:13 Principles of Chemistry I 3.0 a.h.
- 10:1 Rheology 4.0 a.h.
- or 10:3 Rheology 4.0 a.h.
- 23M:35 Engineering Calculus I 4.0 a.h.
- 565:1 Introduction to Engineering 2.0 a.h.
- 565:3 Engineering Graphics 3.0 a.h.
- Total 15.0 a.h.

**Second Semester**
- 4:16 Principles of Chemistry Lab I 2.0 a.h.
- 10:2 Rheology 4.0 a.h.
- or Humanities or social science elective 4.0 a.h.
- 23M:36 Engineering Calculus II 4.0 a.h.
- 565:2 Engineering Computations 2.0 a.h.
- 565:7 Statics 2.0 a.h.
- Total 15.0 a.h.

A maximum of four semester hours is allocated for satisfaction of the rhetoric requirement. Students who qualify for R 3:3 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 550:15 Materials Science I in place of the humanities or social science elective listed for the second semester.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences stream is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. Supportive of this goal, the student is to select, with the advisor's approval, a minimum of 16 semester hours of humanities and social sciences electives, which is to include at least six semester hours of course work in the humanities and at least 6 semester hours in the social sciences. Because the social sciences courses are the curriculum's general engineering major, and are not open by the same selection process, students considering a major in this program should consult the Industrial and Management Engineering program requirements presented later.

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; music; philosophy and religion; or other departments and schools approved by the College of Engineering faculty. Students may select courses from departments not specifically approved by the approval of the assistant to the dean. Students shall complete three of the following three semester hours of advanced (100-level) course work in the humanities area to secure sufficient depth of knowledge in an elected subject of study. This advanced coursework must be completed as a mandatory element of the curriculum. The courses chosen for 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, and mass communications. All social work, or other departments approved by the College of Engineering faculty. Students may select courses from departments not specifically approved with the approval of the assistant to the dean. To assure an adequate depth of knowledge in a chosen area of study, students shall
select a minimum of three semester hours of advanced (100-level) courses. This would typically build on the background previously acquired in an elementary course.

Combined College of Engineering-College of Liberal Arts Program

Students may earn two University of Iowa 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 advisors 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 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 and the requirements for 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-humartics are required 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 program are 12 credits of 400-level courses, 12 credits of 300-level courses, and 12 credits of 200-level courses. The student must also maintain a cumulative GPA of 3.0. The student must complete a minimum of 120 semester hours for the first degree program with a cumulative GPA of 2.0. The minimum credit hours required 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-humartics 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 one third 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 or 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 desire to add a minor designation at the time of applying for their degree to assure that the minor designation is included on the graduate's transcript.

Minor in the College of Business Administration

Requirements for the minor are: two economics courses, two accounting courses, a marketing course, a finance course, an environmental science course, and a legal environment course. In addition to these required courses, a student normally would also complete a statistics course, a computer course, and a probability and statistics course. Engineering majors must satisfy the mathematics, statistics, and computer science requirements with courses 22M:35, 580:4, and 580:39. A 2.50 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 12 credits in advanced courses acceptable to that academic unit (students should confer with the minor department to identify acceptable courses). The student must achieve a 2.00 grade-point average in the courses applicable to the minor.

Courses to be counted toward the minor may not be taken on a pass/fail 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 and by matching student interest and ability to the work situation.

The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study period and also may result in improved achievement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness 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 selective basis.

University Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center serves students 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 specialization 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, Suite H12, The University of Iowa.

Academic Standards

Semester Load Limit

A normal academic load is about 18 semester hours of credit work 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 a four-point grading system, in which grade points are assigned according to Table A-4. 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 1.70 will be placed on academic probation. 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 re-enroll without specific approval from the adviser to the dean. Students who have 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 fall or spring term may be granted the opportunity to obtain credit for good standing, credit toward graduation, and credit toward graduation requirements. 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.

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 for good standing, credit toward graduation, and credit toward graduation requirements. 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 English, mathematics, science, and foreign languages, and, if passing, may receive credit for college courses upon presentation of examination results to the College Entrance Examination Board, Princeton, New Jersey.

Pass-Nonpass Option

A maximum of two courses taken in the colleges of Liberal Arts or Business Administration on a pass-nonpass 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-nonpass basis must meet the conditions and follow the procedures specified by those colleges. The pass-nonpass option may be used for courses taken to satisfy the core curriculum requirements. Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass-nonpass 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. If the course is a core requirement established by university policy, the mark of N (nonpass) will be given for grades of D or F. Marks of P and N will be used in computing the grade-point average and the mark of N will not count as earned hours. No course work taken in the College of Engineering under a pass-nonpass 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 be elected prior to the time of completing a degree for which the repeated course is a prerequisite. The option may be applied to no more than three courses and may be applied only once to a given course. Transfer students may apply the option on a pro-rated basis. For example, a student transferring with 42 semester hours of applicable engineering coursework may use this option for a maximum of three courses, while a student with 45 semester hours of credit earning 18 hours of engineering coursework may use this option for no more than two courses, and a student with 60 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 courses with course number ENGR 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 graded by a final grade prior to the announced deadline within the regular semester of registration will be replaced by a final grade by the registrar, except that students with incompletes from the spring semester are exempt from
Completing the course during the succeeding 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 semester hours of study in residence in 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/liberal 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 'S'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 forum for planning and carrying out activities involving the entire student body, such as faculty picnics held each fall and spring, the homecoming corn roast, the MECCA Week, and sponsoring of a nationally prominent speaker during National Engineers' Week. The organization also acts on college-wide issues affecting students.

Engineering students publish their own student newspaper, Society of Engineers. 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 Electronic Engineers are active at The University of Iowa.

The UI chapter of Tau Beta Pi, a sectional honorary 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 in 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, recognize the work of outstanding students in their respective fields.

Student organizations exist providing support and assistance in the development of more equitable enrollments of women and minorities in the college and 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 several engineering colleges 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 engineering fundamentals program given at the University results in the granting of a registration certificate. Graduates of 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 experience. 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 52,900 books and 450 periodicals. The library is equipped with microfilm and microfiche readers, and provides study spaces for 190 library users.

Computer-Aided Engineering 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 protection system. It also contains several stand-alone microcomputers which are connected to a university-wide microfornet to transfer data from one system to the other. Information is given in computer-aided graphics and design at both the undergraduate and graduate level. Software is available for graphics applications, optimal design, finite element analysis, structural analysis end-design, and dynamic analysis of mechanical and structural systems.

Computer Based Education (CBE) Laboratory

The Computer Based Education Laboratory provides the students and faculty with a unique learning environment. The laboratory provides a personal learning system for both students and faculty. The laboratory is connected to the University's computer system and can access the University's computer systems for student use.

Computer Services

Services of the WV System Computing Center are used extensively by students and faculty of the College of Engineering. The College of Engineering computer centers provide the college with a large number of terminals and remote printers for access to the University of Iowa computer systems in the CBE Laboratory. In addition, a number of students and microcomputers are available within the college for specialized use by students and faculty.

Employment Placement Services

The placement services of the WV System Computing Center are available to both current students and alumni. The services include on-campus interviews for graduate and co-op employment, written and audio-visual company literature for more than 300 business, direct mail, directories, open position...
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 reorganized its faculty and facilities into a number of academic 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 engineering, computer engineering, electrical and computer engineering, industrial and management engineering, and mechanical engineering. The faculty in each academic unit are 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 academic unit.

The chief administrative officers of a program are 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.

The group 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 broaches the educational scope of the college and encourages interdisciplinary and innovative programs.

Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IIHR) 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, hydraulics, hydrology, 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 biomechanics. Sponsored projects include: traumatic head and spinal injuries, hemodynamics, cardiac mechanics, prosthetic heart valves, bone and ligament biomechanics, bone cancer, 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 graphics. A research facility consisting of a PRIME 750 super minicomputer, a dynamic graphics system, and other related computer equipment supports the faculty, 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 title of each course offered by the College of Engineering is preceded by a 2-digit prefix and a 3-digit suffix separated by a colon.

The first digit of the prefix is B, 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:

1 — Energy engineering
2 — Information engineering
3 — 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 curriculum program, with the correspondence between the third digit and the curricular programs as shown below:

0 — Engineering core
1 — Biomedical engineering
2 — Information and materials engineering
3 — Civil and environmental engineering
5 — Electrical and computer engineering
6 — Industrial and management engineering
7 — Division specialty programs
9 — Departmental courses

The three-digit suffix of a course number identifies the level and type of course. Generally, the suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 300 and above designate courses primarily for graduates. The table below provides further means of conveying information on the level and type of courses:

01-099 — Freshman core courses
100-199 — Sophomore core courses
200-299 — Junior core courses
300-399 — Required courses in undergraduate programs
400-499 — Undergraduate professional program seminars
500-599 — Contemporary topical courses for undergraduates
600-799 — Individual investigation courses
for undergraduates
101-109—Courses to which little or no knowledge of mathematics background is required
110-119—Undergraduate elective or lower-division graduate course
120—Research courses for non-engineering majors
121-194—Electives for undergraduates and graduates
195-199—Co-requisite topics courses for undergraduates and graduates
198—Individual investigations for graduates
199—M.S. thesis research
210-219—Upper-division graduate courses
210-290—Electives for graduates
290-299—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 coursework at other colleges and universities. The student should consult with the course instructor or any other faculty member concerning 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 of Engineering if the student receives the consent of the instructor. Consent of the instructor will be based on appropriate criteria, as well as on the student's background in the mathematics, science, and engineering and engineering background of the student and that considered necessary to satisfactorily undertake the course work.

**Biomedical Engineering**

**Program Chair:** Kwan Nip

**Faculty** includes:
- Daniel M. Berry, Ding-Jen Chen, Paula C. G. Messner, Donald E. McHale, Kwan Nip, Ph.D.
- Additional professors or assistants:
  - Michael P. Stacke, Sheng L. Ho
  - Reni T. Keel, Doug D. Crennell, Steve C. Collins, Ray D. Crennell, Ruben C. L., L., Thomas A. Lehman, J.W. Rusk, Howard E. Witten
  - William E. L. Finlayson, Annmarie L. Lee
  - Dean's office: BSE

The past two decades have seen a tremendous growth in the field of biomedical engineering, with increasing involvement with projects in the life and health sciences, trends that have been increased need for them to become more familiar with the fields of biology and medical science. Realization 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 careers in industry (the design and development of biomedical instrumentation, diagnostic kits, life support systems, prosthetic and orthotic devices, man-machine systems, etc.), government, (Veterans 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 in college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Courses which have been designated primarily for the biomedical engineering program are identified by the digit 'I' in the third position of the course number prefix. Course descriptions are provided in this Catalog. The catalog is 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 of opportunities associated with careers in the biomedical engineering profession. The program has been carefully designed to enable the student to satisfy all prerequisites required of the Graduate College and the colleges of Medicine, Dentistry, and Law.

**Curriculum**

**Sophomore Year**

*First Semester*
- 29M:37 Engineering Calculus II (5 h)
- 37-37 Principles of Animal Biology (5 h)
- 540:11 Introduction to Electrical Science (3 h)
- 571:11 Dynamics (5 h)

**Total:** 15 h

*Second Semester*
- 29M:38 Differential Equations for Engineers (4 h)
- 520:18 Thermodynamics I (4 h)
- 540:12 Linear System Analysis (4 h)
- 568:11 Physiology for Biomedical Engineers (3 h)

**Junior Year**

*First Semester*
- 550:36 Probability and Statistics for Engineers (3 h)
- 550:21 Principles of Design I (3 h)
- 540:18 Principles of Electronic Instrumentation (4 h)
- 592:32 Intermediate Engineering Physics II (3 h)
- 520:20 Mechanics of Fluids and Thermodynamics (4 h)
- 569:21 Professional Seminar I (3 h)

**Total:** 17 h

*Second Semester*
- 600:19 Mechanics of Deformable Bodies (4 h)
- 421:15 Organic Chemistry I (3 h)
- 625:22 Principles of Design II (3 h)
- 3 Technical electives from biological and or social sciences (3 h)
- 569:21 Professional Seminar II (3 h)

**Total:** 16 h

*Senior Year*

*First Semester*
- 551:83 Biomedical Engineering Design I (3 h)
- 3 Technical electives from biological and or social sciences (6 h)
- 569:21 Professional Seminar 0 (3 h)

**Total:** 15 h

*Second Semester*
- 551:84 Biomedical Engineering Design II (3 h)
- 3 Technical electives from biological and or social sciences (6 h)
- 569:21 Professional Seminar 0 (3 h)

**Total:** 15 h

*At least 3 of the seven courses listed above, plus six additional semester hours in appropriate-approving engineering, biological, and or health science related courses.*

**Biology**

- 521:146 Biotechnology Processes (3 h)
- 540:11 Introduction to Electrical Science (3 h)
- 561:188 Biomedical Image Processing (3 h)
- 561:188 Apprenticeship in Clinical Engineering (3 h)

**Chemistry**

- 561:188 Biomedical Image Processing (3 h)
- 561:188 Apprenticeship in Clinical Engineering (3 h)

This list of related and social sciences electives must be selected to satisfy the remaining hours of the program and requirements of the College of Engineering.
Chemical and Materials Engineering

Graduate Program

The Chemical and Materials Engineering Program offers curricula leading to the Master of Science and 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 of 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 degrees.

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, chemomechanics, 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 processes including the analysis and numerical modeling of chemically reactive flows can provide insights into complex systems. This research may help assess regional pollution control and energy utilization strategies.

Fine Particles

A general approach and graduate students are engaged in research on materials in finely divided form such as dust, powders, and aerosols. The objective of the project is to describe mechanisms of particle transport and shape and then to use these to the origin of the particles and their behavior. Potential applications include atmospheric pollution problems, chemical reactions, chemical and nuclear reactions, and aerosol dynamics. Flow through Porous Media

Knowledge and surface diffusion through porous microporous media are being studied. Practical applications are in gas separations, catalysis, and solar energy conversion. Currently a solar energy application is being investigated.

Reaction Kinetics and Catalysis

Hybrid molecular catalysis are being investigated which combine the advantages of homogeneous and heterogeneous catalysis. Other topics of current interest include fluid solid
Membrane Separations
Several novel membrane processes have recently 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 gas can be purified by these processes. These membrane processes can also be applied to separate liquid mixtures such as alcohol and water.

Mechanical Behavior of Cast Steel
Quantitative, optical, and scanning electron micrograph article 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 completed in residence at the University of Iowa. Work completed in Saturday classes as residence credit may not exceed eight semester hours. However, six semester hours may be completed in residence at another recognized graduate college or by correspondence study at the University of Iowa.

The minimum course work required is 24 semester hours (about eight courses), and the remainder of the 30 semester hours must be completed to research. To be eligible for the M.S. degree, the student is expected to maintain a minimum grade-point average of 3.0. The student must have completed the candidacy portion of the graduate work. The student must have completed the required courses, and the final examination, which is a defense of the thesis, constitutes the doctoral program.

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 2.0 based on a maximum of 4.0 is required; for the Ph.D. program, the minimum grade-point average is 3.0 based on completed graduate work. Conditional admission may be granted if the above requirements are not fulfilled and approval is obtained from the chair of the chemical and materials engineering program. A grade-point average of at least 2.3 is required for conditional admission. Also, applicants should take the verbal, quantitative, and advanced parts of the Graduate Record Examination (GRE) Verbal and Quantitative Tests, and the scores of this test should be submitted with the application.

Graduate courses in chemical and materials engineering are designed for the student with an undergraduate background in chemical engineering or the materials sciences. However, exceptional students from other areas may apply for admission to the M.S. or even the Ph.D. program in chemical and materials engineering. Such a student needs to take certain undergraduate courses as background to allow him or her to perform in the graduate courses with a minimum difficulty. Since these undergraduate courses are in the nature of make-up courses, they must not carry credit toward a graduate degree.

Financial Aid
A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Civil and Environmental Engineering

Civil and Environmental Engineering

Program chair: Harriett Kone

Majors: Civil and environmental engineering

Graduate Program

The Civil and Environmental Engineering program is designed to equip students with the knowledge and skills necessary to pursue careers in the field of civil and environmental engineering. The program offers a comprehensive curriculum that covers a wide range of topics, including structural engineering, environmental science, and urban planning.

The program is designed to prepare students for careers in government, private industry, and academic institutions. Students have the opportunity to work on real-world projects and gain valuable experience in the field.

The program is accredited by the Engineering Accreditation Commission of ABET, ensuring that students receive a high-quality education.

Admission Requirements

To be eligible for admission to the Civil and Environmental Engineering program, applicants must have a bachelor's degree in engineering or a related field. Applicants should have a strong background in mathematics, physics, and chemistry.

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours completed in residence at the University of Iowa. Work completed in Saturday classes as residence credit may not exceed eight semester hours. However, six semester hours may be completed in residence at another recognized graduate college or by correspondence study at the University of Iowa.

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Financial Aid

A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Civil and Environmental Engineering

The Civil and Environmental Engineering program is dedicated to the development of sustainable solutions to environmental challenges. The program focuses on the design and implementation of innovative technologies and practices to address issues such as water quality, air pollution, and waste management.

The program is designed to prepare students for careers in government, private industry, and academic institutions. Students have the opportunity to work on real-world projects and gain valuable experience in the field.

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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. Electives in the senior year permit greater breadth or additional concentration in such areas of specialization as structural and foundation engineering, environmental engineering, hydraulic engineering, and transportation engineering.

Curriculum

Sophomore Year

First Semester
22M:37 Engineering Calculus III 4 s.h.
560:10 Dynamics 3 s.h.
E40:11 Introduction to Electrical Science 3 s.h.
560:15 Materials Science I 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.
E40:12 Linear Systems Analysis 3 s.h.
560:19 Mechanics of Deformable Bodies 3 s.h.
E20:20 Mechanics of Fluids and Transient Processes 4 s.h.
29:81 Intermediate Engineering Physics I 3 s.h.
Total 16 s.h.

Junior Year

First Semester
29:82 Intermediate Engineering Physics II 3 s.h.
560:21 Principles of Design I 3 s.h.
560:29 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
563:31 Structural Analysis I 4 s.h.
563:38 Soil Mechanics 3 s.h.
563:91 Professional Seminar 0 s.h.
Total 15 s.h.

Second Semester
560:16 Principles of Electronic Instrumentation 4 s.h.
560:22 Principles of Design II 5 s.h.
563:35 Design of Steel Structures 2 s.h.
523:80 Principles of Hydraulics 4 s.h.
563:86 Elements of Surveying 1 s.h.
563:91 Professional Seminar 0 s.h.
Total 15 s.h.

Senior Year

First Semester
563:38 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.
533:150 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 science 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, hydrological sciences, structural and geotechnical engineering, environmental protection, 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 minor 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. Issues include the Institute of Hydrologic Research, the Institute of Applied Hydraulics and Environmental Health, the Institute of Urban and Regional Planning, the Institute of Business, Science, 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 management. Environmental engineering and science courses are described in the "Division of Energy 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, appraisal design, and mechanics of materials 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 studies. Current and proposed demands for M.S. graduates are extremely high.

In general, the claim of study, with or without thesis, must include a minimum of 30 semester hours of credit, with not more than 6 semester hours of credit allowed for the thesis. An additional six
Admission

Each curriculum for 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. Satisfactory admission for the doctoral programs is granted to applicants whose grade-point average is slightly lower than 3.0, depending on evidence of substantial background. All applicants must meet the general admission requirements of the Graduate College (see “Graduate College”).

Electrical and Computer Engineering

Program of Study

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 semiconductor, aerospace, telecommunication, radio, television, computer, and industry. With the B.S.E. degree, the electrical engineer is prepared to do electrical engineering work in design, development, manufacturing, sales, market analysis, consulting, field service, and management. The involvement outlook for the foreseeable future is quite favorable.

Courses which have been designated 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, electromagnetic fields, communication theory, electronics, and design. In addition to the basic engineering core of mathematics, engineering design, electrical engineering science, and humanities, Technical electives and advanced programs are offered in biomedical systems, computer systems, electronic circuits, signal processing, digital and control systems, applied physics, power, and solid state devices.

Curriculum

First Semester

580:10 Dynamics (3 a.h.)
528:37 Engineering Calculus III (4 a.h.)
580:10 Thermodynamics (4 a.h.)
580:15 Materials Science I (3 a.h.)
540:11 Introduction to Electrical Science (3 a.h.)
Total: 17 a.h.

Second Semester

26:81 Intermediate Engineering Physics I (3 a.h.)
22:36:38 Differential Equations for Engineers (4 a.h.)
540:12 Linear Systems A (4 a.h.)
540:18 Principles of Electronic Instrumentation (4 a.h.)
540:31 Introduction to Computers in Electrical Engineering (3 a.h.)
Total: 17 a.h.

Junior Year

First Semester

29:82 Intermediate Engineering Physics II (3 a.h.)
540:33 Probability and Statistics for Engineering and Physical Science (3 a.h.)
540:32 Introduction to Digital Design (3 a.h.)
540:30 Electronic Circuits (3 a.h.)
540:80 Control Systems (3 a.h.)
*540:91 Professional Seminar (0 a.h.)
Total: 15 a.h.

Second Semester

24:89 Modern Physics (3 a.h.)
540:33 Introduction to Software Design (3 a.h.)
540:60 Communication Systems (3 a.h.)
540:12 Electromagnetic Theory (3 a.h.)
540:84 Principles of Electrical Engineering Design I (3 a.h.)
*540:91 Professional Seminar (0 a.h.)
Total: 18 a.h.

Senior Year

First Semester

540:60 Electrical Engineering Materials and Devices (3 a.h.)
540:88 Principles of Electrical Engineering Design II (3 a.h.)
*540:91 Professional Seminar (0 a.h.)
**Technical electives (3 a.h.)
Graduate Program

The electrical and computer engineering program offers the Master of Science and Doctor of Philosophy degrees. The elective 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 led to results 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-qualified and funded research laboratories exist in the following areas:

Waves and Materials
Plasma physics, electro-optic, 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, image 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 various control schemes are under investigation. Mini- and micro- computers are used in the controls laboratory to investigate real-time digital control, nonlinear system theory, and digital estimation. Other controls 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
Fault-tolerant 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 nearby 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. This must include at least 12 semester hours of course work in electrical and computer engineering, not including courses required for electrical engineering undergraduate programs.

With thesis, up to 6 additional semester hours of the 30 semester hours may be research credit. Without thesis, at least three semester hours of 547:090 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 adviser 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 547:090 individual investigations, for non-thesis 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:
Selection of a program advisor and filling of a tentative plan of study with the program during the first year; at least 72 semester hours credit in courses in a program acceptable to the advisor and approved by the graduate committee, with at least 48 semester hours credit earned in formal courses, including 30 semester hours in courses numbered 547; Successful completion of the Ph.D. qualifying examination; Successful completion of the Ph.D. comprehensive examination; Successful completion of a research program; Successful completion of a final oral defense of the thesis and a cumulative grade-point average of 3.55 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 computer science for domestic students, 3.0 for Ph.D. students. An M.S. student must have 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. Extended financial 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 H. Low
Degree offered: S.S.E. without designation at a major.

The increasing emphasis on interdisciplinary and nontraditional career objectives in engineering emphasizes the desirability of having 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 and is built from courses acquired in 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. Each student is responsible for monitoring the progress of all students in their program and offering suggestions and advice as required.

Curriculum
Sophomore Year
First Semester
203:16 Engineering Calculus I 4 a.h.
502:16 Thermodynamics I 4 a.h.
540:11 Introduction to Electrical Science 3 a.h.

Industrial and Management Engineering
Chair: R. Ross
Associate Chair: J. L. O'rourke, J. L. Udovina

Research: J. H. W. Segersten

Degree offered: S.S.E., M.S., Ph.D.

The industrial and management engineering program has many opportunities for employment and service in industrial, governmental, 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 he may enter 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 also be employed by a manufacturing firm, a government agency, or by a service organization such as an 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, management, and human relations, as well as in computer systems, economics, optimization, human behavior, and systems analysis. Both the undergraduate program in industrial engineering and the graduate program in industrial 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 and management engineering are identified by the symbols in the title of the course number prefix. Most such courses are described in this catalog in the section devoted to the Division of Systems Engineering (565 numbers) while a course pertaining to materials science or processing may be found in the section pertaining to the Division of Materials Engineering (568 numbers).

Junior Year
First Semester
560:15 Materials Science I 3 a.h.
560:10 Dynamics 3 a.h.
Total 17 a.h.
Second Semester
224:36 Differential Equations for Engineers 4 a.h.
540:12 Linear Systems Analysis 3 a.h.
560:19 Mechanics of Deformable Bodies 3 a.h.
540:18 Principles of Electronic Instrumentation 4 a.h.
589:1 Intermediate Engineering Physics I 3 a.h.
Total 17 a.h.
Senior Year
First Semester
560:35 Probability and Statistics for Engineering and Physical Sciences 3 a.h.
20:82 Intermediate Engineering Physics II 3 a.h.
520:20 Mechanics of Fluids and Transfer Processes 4 a.h.
560:11 Principles of Design I 3 a.h.
*Humanities or social science elective 3 a.h.
Total 15 a.h.
Second Semester
20:83 Modern Physics 3 a.h.
560:22 Principles of Design II 3 a.h.
589:27 Engineering Management Science 3 a.h.
Technical elective
*Humanities or social science elective 4 a.h.
Total 15 a.h.

Second Year
First Semester
Design course 3 a.h.
Technical electives
*Humanities or social science elective 3 a.h.
Total 15 a.h.
Second Semester
Design course 3 a.h.
Technical electives
*Humanities or social science elective 3 a.h.
Total 15 a.h.

*The humanities and social science electives must be selected to satisfy the requirements and social science requirements of the College of Engineering.
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
560:10 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.
223M:37 Engineering Calculus III 4 s.h.
Total 16 s.h.

Second Semester
540:12 Linear Systems Analysis 3 s.h.
520:16 Thermodynamics I 4 s.h.
223M:38 Differential Equations for Engineers 4 s.h.
560:76 Materials Science II 3 s.h.
Economics elective 3 s.h.
Total 17 s.h.

Junior Year

First Semester
13:11 Elementary Psychology 4 s.h.
25:81 Intermediate Engineering Graphics 3 s.h.
560:21 Principles of Design I 3 s.h.
560:39 Probability and Statistics for Engineering and Physical Science 3 s.h.
560:71 Materials Processing I 3 s.h.
560:91 Professional Seminar 0 s.h.
Total 15 s.h.

Second Semester
560:22 Principles of Design II 3 s.h.
29:82 Intermediate Engineering Physics II 3 s.h.
560:15 Introductory Seminar 3 s.h.
560:121 Design of Work Methods 3 s.h.
560:140 Operations Research I 3 s.h.
560:159 Human Engineering 3 s.h.
540:18 Principles of Electron Instrumentation 4 s.h.
Total 16 s.h.

Senior Year

First Semester
560:91 Professional Seminar 0 s.h.
560:123 Information Systems Design 3 s.h.
*13:150 Psychology in Management 3 s.h.
**Technical electives 9 s.h.
Total 15 s.h.

Second Semester
580:91 Professional Seminar 1 s.h.
580:124 Operational Systems Design 3 s.h.
580:133 Quality Control, Reliability, and Engineering Statistics 3 s.h.
**Humanities elective (100-level) 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:173 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.
29:83 Modern Physics 3 s.h.
A biological science course 3 s.h.
*Strongly recommended: 6 total science electives.
**The humanities and social science electives must be selected to satisfy the humanities 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 last course (3 semester hours) is to be chosen with the approval of the academic advisor.
580:141 Operations Research I 3 s.h.
580:142 Production-Inventory Analysis 3 s.h.
580:143 Quantitative Investment Analysis 3 s.h.
580:144 Engineering Economic Decisions 3 s.h.
560:149 Digital Systems Simulation I 3 s.h.
580:157 Advanced Managerial Psychology 3 s.h.
580:158 Advanced Human Engineering 3 s.h.
667:06 Individual Investigations arr.
667:08 Individual Investigations arr.

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 sound academic practice. The curriculum is highly flexible; the goal is 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 one area, whereas others wish to have a more general program with only moderate specialization. Ph.D. students are expected to have a breadth of knowledge as well as a strong research specialization. Graduate students who are interested in transportation and logistics 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 of course work of 100 or 200 level courses, including at least a half semester credit hours of research. Those students who elect the nonthesis option are required to complete a minimum of 30 semester credits of course work at the 100 or 200 level including at least nine credits at either the 200 level or at the 100 level but with the designee "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 chair and by the Graduate College dean.

Entering students in all programs will have completed courses in game theory, programming, probability, statistics and mathematics equivalent to that required in accredited undergraduate engineering programs. Both verbal and written skills in the English language are essential. Engineering management and human factors students will find elementary psychology and engineering economics useful preparation. Completing course work may be required for students with nonengineering backgrounds.

The student is required to maintain a grade point average of 3.0 on all graduate course work (both 100 and 200 level courses) 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 explore further the student's course preparation and/or an appropriate individual investigation.

Doctor of Philosophy

Typically, Ph.D. programs in industrial and management engineering require at least 72 hours of study involving advanced research. Completely part-time Ph.D. study is discouraged. There is no foreign language requirement or special requirements on research tools.
Admission to degree candidacy will require a minimum grade-point average of 3.50 on all graduate work taken at The University of Iowa and the demonstration of a capacity for individual achievement. Upon completion of the coursework specified by the advisor and examining committee, the student will be admitted to the comprehensive examination, which includes both written and oral parts. Part of this examination will usually include the presentation of a dissertation proposal, so that the examining committee can evaluate the student's academic preparation in the light of the research to be performed. Upon successfully completing this examination, the student is accepted as a candidate for the Ph.D. and normally has only to complete and defend the dissertation.

Graduate Admission

Students with an M.S. objective may be admitted from an ABET accredited baccalaureate curriculum in any engineering discipline or in the mathematical or physical sciences with a minimum grade-point average of 3.75 and/or an acceptable score on the Graduate Record Examination (GRE) Aptitude Test (typical, at least 400 verbal, 650 quantitative). Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students may be considered for regular admission with a lower grade-point average and lesser GRE scores. Students from business or social sciences programs who have adequate mathematical preparation may also be considered for regular or conditional admission. The student on conditional status must achieve regular status within two semesters of registration or attaining a grade-point average of at least 3.0 and regular acceptance by the industrial and manufacturing engineering program faculty or be dismissed. Admissions may be limited to the number of faculty and other available resources.

Students with a Ph.D. objective may be admitted from an ABET accredited baccalaureate or a post-baccalaureate curriculum in any engineering discipline or the mathematical and physical sciences with a minimum grade-point average of 3.0 and/or an acceptable GRE Score (Typically, at least 600 verbal and 650 quantitative). Applicants from outside the U.S. must have an equivalent background for regular admission as determined by this University. Students may also be admitted from business or social sciences programs on an individual basis. A student with a Ph.D. objective and a B.S. degree or an M.S. degree with less than 30 credits for M.S. degree will normally first be admitted to the M.S. program.

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

Mechanical engineering is a broad field concerned with energy, including transformation from one form to another, transmission, and its utilization. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex marine, aerospace, and 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, operation and maintenance, marketing and sales, and management, and are employed throughout all industries.

Courses developed primarily for the mechanical engineering program are identified by the digit 8 in the third position of the course number prefix. Course descriptions are provided in this Catalog within 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 in at least one of the major disciplines of mechanical engineering. All apparel students undertake a design project. A handbook describing the curriculum and program requirements is available in the program office.

Curriculum

Sophomore Year

First Semester

294.37 Engineering Calculus III 4 s.h.
580.10 Dynamics 3 s.h.
540.11 Introduction to Electrical Science 3 s.h.
550.15 Materials Science 5 s.h.
520.16 Thermodynamics 4 s.h.
Total 17 s.h.

Second Semester

294.38 Differential Equations for Engineers 4 s.h.
540.12 Linear Systems Analysis 4 s.h.
540.18 Principles of Electronic Instrumentation 4 s.h.
580.19 Mechanics of Deformable Bodies 3 s.h.
29.81 Intermediate Engineering Physics I 3 s.h.
Total 16 s.h.

Junior Year

First Semester

580.39 Probability and Statistics for Engineers 3 s.h.
294.15 Manufacturing and Physical Quantities 3 s.h.
29.82 Intermediate Engineering Physics II 3 s.h.
582.21 Principles of Design I 3 s.h.
582.20 Mechanics of Fluids and Transfer Processes 4 s.h.
528.91 Professional Seminar Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester

29.83 Modern Physics 3 s.h.
580.22 Principles of Design II 3 s.h.
528.92 Experimental Engineering 4 s.h.
29.85 Thermodynamics 3 s.h.
528.91 Professional Seminar Humanities or social science elective 3 s.h.
Total 15 s.h.

Senior Year

First Semester

528.45 Heat Transfer 3 s.h.
588.92 Mechanical Systems Design I 4 s.h.
528.91 Professional Seminar Technical electives 8 s.h.
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 selecting a more general program may combine these emphases, whereas those desiring some specialization may accommodate these preferences through the combination of program core and appropriate electives from other programs and departments of the College of Engineering and the University. Ph.D. student programs may center in any one of these areas, through the choice of appropriate core and elective courses. 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 with a minimum grade point average of 3.0 are eligible to be considered for admission to the Master of Science degree program in mechanical engineering.

The M.S. program requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or nonthesis program, but the latter must include at least one-third of the credit hours of 200-level courses. To earn the M.S. degree, the student is required to obtain a minimum grade point average of 3.0 on a minimum of 30 semester hours of graduate work and to be successful in the final examination administered by the student’s committee.

The requirements for the M.S. degree may be completed within a calendar year. However, students with assistantship duties or other constraints may require between one and two calendar years to complete the degree.

Doctor of Philosophy

Students who have earned a baccalaureate or post-baccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences may be admitted as Ph.D. students if they have a minimum undergraduate grade-point average of 3.0. Reference letters, scores on the Graduate Record Examination (GRE) Subject Test, student research experience, previous graduate study grade-point average, and other factors may also be considered in making the decision to admit a student. Students with a Ph.D. objective, who enter with a baccalaureate degree, are first admitted to the M.S. program.

Typically, Ph.D. programs in mechanical engineering require approximately 60 semester hours of credit, including research for the dissertation, beyond the baccalaureate degree. There is no foreign language requirement. Part-time Ph.D. study is discouraged and students who cannot study full-time on campus will rarely be admitted to the Ph.D. program.

Admission as a Ph.D. student is conditional until the student successfully completes a qualifying examination that is administered by his or her committee during the second semester of studies after initiating coursework for the Ph.D. degree. For students graduating with the M.S. degree from the mechanical engineering program at The University of Iowa, the M.S. final examination can be regarded as the Ph.D. qualifying examination. The decision on whether the student’s performance is adequate for admission as a Ph.D. student shall be made by the student’s committee and the program chair. At the time the student is admitted, a Ph.D. committee is selected by the student and his or her advisor, and approved by the program chair and the graduate dean. The committee shall include at least five faculty members, of whom two must be from outside the program and at least one from outside the College of Engineering.

One of the Ph.D. degree requirements is a minimum grade point average of 3.25 on all graduate work done at The University of Iowa. The completion of the course work specified in the plan of study and upon the dissertation committee’s recommendation, the student will be admitted to the comprehensive examination given by the student’s committee. The comprehensive 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 over 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.

Satisfactorily completing the examination, the student normally has only 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 support is available to M.S. as well as 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 Architecture. Awards and scholarships are competitive and are based upon the student's potential contribution to the student's area of research and teaching phase of the program. Students who fulfill their responsibilities adequately and continue to make satisfactory progress toward their degree objective will receive preference 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 scholarship 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 biological, chemical, 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 prevention of the overutilization of the environment; and to the ever-increasing interaction between engineering and health sciences are conveyed to the undergraduate student through a series of courses and laboratories. In addition to serving students in all engineering curricula through the core program, the division offers specialized courses in environmental engineering majoring in biomedical, chemical, civil, and mechanical engineering. This prepares the undergraduate for a wide range of careers in the chemical, civil, or mechanical engineering fields.

Special Laboratories and Facilities

The shared resources of undergraduate instruction in fluid and thermal sciences is located in the Engineering Building and contains several shops and laboratories: a water table; various air, water, and oil flow devices; and facilities for numerous small-scale experiments which demonstrate the principles of mass, momentum, and energy transfer. More specialized experiments are also performed in the other laboratories of the division and with the facilities of the Iowa Institute of Hydraulic Research. Experiments in the environmental sciences are performed at the laboratories in the University Water Plant and the P. F. Morgan Sanitary Engineering Laboratory.

Fluids and Hydraulics Laboratories

Since most members of the senior research staff of the Institute of Hydraulic Research hold professorial appointments in the Division of Energy Engineering, the teaching and research functions of the division are closely connected with the research and consulting activities of the institute, particularly in the areas of fluid mechanics, hydraulic engineering, flow instrumentation, water resources, and the aspects of thermal sciences relating to fluid and dispersal of waste heat in water.

The Institute houses some of the most modern research facilities in the world, including a 330-foot towing tank, several hydraulic flumes and wind tunnels, a dispersion flume, a waste tank, two special low-temperature flow facilities for investigation of ice phenomena, and an environmental hydraulic flume for modeling of atmospheric flow. A new refrigerated water tunnel is under construction. The institute is also equipped with data acquisition and control systems based on HP-1000 computers for real-time recording, storage, and display. The institute's vast data gathered as various projects in the laboratory.

Environmental Engineering Laboratories

Experimental research is conducted in the solar energy, thermal radiation, and water heat transfer laboratories. These are served by a central computer laboratory equipped with terminals and a computer-based data acquisition system. Research facilities are housed in the University computing center. Specialized equipment consists of a solar collector test stand and environmental simulation. Simultaneous evaluation of several collectors, solar-energy thermal storage facility, an airport-deicing station, an electic and acoustic aerocellular agglomeration apparatus, an RP-cream facility with spectroscopic diagnostic equipment, a spectral bidirectional reflectanceimeter for radiometric property measurements, and two-channel X-ray and laser anemometer.

Environmental Engineering Laboratories

Research in environmental engineering is conducted in the division's Philip F. Morgan Sanitary Engineering Research Laboratory at the Iowa City Municipal Water Reclamation Plant, and in the water plant laboratory at the University Water Treatment Plant.
The Morgan laboratory is devoted to research activities in the wastewater treatment area. It includes a modern wetchemistry laboratory and space for bench and pilot studies of the physical, chemical, and biological operations and processes of wastewater treatment. A permanent pilot facility at the Morgan Laboratory is a 10,000-gallon aeration tank. Recent research conducted at the Morgan Laboratory has included the anaerobic treatment of wastes from a variety of sources, including the purification of urban refuse, the thermal conditioning of sludge, and the processing of grains.

The water plant laboratory is the center of research in the water treatment and natural aquatic systems area. The laboratory is equipped for both routine and advanced chemical and biological analyses of water, and provides space for both bench and pilot scale studies.

The entire 4,000,000-gallon-per-day water plant is especially designed to enable the isolation of treatment operations for special study without undue interference with the production and supply of treated water to the University. The Iowa River, which flows through the University campus, and the Coralville Reservoir approximately five miles upstream, serve as "natural laboratories" for water quality and limnological research. The water plant laboratory has been remodeled to accommodate an expanded level of research activity.

Courses

Engineering Core

32135 Chemical Thermodynamics

32136 Heat Transfer

32133 Principles of heat transfer to a composite of a substantial design project. Prerequisite: 32130. Same as 91/101.

32135 Chemical Thermodynamics

32133 Principles of heat transfer to a composite of a substantial design project. Prerequisite: 32130. Same as 91/101.

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32135 Chemical Thermodynamics

32133 Principles of heat transfer to a composite of a substantial design project. Prerequisite: 32130. Same as 91/101.
Division of Energy Engineering/ENGINEERING

523:154 Environmental Microbiology 2 b.h.
Physiological and pathological characterizations of microorganisms, introduction to microorganisms, and the relationship between microorganisms and the environment. Prerequisites: B/SCI 152 and SCI 154.

523:155 Environmental Chemistry 3 b.h.
Theoretical and practical study of principles of chemical and biological characteristics of water with emphasis on the relationship between pollutants and aquatic ecosystems. Prerequisites: B/SCI 152 and SCI 154.

523:158 Environmental Decision and Policy Making 3 b.h.
The theory of policy making, ethical decision and processes and policies in water and wastewater treatment. Prerequisites: SCI 151, SCI 152, and SCI 154.

523:159 Environmental Engineering Design 4 b.h.
Practical aspects of the design of water and wastewater treatment plants. Prerequisites: SCI 151, SCI 152, and SCI 154.

523:160 Advanced Environmental Systems Design 3 b.h.
Physical, chemical, and transport aspects of natural ground and surface waters, and the effects of polluted discharges on water quality. Prerequisites: SCI 151 and SCI 152.

523:201 Environmental Systems Modeling 3 b.h.
Mathematical modeling of environmental processes, including aquatic, atmospheric, terrestrial, and human systems. Prerequisites: SCI 151, SCI 152, and SCI 154.

523:202 Advanced Environmental Chemistry 3 b.h.
Chemical processes in aquatic and terrestrial systems and their relationship to remediation and environmental protection. Prerequisites: SCI 151 and SCI 152.

523:203 Advanced Biotechnology and Instrumentation in Environmental Science 3 b.h.
Study and projects on complex environmental topics relating to environmental instrumentation. Prerequisites: SCI 151 and SCI 152.

523:244 Wetland Hydrology 3 b.h.
Quantitative and qualitative studies of wetland hydrology in the environment, and the interaction of wetlands and ecological habitats. Prerequisites: SCI 151, SCI 152, and SCI 154.

523:253 Industrial Water Quality Control 3 b.h.
Quality, quantity, and treatment of various industrial processed waters, including chemical reactions, distillation, desalination, and standards and requirements in multiple uses and reuse. Prerequisites: SCI 151, SCI 152, and SCI 154.

Fluid Mechanics

523:300 Intermediate Methods of Fluids 3 b.h.
An introductory course on the fundamentals of fluid mechanics, the forces on bodies, and conservation of mass, momentum, and energy. Prerequisites: SCI 151, SCI 152, and SCI 154.

523:301 Intermediate Fluids IV 2 b.h.
Intermediate course in boundary layer concepts: laminar boundary layers, wakes, jets, and mixing; compressible turbulent boundary layers, wakes, and jet mixing processes of turbomachinery. Continuation of SCI 151B, which is prerequisite.

523:305 Environmental Fluid Dynamics 3 b.h.
Introduction to principles of fluid dynamics; two-dimensional flow; wind tunnel studies; and inclined plane flows. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:306 Applications of Fluid Mechanics 3 b.h.
Selected topics from fluid mechanics, such as fluid flow in channels, pressure vessels, energy transfer, heat transfer, and aerodynamic forces on objects. Continuation of SCI 151B, which is prerequisite.

523:307 Fluid Mechanics Laboratory 3 b.h.
Laboratory investigation of basic fluid flow principles, including laminar and turbulent flows. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:308 Hydrodynamics 3 b.h.
Fundamentals of hydrodynamics, including real fluids and their properties. Continuation of SCI 151B, which is prerequisite.

523:309 Heat transfer 3 b.h.
The theory and engineering applications of heat transfer, including convective and radiative heat transfer, and the principles of thermal to fluid flow. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:310 Heat transfer 3 b.h.
Thermal design and performance of heat exchangers, radiators, and heat transfer equipment. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:311 Psychrometrics 3 b.h.
The interaction of the human body with the environment, including the study of heat and mass transfer, and the physiological response to the environment. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:312 Computer Programs for Thermodynamics 3 b.h.
Computer programs for thermodynamics and heat transfer. Continuation of SCI 151B, which is prerequisite.

523:313 Control of Sand Dunes 3 b.h.
The principles and applications of control of sand dunes, including the use of vegetation, sand fencing, and other methods. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:317 Elements of Fluid Flows 3 b.h.
Basic principles in compressible fluids, turbulence and shock waves, and the effects of compressibility and turbulence on flow behavior. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:319 Fluid Flow in Porous Media 3 b.h.
The theory and engineering applications of fluid flow in porous media, including the effects of porosity, permeability, and fluid properties on fluid flow. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:321 Boundary Layer Theory 3 b.h.
The study of boundary layer flows, including laminar and turbulent boundary layers. Continuation of SCI 151B, which is prerequisite.

523:322 Fluid Flow in Porous Media 3 b.h.
The study of fluid flow in porous media, including the effects of porosity, permeability, and fluid properties on fluid flow. Continuation of SCI 151B, which is prerequisite.

523:326 Elements of Fluids 3 b.h.
Basic principles in compressible fluids, turbulence and shock waves, and the effects of compressibility and turbulence on flow behavior. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:328 Fluid Mechanics Laboratory 3 b.h.
Laboratory investigation of basic fluid flow principles, including laminar and turbulent flows. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:329 Stability Theory in Fluid Mechanics 3 b.h.
The study of stability theory in fluid mechanics, including the effects of perturbations, boundary layers, and turbulence. Continuation of SCI 151B, which is prerequisite.

523:330 Fluid Mechanics Laboratory 3 b.h.
Laboratory investigation of basic fluid flow principles, including laminar and turbulent flows. Continuation of SCI 151B, which is prerequisite.

523:331 Surface Tension in Fluids 3 b.h.
The study of surface tension in fluids, including the effects of surfactants, contact angles, and the interfacial tension. Continuation of SCI 151B, which is prerequisite.

523:332 Elements of Fluid Flows 3 b.h.
The study of fluid flows, including compressible and incompressible flows, boundary layers, and turbulence. Continuation of SCI 151B, which is prerequisite.

523:333 Waves and Water Waves 3 b.h.
The study of waves, including water waves, electromagnetic waves, and sound waves. Continuation of SCI 151B, which is prerequisite.

523:334 Fluid Mechanics Laboratory 3 b.h.
Laboratory investigation of basic fluid flow principles, including laminar and turbulent flows. Continuation of SCI 151B, which is prerequisite.

523:335 Heat Transfer Laboratory 3 b.h.
The study of heat transfer, including convective and radiative heat transfer, and the principles of thermal to fluid flow. Prerequisites: SCI 151B, SCI 152, and SCI 154.

523:336 Fluid Dynamics and Heat Transfer in Porous Media 3 b.h.
The study of fluid dynamics and heat transfer in porous media, including the effects of porosity, permeability, and fluid properties on fluid flow. Continuation of SCI 151B, which is prerequisite.
Division of Information Engineering

Chair: Shunfeng Ma, Remail Professors: Yonghong Jin, Zhefeng Chen, Jiabin Li, and Junwei Song.

Course: Introduction to Information Engineering.

Seminar: Advanced Topics in Information Engineering.

Research: New methodologies and technologies for information processing and data analysis.

Specialization: Network security, data communication networks, and software systems.

Computer Systems

Faculty: The faculty includes experts in software engineering, computer architecture, and networking.

Software Engineering

Faculty: The faculty includes experts in software development, system design, and software engineering.

Computer Architecture

Faculty: The faculty includes experts in computer architecture, system design, and computer engineering.

Networking

Faculty: The faculty includes experts in networking, system design, and computer engineering.

Institutional Contributions

The institution has contributed significantly to the advancement of information engineering.

1. The development of new methodologies for information processing and data analysis.

2. The creation of advanced educational programs in information engineering.

3. The establishment of research collaborations with leading institutions worldwide.

4. The support of student research projects and publications.

5. The promotion of international conferences and workshops.

6. The provision of resources and facilities for faculty and student research.

Conclusion

The Division of Information Engineering is committed to fostering a dynamic and forward-thinking environment for education and research in information engineering.

Institutional Contributions

The institution has contributed significantly to the advancement of information engineering.

1. The development of new methodologies for information processing and data analysis.

2. The creation of advanced educational programs in information engineering.

3. The establishment of research collaborations with leading institutions worldwide.

4. The support of student research projects and publications.

5. The promotion of international conferences and workshops.

6. The provision of resources and facilities for faculty and student research.
Biomechanical Engineering Laboratories

The Bioengineering Laboratory is equipped for research in various fields of biomechanics. Equipment includes a photo-densitometric system, a heart rate monitor, and a variety of biomechanical models and equipment.

Chemical Engineering Laboratory

Located in the Chemistry-Botany Building, this laboratory includes a pilot-plant equipment for the study of industrial processing, distillation, drying, and fluid flow. It is also equipped for research in various fields of chemical engineering.

Electron Microscope Laboratory

This laboratory is equipped for the study of biological, material, and microstructural systems. It includes a scanning electron microscope and a transmission electron microscope.

Materials Processing Laboratories

This facility consists of metal casting and welding, mechanical cutting, and heat treatment and metallurgical laboratories. It includes equipment for the study of materials and processes.

Structural Testing Laboratory

This laboratory is equipped for the testing of materials and structures. It includes a universal testing machine, a fatigue testing machine, and a variety of other equipment.

Courses

Engineering Core

1. Introduction to Engineering... 2.3
2. Survey of various branches of engineering... 2.6
3. Engineering Graphics... 2.9
4. Basic principles of materials science... 2.12
5. Computer-aided design... 2.15
6. Mechanical design... 2.18

Materials Science

1. Fundamentals of materials science... 3.1
2. Properties of metals and alloys... 3.4
3. Ceramics and composites... 3.7

Powders and Particles Laboratory

This laboratory is equipped with various types of equipment for the characterization of powders and particulate systems. It includes a scanning electron microscope and a variety of other equipment.

Special Program Courses

1. Cooperative Education Program... 2.1
2. Summer Engineering Program... 2.4
3. International Internship Program... 2.7
4. Special Study Abroad Program... 2.10
Division of Systems Engineering

Chair: J.R. Beck
Professor, University of Virginia, Charlottesville, VA 22903.

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 systems 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 undergraduate core curriculum.

Instruction and Research

Teaching and research interests of the faculty are centered in areas associated with production and quality management, human factors/ergonomics, health care, operations research, applied statistics, computer science, logistics and transportation. Specific research projects recently completed, or ongoing, include the study of constrained optimization problems with economics or scale, the use of data base systems in simulation programming languages, human information processing with visual and auditory displays, improved regression modeling parameter estimation, linguistic dictionary, industrial accident analyses, computer-aided design in production design, computer-assisted plant layout and operations, transit systems analysis, Bayesian work sampling techniques, industrial inspection, logistics planning and design, and methods engineering for process control.

Facilities

The Division of Systems Engineering is responsible for development and operation of 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 commonly used computer equipment and accessories such as keyboards, terminals, and video equipment for instructional purposes.

The division also is equipped with a high-modern human-factors laboratory with real-time data acquisition and computation capability.

The division occupies remodeled fourth-floor space in the Environmental Engineering Building. Specialized teaching and design laboratories and graduate student offices are provided.

Courses

Engineering Core and General

2400 Engineering Calculations
Digital language designing utilizing PERT/ICAN, introductory and topics in operations, loops, subroutines, branching, flow charts, and program development is part of junior standing. Prerequisites: Core 1020 and 1024.

2411 Probability and Statistics
Principles and methods of scientific and engineering problem solving. Elementary and advanced methods of data analysis, elementary analysis of variance, project analysis, correlation and regression, testing hypotheses, and decision theories. Prerequisites: 2415 or 2416.

2427 Engineering Management Science
3 hrs.
Analysis of management science principles and techniques for administrative and decision-making problems. Includes analysis of an enterprise, evaluation of technical and strategic alternatives, time value of money, decision under uncertainty, risk, and uncertainty. Prerequisites: 2421B and 2428.

2429 Probability and Statistics for Engineering and Physical Sciences
3 hrs.
Probability and statistics for engineers and scientists. Topics include random variables, circuit and structural analysis. Important concepts and continuous distributions, descriptive statistics, point and interval estimation, analysis of variance, regression and correlation. Prerequisites: 2427 or 2437. 2437 and 2429.

Management and Industrial Systems Design

2430A Cooperative Education Training Assignment
3 hrs.
A cooperative training assignment is required for students in the Cooperative Education Program and is a day course during which students are placed in an industrial or corporate position. This course provides a record of participation in the positions on the student's permanent record and fulfills an admission to the Cooperative Education Program and approval of the student's faculty advisor.

Production Management and Industrial Systems Design

2531B Operations in Production Systems Design
6 hrs.
Procedure of analysis and design required in manufacturing systems. Analysis of system characteristics and the use of an industrial or corporate position. Important concepts include: production systems, production planning, inventory control, and forecasting systems.

2531B Laboratory Systems Design
6 hrs.
Structure and design of computer-based production systems. Theoretical foundations of computer hardware and software for information management and execution. Computer design and testing, computer programming, programming environments, design, engineering and marketing of the system. Analysis and use of the computer in the laboratory. Prerequisites: 2430A and 2431A.

2534B Systems Design
5 hrs.
Analysis of systems design, design of systems, and evaluation of new or improved systems in an industrial or corporate organization. Important concepts include: production systems, production planning, and operations.
Division of Systems Engineering/ENGINEERING

321

500/514 Quantitative Investment Analysis 3 h.
Introduction to quantitative analysis and decision making, with emphasis on optimization models. Preparation: 210 or 211. 210/511.

500/515 Design of Experiments 3 h.

500/516 Engineering Economics 3 h.
Development of economic techniques for analyzing cost structures and making decisions. Preparation: 210/211. Spring. 210/511.

500/517 Software Systems for Management 3 h.
Design and implementation of computer-based systems relating to management and engineering problems. Preparation: 210/211. Summer. 210/511.

500/520 Fundamentals of Civil Engineering 3 h.
Introduction to the design and construction of civil engineering projects, with emphasis on infrastructure and public works. Preparation: 210/211. Fall. 210/511.

500/521 Civil Engineering Design 3 h.
Introduction to the design and construction of civil engineering projects, with emphasis on infrastructure and public works. Preparation: 210/211. Fall. 210/511.

500/522 Computer-Aided Design 3 h.
Introduction to computer-aided design software for civil engineering applications. Preparation: 210/211. Fall. 210/511.

500/523 Materials Science 3 h.
Introduction to the properties and behavior of materials used in civil engineering applications. Preparation: 210/211. Fall. 210/511.

500/524 Structural Engineering 3 h.
Introduction to structural analysis and design, with emphasis on load-bearing structures. Preparation: 210/211. Fall. 210/511.

500/525 Environmental Engineering 3 h.
Introduction to environmental engineering, with emphasis on water and wastewater systems. Preparation: 210/211. Fall. 210/511.

500/526 Construction Management 3 h.
Introduction to construction management, with emphasis on project planning and control. Preparation: 210/211. Fall. 210/511.

500/527 Urban Planning and Development 3 h.
Introduction to urban planning and development, with emphasis on land use and transportation planning. Preparation: 210/211. Fall. 210/511.

500/528 Transportation Engineering 3 h.
Introduction to transportation engineering, with emphasis on traffic flow and known transportation systems. Preparation: 210/211. Fall. 210/511.

500/529 Advanced Topics in Civil Engineering 3 h.
Advanced topics in civil engineering, with emphasis on specialized areas such as structural analysis, environmental engineering, or construction management. Preparation: 210/211. Fall. 210/511.

500/530 Advanced Topics in Environmental Engineering 3 h.
Advanced topics in environmental engineering, with emphasis on specialized areas such as water quality, air pollution, or waste management. Preparation: 210/211. Fall. 210/511.

500/531 Advanced Topics in Construction Management 3 h.
Advanced topics in construction management, with emphasis on project management and contract administration. Preparation: 210/211. Fall. 210/511.

500/532 Advanced Topics in Urban Planning 3 h.
Advanced topics in urban planning, with emphasis on land use and transportation planning. Preparation: 210/211. Fall. 210/511.

500/533 Advanced Topics in Transportation Engineering 3 h.
Advanced topics in transportation engineering, with emphasis on traffic flow and known transportation systems. Preparation: 210/211. Fall. 210/511.

500/534 Advanced Topics in Environmental Engineering 3 h.
Advanced topics in environmental engineering, with emphasis on specialized areas such as water quality, air pollution, or waste management. Preparation: 210/211. Fall. 210/511.

500/535 Advanced Topics in Construction Management 3 h.
Advanced topics in construction management, with emphasis on project management and contract administration. Preparation: 210/211. Fall. 210/511.

500/536 Advanced Topics in Urban Planning 3 h.
Advanced topics in urban planning, with emphasis on land use and transportation planning. Preparation: 210/211. Fall. 210/511.

500/537 Advanced Topics in Transportation Engineering 3 h.
Advanced topics in transportation engineering, with emphasis on traffic flow and known transportation systems. Preparation: 210/211. Fall. 210/511.

500/538 Advanced Topics in Environmental Engineering 3 h.
Advanced topics in environmental engineering, with emphasis on specialized areas such as water quality, air pollution, or waste management. Preparation: 210/211. Fall. 210/511.

500/539 Advanced Topics in Construction Management 3 h.
Advanced topics in construction management, with emphasis on project management and contract administration. Preparation: 210/211. Fall. 210/511.

500/540 Advanced Topics in Urban Planning 3 h.
Advanced topics in urban planning, with emphasis on land use and transportation planning. Preparation: 210/211. Fall. 210/511.

500/541 Advanced Topics in Transportation Engineering 3 h.
Advanced topics in transportation engineering, with emphasis on traffic flow and known transportation systems. Preparation: 210/211. Fall. 210/511.

500/542 Advanced Topics in Environmental Engineering 3 h.
Advanced topics in environmental engineering, with emphasis on specialized areas such as water quality, air pollution, or waste management. Preparation: 210/211. Fall. 210/511.

500/543 Advanced Topics in Construction Management 3 h.
Advanced topics in construction management, with emphasis on project management and contract administration. Preparation: 210/211. Fall. 210/511.

500/544 Advanced Topics in Urban Planning 3 h.
Advanced topics in urban planning, with emphasis on land use and transportation planning. Preparation: 210/211. Fall. 210/511.

500/545 Advanced Topics in Transportation Engineering 3 h.
Advanced topics in transportation engineering, with emphasis on traffic flow and known transportation systems. Preparation: 210/211. Fall. 210/511.

500/546 Advanced Topics in Environmental Engineering 3 h.
Advanced topics in environmental engineering, with emphasis on specialized areas such as water quality, air pollution, or waste management. Preparation: 210/211. Fall. 210/511.

500/547 Advanced Topics in Construction Management 3 h.
Advanced topics in construction management, with emphasis on project management and contract administration. Preparation: 210/211. Fall. 210/511.

500/548 Advanced Topics in Urban Planning 3 h.
Advanced topics in urban planning, with emphasis on land use and transportation planning. Preparation: 210/211. Fall. 210/511.
Graduate College

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 financial aid, fellowships, and research funds, the Graduate College encourages research and the 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 equivalent 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.D.L.*
- Comparative Literature—M.A.*, Ph.D.
- Computer Science—M.S.*, Ph.D.
- Criminology and Corrections—M.A.*
- Dental Hygiene—M.S.
- Dentistry—M.D.
- 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.A.*
- 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.*
Graduate College is this section of the Catalog.

Aging Studies Program
The Aging Studies program is a multidisciplinary, non-degree program administered by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. The program is designed to convey graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry fee is paid on a student's transcript conveying completion of an approved minor in Aging Studies. For further details, see "Aging Studies Program" in the "College of Liberal Arts" section of the Catalog.

Applied Mathematical Science
The program in applied mathematical science is a broadly-based interdisciplinary program leading to the Ph.D. degree. The student combines study of advanced mathematics, one science (behavioral, biological, engineering, physical, or medical), and another method of advanced mathematics. See "Applied Mathematical Science" in the "College of Liberal Arts" section of the Catalog for a list of faculty and a further description of the program.

Committee on International and Comparative Studies
The Committee on International and Comparative Studies was established in 1964, July 1, to coordinate and support international studies at The University of Iowa. The committee is a CICS embraces five interdisciplinary programs: Asian Civilizations, Latin American Studies, Women's Development, and the Center for Development Studies. Faculty participants in these programs are drawn from several departments across the University. These five programs in CICS are primarily instructional in nature: Asian Civilizations, Latin American Studies, and Global Studies (for further details, see the appropriate sections of this Catalog under "College of Liberal Arts"). The Center for Development Studies and the Women's Development program concern themselves with faculty research. CICS support of the five programs consists of sponsoring more than thirty public lectures on international topics during the academic year, organizing faculty research colloquia, maintaining a small library of periodicals on international affairs, advising students on study and funding. CICS also publishes the International Studies Newsletter six times a year.

Evolutionary Ecology and Behavior
The departments of Botany and Zoology offer graduate study leading to the M.S. and Ph.D. degrees with specialization in ecology and behavior, emphasizing adaptation, the genetic basis of adaptation, and natural selection. Particular strengths of the program are behavioral and quantitative genetics, quantitative methods in ecology and behavioral ecology, plant-animal interactions, and tropical biology. There is real and strong emphasis on tolerance between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which heritability, gene-environment interactions, and genetic covariance of morphological, behavioral, life history, or other traits are investigated. Field research utilizes the adaptive significance of traits. Opportunities for field research are provided, for example, at the Macquarie University Campus just outside Iowa City, with lakes, temperate hardwood forests, and old fields. The Iowa Lakeside Laboratory on Lake Okoboji has year-round living quarters, facilities, and a research vessel, and provides the opportunity to study undisturbed prairie, marshland, and lake ecosytems. Three graduate field courses are offered by the faculty, with trips to the Smokies, the prairie during the desert, the prairie, and other sites. These courses are professional as well as traditional. Aims of research projects are original and have led to publication. Fieldwork by faculty and students also takes place worldwide. Recent studies have been conducted in East Asia, Western, South America, Thailand, Enistokat, Aotoli, the Carolines, Brazil, Mexico, Central America, the Great Smoky Mountains, the Sonoran Desert, the American Rockies, and the Florida Keys. The Smithsonian Institution Laboratory on Baco Colorado Island in Panama, the Panama National Biological Station Rosa in Costa Rica, and the Mukul Marine Biological Station are among the sites used by staff and students. The University of Iowa is a member of the Organization for Tropical Studies and regularly sends students to the Tropical Biology Course in Costa Rica. In addition, the J.J. A has
cooperative program with the University of the Andes in Merida, Venezuela.

Insect facilities permit a wide range of studies, with varied equipment for observation include: analysis, such as video-recorders, movie cameras, walk-in environment chambers, computer terminals, a 12-53, and a PDP-12 computer. There is ample space for housing a variety of organisms including mammals, birds, prairie dogs, millipedes, oriches, locusts, leaf-cutter ants, marine and freshwater invertebrates, tadpoles, and predatory and nonpredatory fish. The botany greenhouse contains not only experimental plants, but also a large collection of desert, jungle, aquatic, moist, and arid flora. In the botany herbarium are more than 200,000 specimens, including the Cora herbarium of bromeliads and the Marin collection of fungi and slime molds. The Museum of Natural History, an institutional member of the American Association of Museums, has more than 800,000 natural science specimens with birds and mammals particularly well represented among the varietates.

The atmosphere at low is friendly and cooperative and the approach multidisciplinary.

Students may design their graduate programs to take advantage of collaboration, consultation, coursework, and co-op opportunities with members of the governing faculty in botany as well as anthropology, computer science, ethology, genetics, microbiology, physiology, and zoology.

Students are encouraged to participate in departmental affairs and may hold positions of responsibility on faculty committees.

Financial Support
All students are offered financial support. Teaching assistantships, research assistantships, fellowship awards, and pedagogical training fellowships are available. In addition, each year two outstanding incoming graduate students are selected to receive the TRF award, a teaching/research fellowship. The Bodine Fund assists student travel for study.

Pedagogical students may apply for the Postdoctoral Assistant-in-Instruction Program of the NSF fellowships for students in this area. Pedagogical students may compete for seed grant money from the University. Computer funds are available for graduate students, postdoctoral, and faculty.

For further information and application materials, contact the Department of Botany or the Department of Zoology.

Genetics
The Ph.D. program in genetics is an interdisciplinary program involving members of the departments of Biochemistry, Botany, Microbiology, and Zoology, as well as a number of faculty members in clinical departments. See "Genetics" in the "College of Liberal Arts" section of the Catalog for a list of participating faculty, degree requirements, and courses offered.

Joint Law and Graduate Degree Programs

Joint programs with the College of Law and a number of specialties in the Graduate College have been developed under which students can simultaneously pursue degrees in both colleges. For further details see "College of Law" section of the Catalog.

Joint Programs within the Graduate College

Various joint programs have been developed whereby students simultaneously work toward two graduate degrees. Consult the appropriate sections of this Catalog for further information. Established joint programs include:

Program: Business Administration/Library Science

Program: Hospital and Health Administration/Urban and Regional Planning

Program: Social Work/Urban and Regional Planning

Program: Preventive Medicine and Environmental Health/Regional Planning

Medical Scientist Training Program

The MSTP is an interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College. See "Medical Scientist Training Program" in the "College of Medicine" section of the Catalog.

Neural and Behavioral Sciences

Program chair: John A. Harvey

Program faculty: R. Michael Appel (Animal Behavior), Randall K. Berninger (Pharmacology), Michael J. Snyder (Neurochemistry), William H. Lane (Neurophysiology), Hugh Dipple (Zoology), Robert E. Farkas (Neuroanatomy), Daniel W. Estes (Psychology), John A. Harvey (Psychology), Joseph F. Heffernan (Zoology), Michael A. Hodos (Zoology), Robert V. Walshe (Psychology), Alan K. Johnson (Psychology), Harold B. Kutt (Zoology), John F. Kveton (Psychology), Jerry J. Kohles (Zoology), John P. Leong (Psychology), Walter L. Randles (Psychology), Eugene Sparrani (Zoology), Barbara May (Zoology), Tony W. von Huus (Zoology), Terrence W. Williams (Animal Behavior) for an experienced professor (Biochemistry), Peter A. Gearing (Physiology and Biophysics), James E. evan (Zoology), Leslie K. Johnson (Zoology), Ronald W. Jarem (Physiology and Biophysics), Edward A. Wasserman (Physiology), Patrick McCann (Psychology), James R. Sharp (Zoology), Terry A. Keeling (Zoology), Barbara A. St. Germain (Zoology), Robert W. Boren (Zoology), J. W. Nall (Pharmacology), Jean-René (Pharmacology), Chen-Fang Wu (Zoology)

Program: The Neural and Behavioral Sciences Program at Iowa is an interdisciplinary and interdepartmental academic program. Emphasis is an coursework and research techniques must be immediately relevant to the analysis of the development of nervous system function and behavior. The program is administered by the Neural and Behavioral Sciences Committee. Pedagogical students are Ph.D. candidates in psychology and biology from those departments. All trainees participate in an administrative course, a research faculty in which current literature is considered. Trainees pursue interships in affiliated laboratories with various training emphases.

Admission

The program admits pedagogical students after they have been accepted for Ph.D. study in a department of the University. Students are admitted to the program following review of their academic records by the Neural and Behavioral Sciences Committee. The review includes consideration of Graduate Record Examination (GRE) Aptitude Test scores, a full academic transcript, letters of recommendation, and a written statement detailing the applicant's specific interests in neural and behavioral sciences.

The Neural and Behavioral Sciences Program admits postdoctoral students after they have arranged for a faculty sponsor and contingent on successful competitive review based on their GRE Aptitude Test scores, a full academic transcript, letters of recommendation, and a written statement of their
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 departments include electron microscopic and histochemical
fluorescence laboratories, unit recording and intracellular
stimulating facilities, immunopharmacology laboratories, cellular and subcellular fractionation facilities, tissue culture and ilise
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
material to the chosen department. After
 gaining admission and a research
sponsor, students work with that
sponsor to prepare an application for
the Neurological and Behavioral Sciences Program.
Postdoctoral students should contact a faculty participant in their area of
interest and arrange sponsorship of their application. A sponsor will provide
tools 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 the planning profession 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, economic development, land use planning,
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, one-year 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 interconnected
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.” These are the primary sources of assistance:
Teaching and Research Assistantships
Available in most departments; stipends
typically range between $6,000 and
$7,000. Students who have adequate assistantships are also eligible for tuition scholarships, nonresident assistantships,
case-quarter time or more tuition, 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 or $1,290 a term, 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.
Other Sources
University and National Direct student loans are available through the
University’s Office of Student Financial
Aids. Many departments offer additional
support through teaching assistantships, part-time
employment in research or part-time
teaching appointments. The Office of the
Vice President for Educational Development
and Research maintains a
library of information on public and
private agencies which provide funds for research and graduate study. A
considerable amount of material has
been collected concerning awards for
overseas study.
Graduate Student Senate
The Graduate Student Senate is the
University graduate student body’s
representative organization. Representatives are elected annually from
each department of the University
having a graduate degree program. The
senate’s primary purpose is to serve the
interests of the graduate student body in
matters affecting its welfare. The senate
advises the dean of the Graduate
College on matters pertaining to the
Graduate College.
Rules and Regulations of the Graduate College
The Academic Program
Section I. Admission to the Graduate College
A. Application Procedure
All students seeking to register for the first time in the Graduate College of The University of Iowa must secure a formal admission statement from the director of
admissions, The Academic Admissions Office may obtain the proper forms from the director of
admissions. The University of Iowa, Iowa City, Iowa 52242.
In addition to these forms, official transcripts from each undergraduate and
graduate institution attended must be
submitted to the director of admissions by
the designated deadline prior to the
session in which admission is expected. Admission applications must arrive no
later than July 15 for first-semester enrollment, December 1 for second-
semester enrollment or May 1 for summer
enrollment. Applications are general Gradert College deadlines. Individual department dates may establish earlier admission cutoff dates.
B. Graduate Record Examination
All applicants prior to consideration for admission should take the Aptitude Test of the Graduate Record Examination
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 status" 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 effectuate such 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 Degree Program, for work leading to a graduate degree or certificate or 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 achieve condition status must achieve regular status within two semesters of registration in the Graduate College by making a grade-point average of at least 2.5 (C.0 for doctoral students) and be approved 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 from the director of the department of admission. Special graduate students are not eligible for a graduate degree or for a certificate in a certificate program.

H. Summer Session—Students with a valid bachelor's degree and at least a 2.3 grade-point average may register for only one summer session without being accepted by a department or program. (See "Section II" below.) The deadline for application for admission to the summer session is the last day of registration for the preceding academic year to any subsequent session, including another summer session, the student must file an application and be admitted to regular or conditional status.

II. 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 non-doctoral students, a minimum grade-point average of 2.3 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 the minimum designated by the Graduate College deadline, his or her paper will be forwarded to the graduate school for examination and decision.

Students studying for admission to a doctorate 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 on the entire record of graduate work.

Departments, or committees in charge of international degree programs, may, and often do, set higher minimum admission requirements which appear above for the Graduate College as a whole. Inquiries about these departmental or program requirements may be obtained directly from the executive of the department concerned.

For State Board of Regents' formal admission requirements, see "Appendix" of the Catalog.

III. Admission of Faculty Members to Graduate Study
Persons who hold faculty rank as assistant professor, or assistant professor (including clinical assistant professor) or above at The University of Iowa, are eligible to 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 register under a petition procedure leading to an advanced degree, subject to the consent of the adviser except in the department of law or a closely related department. Such petitions must have prior approval of the department of appointment, dean of the college of appointment, the department in which study is to be pursued, and 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 readmission.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 18 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 for a maximum of 18 semester hours. This equivalency applies to courses in the professional program only. Graduate credit is not given for courses numbered below 100. 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 proportionate to that stated above with the approval of the Graduate College dean. Nine semester hours in the fall or spring semester constitute full-time registration. (This requirement is required to maintain the status of the Graduate College student.) The maximum semester-hour registration shall be limited to 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 full semester hours, a graduate student may register for courses printed in Schedule C who are being 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 adviser and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointment

1. One-half-time appointees may register for no more than 12 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eighths-time appointees may register for no 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 no 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 no more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retroactive Registration

Approval 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 counting one 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. Travelling Scholar Program of the Committee on Interdepartmental 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") and "Section XI.C") for minimum semester hours required on campus for the master's or doctor's degrees.

5. Residence graduate credit from another Iowa Regents' university (see "Section V.B.").

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 an institutional 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 any special registration for residence credit.)

I. Correspondence Courses

Correspondence study credits do not count as residence credit unless they are earned at a university of advanced degree. Such credit must be acceptable to the student's plan of study and must be earned after the student has enrolled in the Graduate College. 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 approval 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 sequentially above each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 199. Courses below 100 are open to only undergraduate 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 recommendation of the instructor and the advisor, the dean of the Graduate College, with the consent of the student, 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 regulation 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 register.

Section II. Traveling Scholar Program

A. Purpose

The program, under the auspices of the Committee on Institutional Cooperation representing 11 universities in the Midwest, enables a doctoral student to take advantage of special resources available at another university. In addition to broadening her/his opportunities, unique laboratories, and library collections.

B. Procedure

1. A CIC Traveling Scholar first must be recommended by her/his own university and comply with the requirements of the faculty member at the host institution. After her/his appointment, the student should contact the traveling advisor to secure permission to make a visiting arrangement.

2. After agreement by the traveling scholar and the faculty member at the host institution, the dean of the Graduate College at both institutions will be fully informed by the advisor and have the power to approve or disapprove the appointment.

3. A CIC Traveling Scholar will be registered at both universities, and the fees will be paid by the respective universities. The student registers for 000/999 CIC Scholar at the University of Iowa.

4. Credit for the work done 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 except or reject any student 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, he/she or her/his cumulative grade-point average on graduate work with done at The University of Iowa falls below 2.0. If, after completing eight more semester hours of graduate work at this University, his/her grade-point average remains below 2.0, he/she shall be denied permission to reenter; otherwise, the student shall be restored to good standing.

B. Doctoral Students

A doctoral student on probation 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 this 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 reenter unless he/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 above university-wide requirements, departments may establish further requirements which determine the individual student's standing in 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 to 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 discipline of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the Manual of Rules and Regulations, any standards established by the department more stringent than the general Graduate College requirements shall be stated. Information shall be provided outlining 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., and publication and dismissal policies and procedures (see "E. Following") and other matters that are 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 send the student a notice of this fact in writing. The student shall be notified in writing of the specific reasons for the failure to meet minimum standards or the grievance procedures, if any, that are available to the student.

A student's failure to meet minimum standards in any subject shall be cause for failure to meet minimum standards in all subjects. A student's failure to meet standards in any subject shall be cause for failure to meet minimum standards in all subjects. A student who does not meet minimum standards in any subject shall be cause for failure to meet minimum standards in all subjects.

A student who does not meet minimum standards in any subject shall be cause for failure to meet minimum standards in all subjects.
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. This review may be conducted by the Graduate College alone, or the dean may appoint a graduate college 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 this 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 Regent's 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. C." for minimum 88 hours required on campus for the major and doctoral degree.)

C. Reduction in Credit

For courses or seminars in independent study, a student may be granted credit for up to a maximum of 9 hours for each instructor. The instructor may report less credit than the number of semester hours for which the student is registered.

D. Graduate Credit for Veterans

Credit may be granted for studies pursued in non-military and radiative situations 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 from time to time to meet the needs of individual students. The value of each credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

E. Cancellation of Registration and Proportional Credit for Students Entering Military Service

1. Students who leave within the first 8 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 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) courses are to be counted toward specific degree requirements only after the student returns and then only with the recommendation of the approval.

5. Students who complete the twelfth week receive full credit.

6. Grades reports 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 unless 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 Showing Advanced Degree Credit

These are A, B, C, and S—satisfactory.

B. Marks Showing No Credit for Advanced Degrees

These are D, poor; F, failed; I, incomplete; W, withdrawn; R, registered, and U—unsatisfactory.

C. Audit

If a grade is assigned when a student registered for a term is absent throughout the course, the instructor fails to meet the instructor's requirements for class attendance, W is 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 registrations for thesis, research, or independent study, the B/U grades may be applied. (See next paragraph, "E.") Students whose grade was assigned on the basis of merit must remove that grade within the first 8 weeks of the semester, grade I assigned in these courses is to be cancelled. (See next paragraph, "E.") Grades assigned for purposes other than those specified are to be cancelled.

E. Specific Deadlines for the Submission of Student Work to the Faculty and for the faculty's report on I grades to the registrar will be set by the Graduate College for 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.

Graduate College has the right to require completion of a specific work for which the mark is given. This right to require completion of a specific work for which the mark is given.

Section VII. Research, Readings, Independent Study, and Special Projects

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 S to a letter grade. In addition, Graduate Council may ask 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 requests 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.
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; (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 holds an assistantship. The amount of scholarship for the academic year may vary, but no more than the comprehensive fees assessed. Scholarships will be credited to the student's University account.
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 awards 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 support for faculty members of the academic staff, and to provide apprenticeship experience for graduate students who are in training for research. Each 0.5-credit hour of research service per week is required of a half-time assistant. Other part-time service is required for the 0.5-credit hour. The assistantship 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 assistants appointed by the Graduate College pay their own fees.
Graduate appointments beginning in August are usually made by the Graduate Council in the fall. Certification of the recommendation of the various departments should be made by the end of each year, although applications may be considered throughout the year. All stipulations 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 Associateships 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 research or teaching projects with which the assistantship pays.
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 research, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the major department.
Section VIII. 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 this catalog.
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 his or her adviser. 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 examination described in "Section XII.". If such registration is appropriate, Master's candidates who have completed all work except the final examination register for 00001/ Mbelow's Final Registration at a fee equivalent to the "postcomprehensive registration" if such registration is appropriate. Registration in the final examination course will not satisfy this requirement. Students completing all requirements (including the final examination and thesis deposit) for a graduate degree during the summer session of a given year may register for the following semester without additional registration.
Section X. 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 approved by the faculty and the departmental executive officer. Submission of the plan within the session in which the degree is to be conferred must be established by the Graduate College. The plan shall 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

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 any departmental program in the Graduate College, various forms of external registration may qualify toward fulfillment of the 24-hour residence requirement (see "Section II. G. 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 which 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 will not be counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Legal, Medical, or Dental Degrees

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 a college of arts and sciences. 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 most fields in the Graduate College only when the student is enrolled in 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 separately, including two theses where a thesis is required for each, and two examinations, with a minimum combined total of 80 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 typewritten manuscript or print, must be presented to the Graduate College for a check for 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 approved 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 unsatisfactory. The report of the final examination is due in the Graduate College not later than 45 hours after the date of the examination.

If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination 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 consists 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 XII. 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, printmaking, acting, producing, stage design, musical performances, composition, instrumentation, poetry, fiction, and translation. Central to the program, the thesis may consist of at least 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 separately, with a minimum combined total of 80 semester hours of graduate credit.


B. Specialist in Education Degree

This degree is granted upon completion of at least 32 semester hours of postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration, supervision, and special services. Of the minimum of 80 semester hours required for this 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 in residence within one 12-month period or during two summer sessions.

Twenty-four of the 80 semester hours are prescribed in the area of specialization. The remaining 56 hours are in cognate fields, supervised experience, and electives. Four semester hours of research constitute a special report. 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 for three semester hours 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. (Provisions of regular annual review of assessment 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 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 that 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, parenthetically, 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 the equivalent of 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 for the degree must be approved by the student's advisor and the major department. Students must be registered for a professional degree in law, medicine, or dentistry while registered for a professional degree in law, medicine, or dentistry shall 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.

H. Joint Program for Master's and Doctoral Degrees

The University expects to continue their training through the doctoral degree approval plan program at the master's and doctor's degree. The master's examination may be combined with the comprehensive examination for the doctoral degree candidates. Examining committee will file separate reports of the actions on the final examination 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 Language

There is no general Graduate College requirement in foreign languages. Those departments which do require competency in one or more foreign languages establish standards as to the extent and level of competency, as well as
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 entering on the student's record.

Specifications of departmental requirements in foreign languages are listed in the Graduate College office and may be obtained upon the initiative of the department.

J. Comprehensive Examination
The candidate must pass a comprehensive examination, consisting of written or oral examinations 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 in-depth 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 an examination of the student's mastery of the subject at or near the end of his or her formal preparation and prior to the completion of the dissertation. The comprehensive examination and the final examination, which includes the account of defense of the thesis and related subjects, are the two principal examinations for the doctoral degree.

The comprehensive examination will be evaluated 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 particular areas of study, the statement should be specific in defining the area, in requiring further study or other procedures, and in specifying the time and manner in which the stipulations should be fulfilled. The candidate will not be admitted to the final oral examination until such stipulations have been satisfied. The executive and major department will promptly send a written report to the Graduate College giving the date of removal of "reservations."

In case of a report of unsatisfactory 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 or graduate division and registered by the graduate 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 continuous registration requirement by registering for 50000 PHD 794 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 adviser 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 office 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 with the library 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 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. The abstract is published in the journal 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 facility adviser 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.

II. 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 by the candidate. This examination should include: (1) an oral defense of the thesis and related subjects; (2) an 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 not later than one year after the completion of the dissertation at the Graduate College; however, a student must pass the final examination no later than five years after the date of the last dissertation. Failure to meet this deadline will result in a recommendation 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 "X.B. 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 and, 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 evaluated as satisfactory, satisfactory with reservations, or unsatisfactory. Two unsatisfactory votes will make the committee report unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.
O. Examinining 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 Council 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

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<tr>
<th>Course Code</th>
<th>Description</th>
<th>Credits</th>
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Program Objectives

The overriding objective of formal legal education is to establish a solid foundation for professional growth. The educational elements necessary to build this foundation are varied. Thorough familiarity with the substantive law and principles and with the operation of legal institutions are important components, etc. The University of Iowa law program has an equable emphasis on the development of fundamental lawyers’ skills and an appreciation of the roles of law and lawyers in society. A unifying 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 J.D. (Doctor of Jurisprudence) to be eligible for the degree, a student must satisfy the residence requirements, receive credit for 90 semester hours of work and complete all required courses. It is a corollary that the student complete the college’s five-credit research and writing requirement.

Program of Study

Full-Time Policy

The faculty believes that students receive a better education when they are devoting substantially all of their time to educational pursuits. For this reason, students are expected to pursue their legal training 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 dates 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 40 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 four-week summer session, 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 hours per semester or 13 hours in summer school without permission of the dean.

Summer Session

The summers associated with the two periods of five and one-half weeks during which six to eight upperclassmen 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 sessions.

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 that are carefully designed 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 in 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 litigation. Few courses are required in the second and third years, but all students must take 9:1/2:0 Advanced Advocacy I in the second year, and before graduating all must take 9:1/2:0 Constitutional Law II and upper-class small section courses. The latter requirement assures students the opportunity to develop some skills in a small class (usually 30 students) in a variety of substantive areas with a substantive material, students complete writing projects designed to teach legal drafting skills.

Also, in order to graduate, each student must earn five writing credits. The student earns two of the credits automatically through participation in a section of 9:1/2:0 Appellate Advocacy I and the upper-class small section course. He or she can earn one of the other credits through any of the legal writing and activities that carry writing credit, including seminar papers, independent research papers, Law Review, Journal of Corporate Law, 9:1/4:0-11 Client Counseling 9, 9:1/2:2 Most Court Board, and 9:1/2:0 Appellate Advocacy II.

**Legal Clinic**

Students who have completed one-half of the work toward their A.D. degree are eligible to participate in the College of Legal Aid Clinic Program, which offers that have been a source of 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 Tennessee communities in all areas of the law. This project is designed to train students in the legal profession with an emphasis on public service and the interest of the public.
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, Levin 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 (LSDS), Box 2000, Newton, PA 16840. The College of Law must receive the applicant's LSDS report prior to the March 1 deadline for submission of applications.

An LSDS registration packet contains Law School Application Matching Forms. To preserve the right to privacy, ETS has agreed not to release LSDS 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 a Law School Application Matching Form. Therefore, please be sure to enclose a 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, Newton, PA 16840, and have his or her test scores forwarded to the College of Law, along with the LSDS report. The test is given several times each year and may be taken at 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 last 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 $50 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 billing. 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 processes, 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 at the College of Law.

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College of Medicine

The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students and, through only those in the health colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the other sciences 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 "refreshers," 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 physicians 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 by the Association of American Medical Colleges, the University of Iowa College of Medicine meets the requirements of all 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 is part of 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 otorhinolaryngology, 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 entitles 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 programs are the interdisciplinary programs in endocrinology, neurobiology, and immunology, in which faculty members 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 mental human physiology, biochemistry, and physiology are also conducted. It is an important resource of 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 laboratory programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Ateriolesclerosis, the Lpid Research Clinic, these training programs and a coordinated program of other interrelated research supported by a number of individual project grants. Gifts from private donors have underwritten the construction 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 adaptation to drugs, and studies of drug action at the molecular and cellular levels.

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 1980 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 1,083-bed University Hospitals and Clinics complex, in the adjacent 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 16 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 training all major medical specialties for residents in all such specialties, and for fellowships in a number of subspecialties.

University Hospitals and Clinics serve as a tertiary care center for the state of Iowa and portions of adjoining states, with over 500 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 record-keeping of 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 coordinates in education research endeavors, and conducts teacher education activities.

The medical instrument designs and fabricates scientific equipment, providing precision 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 protei nsequencing equipment.

A facility for mass spectrometry provides service for structural studies of important biological molecules and their analysis in protein interface with a gas chromatograph.

Doctor of Medicine

The University of Iowa College of Medicine accepts 175 freshman students to 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 core of sciences basic to the study of medicine:

First Semester

99:163 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 physicians will meet. In the small group discussions that follow the clinical series, the student starts to use various investigative approaches.

80:103 Gross Human Anatomy for Medical Students includes embryology,
clinically relevant areas of anatomical radiology, and surface anatomy with clinical correlation. A consistent point of discussion throughout the body is the relationship of the human body is under study, and analysis of the central nervous system is addressed.

60:105 General Histology for Medical Students provides a course of study for the core information concerning cellular and tissue biology and function needed for the work to be accomplished in physiology and pathology.

110:102 Human Development 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 examines the work of the semester. It utilizes 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 of an organism to external stimuli and provides a basis for understanding the integration of function or organ systems. Much of the material in this course is presented from a clinical point of view. In small discussion groups, students with an experientially replaced laboratory experiences, the students present their understanding of the physiologic mechanisms at work in the clinical material. Some demonstrations are used to good advantage.

61:103 Medical Microbiology includes instruction on the role of the microorganism in the disease process. It also reviews the various groups of microorganisms as agents of infection. A case study approach is used to permit discussion and class participation.

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, and 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 first two semesters are applied upon in an organ approach. Student-centered learning is present in the discussion groups and practice in case analysis.

60:114 Medical Neuroanatomy presents the structure of the nervous system. Much of the material is available for self-study and small-group study in detail.

65:108 Community Health presents fundamentals to help prepare the student in some of the social, economic, and public health aspects of medical practice.

71:103 Pharmacology for Health Sciences. Medical bridge to other clinical and basic sciences and provides the students with principles that must be understood before the proper actions of drugs on the patient. Several elective courses are available to students during the third semester. These courses vary two semester hours each. Topics include areas not specifically covered in the regular 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 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, an in-depth view of clinical medicine on an organ system basis, guided lecture to Clinicians and basic scientists. The final part of the morning is spent in areas of medicine which do not naturally fall into organ system, and on re-emphasis of some key principles.

Throughout the 18 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinicians in history-taking and physical examination. Habits of care, courtesy, and compassion needed by all physicians are emphasized at this time.

Toward the end of the semester, each student is evaluated individually several times to determine the level of skill 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 anesthesiology, 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. 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, comparative 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 based on 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. The Medical Education Assistance Program, National Medical Student Loan, and Stipend Loan are College of Medicine programs. The Guaranteed 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, 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 and academic 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, case-matched application processing service for applicants to U.S. medical schools. Preliminary application information is available on the AMCAS web site beginning June 16 of the year preceding the beginning of the class for which students are not yet eligible to apply.
Candidates must be able to learn to analyze, synthesize, solve problems, and reason deductively and inductively.

Candidates must have sufficient use of the senses of vision and hearing and the common sense ability 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 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.

Candidates are expected to possess the perseverance, persistence, and interest necessary to complete the medical school curriculum and enter the independent practice of medicine.

Applicants who wish to apply to the University of Iowa College of Medicine must be able to provide a college transcript with a 3.0 GPA or higher in all courses.

Biological sciences: a complete introduction in the principles of animal biology, and 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.

Students admitted to the College of Medicine:

Candidates must be able to observe demonstrations and experiments in the basic sciences;
and three are from these 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 semesters is based on such examinations or other tests as are determined by each department or course. Evaluation of student progress in clinical semesters is based on clinical skills and competency, and on each examination or other test as established by each department or course.

Scholastic performance in the first three years is determined on the basis of A, B, C, P/F, and I. In the executive seminar second year, grades of A, B, C will be used. The letter P indicates satisfactory achievement at the passing level. The letter I signifies “incomplete,” indicates achievement at an exceptionally high level. The letter F indicates work below the passing level. The letter I is used when for good reasons the student has not completed the work of a course.

The promotion committees meet at least twice a semester, approving the completion of each academic semester by students requested by the 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 I during the previous grading period. The committee reviews the record of any student presented by the course director, the student, 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 committee recommends 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 to study as a regular or a decelerated schedule. Students having unsatisfactory grades of failure or incomplete will normally be placed on academic probation. Students who are in a probationary status may be considered for dismissal if they should experience further academic failures.

The promotion committees present all recommendations for the awarding of the degree, Doctor of Medicine, to the 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 the professional standards of the medical profession. The college expects its students to maintain a high level of scholarship and personal conduct. If a student is found to be below the standards set by the college, the student may be asked to withdraw from the college.

**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 promotion committees.

**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 written notice of the decision. All appeals are heard and decisions reached by the medical council and executive council committee 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 may withdraw from the college voluntarily upon written application to the dean’s office.

**Reinstatement**

Application for reinstatement by any student who has withdrawn voluntarily or for any student 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 refuse continued or further registration to any student, if it believes he or she has not lived up to the expected general fitness requirements, for either the medical profession, 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 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 problem. 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 issues with the faculty member with whom there is a problem. Lacking a satisfactory outcome, the student should then turn to the department, followed by the school dean. If satisfaction is still not obtained, the student should file a formal complaint with the Asociate Dean for Student Affairs of the College of Medicine. This informal discussion would not necessarily lead to involvement of the formal complaints procedure. 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.

The informal procedure allows the greatest flexibility for all concerned in resolving the conflict and can avoid the entanglement 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 experience including grading disputes, alleged academic dishonesty, alleged dishonesty 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 detriment of that student's confidentiality, full details of the complaint will 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 marital difficulties and will easily be 
handled informally without going into the 
student's record, unless it involves an 
oficial action (e.g., taking a year off or 
rechecking an exam).

Associated Medical Sciences

The Division of Associated Medical Sciences is organized to include the 
programs for medical technologists, nuclear medicine technologists, 
physics therapists, and physician assistants. 

Admission to these professional 
programs follows the selection 
description 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.

Nondepartmental Courses

50:1 Medical Ethics Fourth Year 1 h.
50:2 Medical Test Year 1 h.
50:3先发 1 h.
50:4 Medical in the Humanities 2 h.
50:5 Law and Medicine for Physician Assistant 
Students 1 h.
50:6 Principles of law bearing on 
professional activities, health 
vocational necessary to understand 
legal concepts.
50:7 Introduction to Health Sciences 2 h.
50:8 Ways in which individual 
and institutional ethics 
can be integrated to produce 
knowledge and behavior 
relevant to health care.
50:9 Instruction in Clinical Medicine 
Course introduces students to the 
clinical aspects of medicine from 
the basic sciences with clinical experiences in junior 
and senior years. Pertinent information and development 
of skills in history taking, physical examination, 
laboratory, and diagnostic procedures, and related material 
will be presented and reviewed in clinical wards.
50:10 Intermediate Elective in 
Dentistry 
50:11 Introduction to Clinical Medicine for 
Physician Assistant Students 1 h.
50:12 Self-Study and Developing 
Instructional Materials 
50:13 Use of self-made instructional 
materials and other resources 
for self-study. Sections 2 to 4 for 
students interested in health 
sciences, section 2 to 6 for 
students interested in health 
sciences, and section 3 to 5 for 
students interested in health 
sciences, and section 3 to 5 for 
students interested in health 
sciences, and section 3 to 5 for 
students interested in health 
sciences.
50:14 The Academic Basis of Science 
and Medicine 1 h.
50:15 Advanced Heritage Studies 2 h.

Anatomy

Department head: T.J. Williams

Anatomy faculty: L. Ingraham, R.G. Shaw, 
Paul H. Holger, Jr., W.W. VanKleeck, U.I. Korteweg, 
Franz J. Lupsor, D.K. VanHoven, R.J. Tomscek, 
Warren H. Williams

Examination by: J.V. Laszlo, J.R. West 
assistants: D.E. Niggens, A.C. Black, Jr., 
S.K. Yoon, N. Mancini, G. RASMUS, A. Smith, J.C. 
Baker, S.A. Thompson

Degree offered: M.D. Ph.D.

The department performs three major 
functions: teaching anatomy of the 
human body to students preparing for 
careers in the health care professions; 

providing advanced courses, teaching 
experience, and research training to 
graduates preparing for careers in 
teaching and research, and 

conducting original research into 
biological structure and 
function-relation relationships.

Preclinical Study for the 
Health Care Professionals

The department contributes to the 
preclinical education of health care 
professionals by providing courses in 
gross anatomy, microanatomy, and 
neuroanatomy for medical and 
dental students; gross anatomy and 
neuroanatomy for physical therapy 
students; general anatomy and 
neuroanatomy for dental hygiene 
students, and microanatomy 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 who 
are seeking a master's degree for 
reasons of professional improvement.

The M.S. is awarded on the basis of 
satisfactory completion of coursework 
in one of the M.S. programs for 
gross anatomy, microanatomy, and 
neuroanatomy, and 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 with specializations in 
anatomy.

All students of the Ph.D. program work 
directly for the doctors without an 
intermediate master's program. They 
acquire in-depth knowledge of gross 
anatomy, microanatomy, and 
neuroanatomy by taking courses and
Anesthesia

Active Department Head: Peter J. Nelsen
Faculty: professors: Susan Dong, Mohamed Ibrahim, Peter J. Nelsen, Jack Strong, Raul Umana, Steve Whitcomb, Martin Sorrell
Resident: professor: James G. Carter, beard, L. G. Kline, Jean M. O'Malley
Assistant professor: Michael McVay, E. A. Ozcan, Man V. Chiu, Franklin L. Bassman, D. Barry Shaw
Visit: assistant professor: Colter Trevisan

The department introduces the second-year medical student to anesthetics as a specialty. The second-year student learns the role of anesthesia in patient care, including in-hospital anesthesia, ambulatory care, intensive care units, and surgery. Anesthesia is a critical component of patient care, and the department emphasizes the importance of effective communication and collaboration with other healthcare professionals.

Courses

1. CHEMICAL ANESTHESIA

2. ANESTHESIA

Required for junior medical students. Clinical rotation in the operating room and recovery room, rotational internships, exposure to and simulation of anesthesia, and group discussion sessions.

10: 12 Clinical Anesthesiology

An introduction to all aspects of anesthesia, including surgical and medical anesthesia, techniques, and applications. Basic principles of anesthesia, including regional anesthesia, intravenous anaesthesia, and inhalation anaesthesia. Exposure to and experience with anesthesiology in a clinical setting.

11: 11 Advanced Anesthesiology

Required for junior medical students. Clinical rotation in the operating room and recovery room, exposure to and simulation of anesthesia, and group discussion sessions.

10: 12 Anesthesiology

An introduction to all aspects of anesthesia, including surgical and medical anesthesia, techniques, and applications. Basic principles of anesthesia, including regional anesthesia, intravenous anaesthesia, and inhalation anaesthesia. Exposure to and experience with anesthesiology in a clinical setting.

Division of Associated Medical Sciences

Division head: Rex Montgomery

The Division of Associated Medical Sciences provides for coordination of professional programs that primarily include the training of medical technologists, nurses, medical laboratory technologists, physicians, and technicians. A flexible undergraduate program is established to prepare students for entry into these professional areas. The student is expected to complete the College of Medicine course and is advised by a faculty advisor for the division.

Although each program in the division has its own admission requirements, the first year of undergraduate study is 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 ensure the proper sequence of courses.

This is a typical curriculum for undergraduate students with options being exercised after consultation with program advisors. Programs are abbreviated as follows: 生—Medical Technology, NMT—Nuclear Medicine Technology, PA—Physician Assistant; PT—Physical Therapy.

Freshman Year

First Semester

10: 12 Biology

10: 12 Anatomy and Physiology

10: 12 Chemistry

10: 12 Physics

10: 12 Math

10: 12 Statistics

10: 12 English

10: 12 History

10: 12 Psychology

10: 12 Sociology

10: 12 Finance

10: 12 Art

10: 12 Physical Education

10: 12 Theatre

10: 12 Music

10: 12 Computer Science

10: 12 Foreign Language

10: 12 Social Sciences

10: 12 Fine Arts

10: 12 Physical Education

10: 12 Fine Arts

10: 12 Social Sciences

10: 12 Fine Arts

10: 12 Physical Education

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Division of Associated Medical Sciences/COLLEGE OF MEDICINE

37:128 Fundamental Genetics (PT) 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: Michael Schmeidler
Medical director: James A. Stanaitis
Faculty:
associate professor James A. Gebert
associate professor Durllette Foreman, James O'Connor
associate professor John Adelt
assistant professor Robert C. Fife, Frank H. Knecht
Graduate advisor Bruce J. Scharn
Degree offered: B.S.

Medical technologists perform the 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, pharmaceutical, biological, 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. Satisfactionary completion of this program qualifies the student for all medical technologist 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.

Assuming that the student has completed the required courses indicated above in the freshman and sophomore years, the remaining years may be:

Junior Year
First Semester
Foreign Language 4 a.h.
72:130 Human Physiology 4 a.h.
63:101 Dynamics of Health 3 a.h.
Electives 4 a.h.
Total 15 a.h.
Second Semester
Foreign Language 4 a.h.
37:116 Parasitology 4 a.h.
60:120 Biotechnology 3 a.h.
Electives 5 a.h.
Total 18 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 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 Practicum
- 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 "Catalog" in this section of the Catalog.

Admission
The professional program is limited to 30 students who begin the program in June. Admissions 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.
Sixteen 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 biology, microbiology, physiology, and parasitology.
Admission is on a competitive basis. Minimum cumulative grade point averages of 3.0 overall and 2.5 in science are generally required. An applicant who enters the program as an non-degree 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 text books, University tuition, and student fees. Laboratory costs and equipment such as microscopes are provided by the program.

Nuclear Medicine Technology
Medical director: Peter T. Kishner
Advising program director: Kenneth A. Holmes
Technical director: John A. Boiko
Faculty: professors Frank H. Cheng, James C. Devlin
associate professors Gary E. Mark, William J. Hill
instructors James O'Connor, Bruce J. Scharn, David H. Wilcox
Graduate advisor Professor Peter T. Kishner, Regina H. Stein
Graduate advisor Charles J. Beirne, James A. Stanaitis
Clinical supervisor Professor James A. Petos
Clinical coordinator James A. Peterson
Clinical supervisor Professor Kenneth A. Holmes
Clinical coordination Ashley A. Boiko
Degree offered: B.S.

Nuclear medicine technology is a medical specialty which uses radiopharmaceutical, therapeutic, and research purposes. It is a rigorous, dynamic field that has seen rapid growth in recent years. The continued expansion of the specialty has fostered an increasing demand for highly specialized and motivated nuclear medicine technologists.
Nuclear medicine technology students are required to complete all of the following prerequisites and University graduation requirements.
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 technologist works hand-in-hand with nuclear medicine physicians, health
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 12 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 technician.

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:**

- 60:1 Elementary Human Anatomy 72:130 Human Physiology
- 22:2 Introduction to Computing with FORTRAN
- 25:4 Advanced courses in chemistry, zoology or physics

**Recommended courses options:**

- Science: 27:113 Histology and Histogeny 27:104 Introduction to Developtment
- 61:157 General Microbiology
- 4:101 Elementary Quantitative Analysis
- 4:121 Organic Chemistry
- 4:122 Organic Chemistry II
- 4:204 Analytical Chemistry Laboratory I

**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 "Examination of an Accredited Educational Program in Nuclear Medicine Technology." Courses are taught in the following areas: radiobiology, radiopharmacy, and tracer techniques; radiocellularity and radiocellularity laboratory procedures, radiation protection, patient care, medical terminology, anatomy and physiology, physics 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 offered in radiocellularity, computed tomography, and ultrasound.

The clinical year consists of these courses:

- 74:140 Principles of Nuclear Medicine 12 a.h.
- 74:140 Applied Nuclear Medicine 12 a.h.
- 74:180 Advanced Nuclear Medicine Practicum 8 a.h.

For course descriptions, see "Radiology" 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 the sciences, to include a complete introductory course with laboratory in chemistry, physics, and zoology.
- A minimum of 6 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 level to the final clinical year is conditional upon satisfactory completion of a minimum of 12 semester hours of study in the required area(s).

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 available on a limited basis.

**Physical Therapy**

Program director: Gary L. Smith

Director of Professional Education: James S. McPherson

Faculty: professor Gary G. Smith, associate professors Emeran A. Ehrlich, Sally S. Fredenburg, associate professor Lisa M. Vltes, assistant professor Wee J. Oh, assistant professor Linda H. van der Linden, assistant professor Anne W. A. van der Linden, associate professor Olivia Fernández-Carrasco, associate professor John C. Cook, associate professor Frank J. Kozar, Karen E. Karpen, Jeffrey Rutko, Ken Lee, Donald Sholt, John Mathieusen

Degrees offered: B.S., M.A.

Physical therapists participate in evaluation of the capabilities and disabilities of patients. They administer treatment to alleviate pain, correct or minimize deformity, and improve the general health status of the individual. They teach the patient, the patient's family, or other personnel the appropriate procedures for the patient's continuing care. They are also involved in the administration of physical therapy facilities, the supervision of supportive personnel, and consultation with other health professionals.

Physical therapy offers a wide variety of opportunities for professional practice in general or specialized hospitals, programs for crippled children, physicians' offices and physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, and other departments. Additional career opportunities are available for teaching in educational programs of physical therapy and related professions.

Education in the program is available at three levels: associate professional (certificate) and master's level. More advanced training is obtained by completing the Ph.D. in physical education with special emphasis on therapeutics. There are 80 students in the basic professional program and approximately 75 postgraduate students in advanced degree programs. The facilities are excellent and are well equipped for classroom and laboratory instruction. The Physical Therapy Program is focused in the College of Medicine in the UI Health Center, which includes The University of Iowa Hospitals and Clinics, the nation's largest university-owned teaching hospital. Residents in the programs have opportunities to experience the wide range of services available.

Additional career opportunities exist for those who complete a specialized master's program in physical therapy. A variety of positions are available in the public and private sectors of the health care system, including hospitals, clinics, schools, and research institutions.
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. Satisfaction of the program requirements qualifies candidates for the Professional Examination for Physical Therapists (P.E.P.) test for licensure in Iowa and other states.

The two-year professional certification program consists of:

First Semester
- 80:108 Human Anatomy 4 s.h.
- 101:80 Fundamentals of Physical Therapy 3 s.h.
- 101:110 Kinesiology 3 s.h.
- 101:131 Therapeutic Physical Agents I 3 s.h.
- 111:41 Introduction to Physical Therapy 1 s.h.
- 69:203 Introduction to Human Pathology 2 s.h.

Second Semester
- 80:106 Human Anatomy and Neuroanatomy 4 s.h.
- 72:150 Intermediate Physiology 4 s.h.
- 101:85 Therapeutic Exercises I 2 s.h.
- 101:118 Clinical Observation 0 s.h.
- 101:101 Introduction to Clinical Medicine I 2 s.h.
- 101:152 Musculoskeletal Aspects of Disability 1 s.h.
- 101:90 Physical Agents II 2 s.h.
- 01:125A Applied Biostatistics 2 s.h.

Third Semester
- 101:102 Fundamentals of Orthopedics and Rehabilitation 1 s.h.
- 101:111 Therapeutic Exercise II 4 s.h.
- 101:121 Principles of Neurology and Clinical Sciences 1 s.h.
- 101:156 Clinical Education and Rehabilitation 2 s.h.
- 101:103 Scientific Inquiry 2 s.h.
- 101:123 Physical Therapy Administration 1 s.h.
- 101:150 Fundamentals of Cardiopulmonary Therapies 2 s.h.
- 101:127 Biostatistics and Orthotics 1 s.h.

Fourth Semester
- 101:200 Clinical Internship 6 s.h.

Admission to Professional Program

A new class is admitted to the professional certification program each fall. A student may enter the program following their junior year of college or after earning a baccalaureate degree.

A student applying to 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 same two-year professional curriculum leading to certification in physical therapy.

To be considered for admission, the applicant must have completed at least one semester of college study, including a complete introductory course in zoology, chemistry, 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 (8 semester hours), one college-level mathematics course (3 semester hours), and statistics (3-4 semester hours). The student must have completed all science courses in the major departments after the courses, and all must include at least one four-hour laboratory requirement.

The applicant should have a minimum overall grade-point average of 2.7 and a 2.0 minimum in all courses in zoology, biology, chemistry, physics, and psychology.

Graduate applicants must take the Graduate Record Admission Test (GRE) during the first year of professional training. Results of the examination must be mailed to The University of Iowa.

Personal interviews may be required.

The physical therapist's effective performance is dependent upon the adequate study of the subject and the acquisition of critical thinking skills.

Expenses

In addition to general University expenses, students in the Physical Therapy Program are responsible for purchase of uniforms, malpractice insurance, and course supplies.

Master of Arts

The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: musculoskeletal, neurologic-neurophysiological, and cardiovascular. Pediatrists are included in the neurovascular area. Clinical experiences are also offered. The program focuses 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 theoretical training 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, orthopedics, 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 able to engage 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 the graduate level.
- Have a knowledge of the physical therapy profession and the body of knowledge literature related to a specific topic and setting.
- Be well versed in the application of basic concepts in the areas of musculoskeletal, neuromotor, and cardiovascular physical therapy.

Required Courses:
- 101:301 Thesis Physical Therapy 4 s.h.
- 101:212 Medical Instrumentation 3 s.h.
- 101:203 Biomechanics and Bioassay 3 s.h.
- 101:213 Orthotics and Prosthetics of Human Motion I 3 s.h.
- 101:202 Orthotics and Prosthetics II 3 s.h.
- 101:275 Evaluation of Selected Neurological Disorders 3 s.h.
- 101:280 Teaching Practicum I 3 s.h.
- 101:282 Clinical Educational Practicum 3 s.h.
- 101:284 Research Practicum 3 s.h.
- 101:340 Analysis of Scientific Literature 3 s.h.
- 101:353 Research Practicum 3 s.h.

Recommended courses:
- 101:205 Advanced Anatomy and Physiology I 3 s.h.
- 69:203 Introduction to Human Pathology 2 s.h.
To be considered for admission to the Ph.D. Program in Physical Education (therapeutics), the applicant must be a graduate of an approved professional program in physical therapy, must be a licensed physical therapist, and must meet the admission requirements of The University of Iowa Graduate College. Clinical experience is desirable.

Program entry is limited to the fall semester. Deadlines for receipt of admission applications are October 15 for notification by December 1, March 15 for notification by May 1, and May 15 for notification by July 1.

Doctor of Philosophy in Physical Education (therapeutics)

Doctoral training related to physical therapy is received in a program in physical education with special emphasis on therapeutics. The program is described in detail under "Physical Education-Fine Arts" in the "College of Liberal Arts" section of the Catalog.

A student successfully completing the Ph.D. program in physical education with the specialty in therapeutics will:

- Be able to perform original research and render directed toward the discovery of new knowledge and the development of theoretical principles that will advance the field of physical therapy clinical practice;
- Be able to teach at the basic professional level in the areas of physical therapy training and show promise of ability to teach at the doctoral level;
- Have a knowledge of the physical therapy theoretical and research literature; and
- Be qualified in the application of basic and advanced concepts in the areas of musculoskeletal, neuroanatomy, and cardiorespiratory physical therapy.

To be considered for admission to the Ph.D. Program in Physical Education (therapeutics), the applicant must be a graduate of an approved professional program in physical therapy, must be a licensed physical therapist, must hold a master's degree, must have had calculus, and must meet the admission requirements of The University of Iowa Graduate College. (Note: The master's degree need not be in physical therapy.) Program entry is limited to the fall semester. Deadlines for receipt of applications for admission are January 15 for notification by April 1 and May 15 for notification by July 1.

Financial Aid

A number of teaching and research assistantships are available.

Courses

The courses listed below are open only to students in the professional program.

110:472 Fundamental of Physical Therapy
110:473 Principles and Techniques of Therapeutic Methods and Techniques in the Management of Musculoskeletal and Neurovegetative Disorders
110:474 Therapeutic Exercise
110:475 Physical Therapy
110:476 Principles of Orthopedics and Rehabilitation
110:477 Principles of Neurology
110:478 Principles of Cardiology
110:479 Principles of Pulmonary Therapy
110:480 Principles of Respiratory Therapy
110:481 Principles of Nephrology
110:482 Principles of Endocrinology
110:483 Principles of Gastroenterology
110:484 Principles of Hematology
110:485 Principles of Oncology
110:486 Principles of Infectious Diseases
110:487 Principles of Neurosurgery
110:488 Principles of Cardiac Surgery
110:489 Principles of Pulmonary Surgery
110:490 Principles of Respiratory Surgery
110:491 Principles of Nephrology Surgery
110:492 Principles of Endocrinology Surgery
110:493 Principles of Gastroenterology Surgery
110:494 Principles of Hematology Surgery
110:495 Principles of Oncology Surgery
110:496 Principles of Infectious Diseases Surgery
110:497 Principles of Neurosurgery Surgery
110:498 Principles of Cardiac Surgery Surgery
110:499 Principles of Pulmonary Surgery Surgery
110:500 Principles of Respiratory Surgery Surgery
110:501 Principles of Nephrology Surgery Surgery
110:502 Principles of Endocrinology Surgery Surgery
110:503 Principles of Gastroenterology Surgery Surgery
110:504 Principles of Hematology Surgery Surgery
110:505 Principles of Oncology Surgery Surgery
110:506 Principles of Infectious Diseases Surgery Surgery
110:507 Principles of Neurosurgery Surgery Surgery
110:508 Principles of Cardiac Surgery Surgery Surgery
110:509 Principles of Pulmonary Surgery Surgery Surgery
110:510 Principles of Respiratory Surgery Surgery Surgery
110:511 Principles of Nephrology Surgery Surgery Surgery
110:512 Principles of Endocrinology Surgery Surgery Surgery
110:513 Principles of Gastroenterology Surgery Surgery Surgery
110:514 Principles of Hematology Surgery Surgery Surgery
110:515 Principles of Oncology Surgery Surgery Surgery
110:516 Principles of Infectious Diseases Surgery Surgery Surgery
Physician Assistant Program

Program Director: Debra Oliver
Assistant Director: Douglas W. LaDue
Faculty: associate professor Douglas W., Jean Green, Christy Jones, Greg Geiman

The physician assistant is qualified by general education, training, experience, and personal character to provide patient services under the responsible supervision of a licensed physician.

The physician assistant serves in a variety of ways and provides a wide range of services. In a typical clinic setting he or she is frequently the first contact patient, taking the initial history, 

An extension of the physician, the physician assistant must be able to make a
diagnosis and provide medical care to each patient's chart in a timely manner.

As an extension of the physician, the physician assistant must be able to make a diagnosis and provide medical care to each patient's chart in a timely manner.

The Physician Assistant Program at The University of Iowa is accredited by the American Medical Association's Committee on Allied Health Education and Accreditation, approved by the Iowa Board of Medical Examiners, and a member of the Association of Physician Assistant Programs. The program provides students with the Bachelor of Science degree and for the opportunity to take the National Certifying Examination for Primary Care.

Physicians Assistants. Successful completion of the national certifying examination is a prerequisite for registration in Iowa. The Physician Assistant Program at The University of Iowa and the University of Iowa's College of Medicine in Des Moines designed to foster the use of health care teams, in addition to education and career opportunities with physicians practicing medicine, a network of community-based care clinics. This care clinic has been developed in the state to serve communities in an integrated health care system. These model family practice clinics integrate the student and graduate physician assistant into the medical delivery team with physicians, health technicians, public health nurses, clinical nursing staff, and other allied health personnel.

Professional Program

The Physician Assistant Program is an integral part of the College of Medicine. The first year of the program is taken at The University of Iowa Health Center. A major portion of the second-year clinical work occurs throughout the state in primary care settings.

The two-year educational program is divided into three broad phases.

The initial didactic phase consists of seven months of course work in a number of basic science areas.

A seminar course specifically directed to the history, development, and future of the physician assistant profession is also offered during this session.

The second phase is 50121 Introduction to Clinical Medicine for Physician Assistant Students. This fall semester course involves the application of basic science knowledge to the understanding of clinical-pathophysiologic correlations of the common and or catastrophic disorders encountered in the floor disciplines of clinical medicine. The student also is instructed in the science and art of obtaining a medical history and performing a thorough physical examination. This course is taken with nursing medical students.

The third, clinical phase consists of supervised rotations of two, four, or six weeks duration in selected areas.

These clinical rotations are designed to provide the student with instruction and experience in the care of patients in a manner which faciliates effective integration of the knowledge, skills, and attitudes derived from the basic sciences and pre-clinical phase of the program. Isolated clinical training is provided by The University of Iowa Hospital and Clinics, the Veterans Administration medical centers in Des Moines and Iowa City. Other affiliated hospitals, the medical health care clinics at Muscatine, Davenport, Sioux City, Waterloo, and Des Moines, students gain additional clinical experience through placement in selected preceptors involved in clinical work in private practice or in community hospitals.

The didactic and clinical phases of the program emphasize primary health care delivery and the use of physician assistants in this type of service team. The program is integrated into the residency of the College of Medicine, thus permitting interdisciplinary activities and development of medical and health care professionals.

Professional Curriculum

First Year

Phase I

71:125 Pharmacology for Health Sciences: Physician Assistant Students 4 s.h.
50/100 Law and Medicine for Physician Assistant Students 2 s.h.
60:111 Gross Human Anatomy for Physician Assistant Students 4 s.h.
61:110 Microbiology for Physician Assistant Students 2 s.h.
69:203 Introduction to Human Pathology 4 s.h.
69:303 Clinical Pathology for Physician Assistant Students 3 s.h.
72:164 Human Physiology for Physician Assistant Students 4 s.h.
69:164 Biochemistry for Physician Assistant Students 2 s.h.
17:101 Nutrition (Elective) 2 s.h.
Phase II

60:121 Introduction to Clinical Medicine for Physician Assistant Students 20 s.h.
Second Year

Phase III

Clinical rotations:
70:505 Pediatrics for Physician Assistant Students 3 s.h.
70:605 General Surgery for Physician Assistant Students 3 s.h.
70:605 Internal Medicine for Physician Assistant Students 3 s.h.
11:050 Family Practice I for Physician Assistant Students 3 s.h.
11:056 Family Practice II for Physician Assistant Students 3 s.h.
11:000 Obstetrics and Gynecology for Physician Assistant Students 3 s.h.
70:102 Neuropsychology for Physician Assistant Students 3 s.h.
Elective clinical rotations, selected from the following:
70:103 Pediatrics Elective for Physician Assistant Students 3 s.h.
70:103 Emergency Room for Physician Assistant Students 3 s.h.
70:102 Orthopaedics for Physician Assistant Students 3 s.h.
11:000 Family Practice Elective for Physician Assistant Students 3 s.h.
70:102 Internal Medicine Elective for Physician Assistant Students 3 s.h.
Admission

To be eligible for admission to the Physician Assistant Program, the applicant must have completed at least 90 semester hours of college level study, including:

- College of Liberal Arts general education requirements in rhetoric, physical education, Naïve perspective, humanities, foreign language, and social science.

 prerequisite introductory courses in inorganic and organic chemistry; and

 A complete introductory and at least one advanced course in zoology or animal biology.

 It is also strongly recommended, although not required, that the applicant's background include analytical geometry, beginning calculus, and physical chemistry.

 The applicant must have achieved at least a 2.5 grade-point average on the last 60 semester hours of college coursework undertaken. The admissions committee gives special attention to the applicant's performance in science courses. In the past, the successful applicant has had a cumulative and science average of 3.2, or a total of 126 semester hours of college credit, of which 65 semester hours were in the sciences, and approximately one year of full-time or part-time health-related practical patient care experience. Satisfaction of the basic admission requirements does not ensure acceptance into the Physician Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience including direct patient contact receive preferential consideration. The committee will request interviews with the most qualified applicants.

 In the event a student is not admitted into the Physician Assistant Program, he or she should have been advised to pursue a course of study which is applicable to a baccalaureate degree, most commonly in the areas of biology, chemistry, biochemistry, or zoology.

 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 $600. Microscopes are not required.

 Courses

 115: Physician Assistant Clinical Year
 117: Seminar for Physician Assistant Students

 Lectures, readings, and group sessions meet with the history and development of physician assistant profession. Open only to students in the Physician Assistant Program.

 119: Emergency Medicine for Physician Assistants

 Emphasizes the first aid of in-trainee instruction, includes pre-hospital care principles, clinical scenarios, interaction among the medical team, and medical training, while teaching basic emergency-room patient management and emergency medical response experience. Open only to second-year physician assistant students and preclinical physician students.

 Biochemistry

 Department head: Edward C. Harich


 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 training) combined programs. The focus of the graduate program is on the individual student, whose educational needs are met in formal coursework and by tutorial conferences in the research areas from which they may choose a thesis topic.

 First-year graduate students usually take general and advanced biochemistry courses (98:130 Physiological Biochemistry), a seminar on effective oral presentation (98:282 Seminar), and elective courses. Students spend about half of their time working in three different faculty laboratories (98:281 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 projects, 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 98:280 course work in biochemistry (chosen from the 98:280 or 98:282) and 8 semester hours of elective science courses offered in other departments.

 After passing the comprehensive examinations forward the end of the second year, students are formally admitted to degree candidacy, and a completion of the program culminates in the completion of the thesis 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 with the biochemistry faculty members who serve as research advisors.

 Research Interests

 The department's current research interests include the molecular aspects of physical biochemistry, effects of conformation or composition and chemical and biochemical activity of the enzymes, normal control mechanisms, structure and function of the proteins, a comparison of the higher organisms, biochemistry of glycoproteins and proteoglycans, the enzymes and control of protein synthesis, biochemistry of the cell, characterization of liver and hematopoietic enzymes, neurochemistry of brain metabolism, and thermodynamics of the enzyme systems utilizing the eukaryotic and bacterial acids, enzymes, enzyme mechanisms, and biosynthesis of the proteins and biochemical changes during development.
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 interlaced, and faculty members with common interests are grouped around cores of important research facilities and are further helping to bring the various groups into a more intimate relationship with one another.

The individual staff research laboratories are large and吸烟, and the building provides generous space for many common-use facilities, including instrument rooms, reading room, cold rooms, glassware kishines, 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, a 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 ultracentrifuge, fluorescence spectrophotometer, infrared absorption and optical rotatory dispersion instruments, amino acid analyzers, protein sequencer, gas chromatograph, liquid scintillation counter, electrophoresis equipment, an electron microscope, and computers for protein X-ray crystallography, computer terminals, and a number of Cary spectrophotometers.

In addition to the department reading room, interlibrary loan 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 biological, biochemical, or physical sciences. Appropriate preparation includes one-year college-level courses in general chemistry, general biology, analytical chemistry, biology, chemistry, and physics, and mathematics and computer science. Students with demonstrated ability may make up deficiencies in other branches.

Beyond the general College admission requirements (see the Graduate College section of the Catalog) minimum requirements of the d overwritten include an undergraduate grade-point average of 3.0 (A=4.0) in 3.0 or more advanced courses, and an acceptable score on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) Aptitude Test.

Courses

9810 General Biochemistry
12.0
An introduction to the fundamental concepts, methods, and principles of biochemistry. The course is designed for students majoring in the biological sciences.

9815 Biochemistry Laboratory
1.0
A laboratory course which emphasizes practical methods and techniques used in biochemistry.

9820 Biochemistry of Carbohydrates
3.0
The Biochemistry of Carbohydrates is a laboratory course which develops an understanding of the structure and function of carbohydrates.

9830 Principles of Enzymology
3.0
A laboratory course which explores the principles of enzyme biochemistry.

9840 Enzyme Kinetics
3.0
A laboratory course which explores the principles of enzyme biochemistry.

9850 Biochemistry of Lipids
3.0
A laboratory course which explores the principles of lipid biochemistry.

9860 Biochemistry of Membranes
3.0
A laboratory course which explores the principles of membrane biochemistry.

9870 Biochemistry of Proteins
3.0
A laboratory course which explores the principles of protein biochemistry.

9880 Biochemistry of Nucleic Acids
3.0
A laboratory course which explores the principles of nucleic acid biochemistry.

9890 Advanced Biochemistry
3.0
A laboratory course which explores the principles of advanced biochemistry.

9910 Research Independent Study
3.0
Students pursue independent study and research in areas of interest to them, in cooperation with qualified staff. Each student and faculty member in attendance must sign a 'Research Independent Study' form in each semester during which the student is enrolled.

9920 Biochemistry Seminar
0.5
A seminar that explores the principles of biochemistry. The seminar is open to students who have been accepted in the health sciences colleges.

9930 Biochemistry Seminar in Clinical Biochemistry
0.5
A seminar that explores the principles of clinical biochemistry.

9940 Biochemistry Seminar in Biochemistry
0.5
A seminar that explores the principles of biochemistry.

9950 Biochemistry Seminar in Biochemistry
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9960 Biochemistry Seminar in Biochemistry
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9970 Biochemistry Seminar in Biochemistry
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9980 Biochemistry Seminar in Biochemistry
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9990 Biochemistry Seminar in Biochemistry
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9995 Biochemistry Seminar in Biochemistry
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A seminar that explores the principles of biochemistry.

9998 Biochemistry Seminar in Biochemistry
0.5
A seminar that explores the principles of biochemistry.

9999 Biochemistry Seminar in Biochemistry
0.5
A seminar that explores the principles of biochemistry.

Biochemistry for Physicians Students
4.0
Lectures, discussions, and conferences. For medical students with special interest in biochemistry; other students admitted only after consultation with staff.

Biochemistry for Students Without Training in the Basic Sciences
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Various elections are available for fourth-year medical students, including those for clinical care, basic research, and special studies.

Courses

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<tr>
<th>Course</th>
<th>Description</th>
<th>Hours</th>
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<tr>
<td>60:201</td>
<td>Basic Pathology</td>
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<tr>
<td>60:202</td>
<td>Basic Anatomy</td>
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Dermatology

Department head: John B. Braun

Assistant professor: Richard M. Caplan, Donald T. Downing

Graduate student assistant: Roger J. Caffey, Robert F. Cashman, Ronald Metzler, Joseph P. Furlong, James E. Feitelson

Clinical Leaders: Donald B. Johnson, Jr., Susan Paolino

The Department of Dermatology instructs medical students and trains dermatology residents in the care of patients with skin diseases, and provides opportunities for the development of research skills in the field of dermatology.

This is one of very few dermatology programs in the country with a required rotation for medical students. Each third-year medical student spends two weeks in the clinic and attends about 10 one-hour lectures. A good cross-section of patients is available, due to the mixture of private patients and patients including a large number referred from the Student Health Service.

Additional appointments are seen at the nearby Veterans Administration Medical Center.

Family Practice

Department head: Robert E. Nelson

Faculty: professors René J. Chang, Robert E. Nelson, Ira M. Smith, Robert B. Williams

Associate professors: William M. Critchlow, William J. Cimino, Craig L. Storie, Linda F. Peckar, Glenn G. Williams

Assistant professors: Elizabeth A. Brea, Phong G. Cuculiss, Charles E. Doolan, Robert W. Nehama, Paul E. Williams


Clinical assistant professor: Michael A. Werth, Martin A. White

Clinical instructor: Charles N. Djerassi, Mary E. Cizman, Herbert D. Johnson, Robert L. Krannich, James L. Mearns, Ray F. Paterson, Daniel P. Rees, Howard S. Rudolph

Clinical instructor: Donald D. Schim, Donald L. Tannen, George J. Ullman

Richard E. Smale


The Family Practice Program was initiated 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 M.D. program. The department's 25 elective senior rotations gives students opportunities for exposure to various forms communities through work in affiliated hospitals or in connection with the affiliated family practice institution. The department's emphasis on this program with quality education in the senior year, and an international health care elective 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 for the total family, utilizing a concept integrating the primary, ambulatory care patient, family medicine, and the physician into an efficient and effective primary care team. The program is intentionally flexible to allow each resident freedom to tailor his or her training to individual interests and
needs. It includes a broad spectrum of specialists in internal medicine, pediatrics, obstetrics and gynecology, psychosomatics, medical and surgical specialties, and community medicine. The program currently offers 72 individual rotations. The hospital-based clinical experience is a unique combination of exposure to practice in the University Hospital, where the patients have been referred by physicians from the area, and in various community hospitals, where the inhabitants care is of a nature more typical of family practice.

During the first year, a large portion of the program is based at Mercy Hospital in Iowa City, where residents have the opportunity for total participation in the practice—but inpatient and outpatient—of the private physician staff. Rotations are specifically designed to provide breadth of experience in the second and third years, residents spend increased time in the Family Practice Center and at University Hospitals and Clinics.

Teaching Fellowship

A two-year teaching fellowship in family practice begins each July 1. Its primary goal is to train physicians for academic roles in family practice departments or residency programs. Skills taught include research methodologies, administrative and teaching techniques, and modern educational methods.

Special Facilities

The department office is located in Clinic G, L501. The teaching center is the center of departmental functions, including coordination of student and resident clinical activities in family medicine and the University Hospitals Family Practice Office. The department also maintains a family practice office at the University of Iowa Outpatient Clinic, both offices, patient families are assigned to the University campus family medicine and University Hospitals Family Practice Office. The department also maintains a family practice office at Mercy Hospital, where residents spend increased time in the Family Practice Center and at University Hospitals and Clinics.

Courses

110.040 Human Physiology
1.0  Weekly meeting of small groups of students for self-study, observation, and discussion. Structured course content and guided study. Involves discussion, reading, and testing of knowledge. Preparation for the course work involves students with emphasis on self-directed learning and critical thinking. This course requires a commitment of time and effort on the part of the student. Preparation for the course work involves students with emphasis on self-directed learning and critical thinking. This course requires a commitment of time and effort on the part of the student.

110.300 Principles of Family Medicine
1.0  Weekly meeting of small groups of students for self-study, observation, and discussion. Structured course content and guided study. Involves discussion, reading, and testing of knowledge. Preparation for the course work involves students with emphasis on self-directed learning and critical thinking. This course requires a commitment of time and effort on the part of the student. Preparation for the course work involves students with emphasis on self-directed learning and critical thinking. This course requires a commitment of time and effort on the part of the student.

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110.300 Principles of Family Practice
1.0  Weekly meeting of small groups of students for self-study, observation, and discussion. Structured course content and guided study. Involves discussion, reading, and testing of knowledge. Preparation for the course work involves students with emphasis on self-directed learning and critical thinking. This course requires a commitment of time and effort on the part of the student. Preparation for the course work involves students with emphasis on self-directed learning and critical thinking. This course requires a commitment of time and effort on the part of the student. Preparation for the course work involves students with emphasis on self-directed learning and critical thinking. This course requires a commitment of time and effort on the part of the student.
Genetics

The Ph.D. program in genetics is an interdepartmental program involving members of the Departments of Microbiology, Biochemistry, Botany, Microbiology, and Zoology, as well as a number of faculty members in clinical departments. See "Genetics" under "College of Liberal Arts" for a list of participating faculty members, degree requirements, and courses offered.

Hospital and Health Administration

Program director: Samuel Levvy
Faculty: professors Samuel Levvy, James L. Price
associate professor Gerard Harries
associate professor Linda L. Davis
associate professors John M. Rutler, Gary B. Levis, Robert L. Lofthus, Daniel Russell
adjunct professors Mary B. Keller, John McKee

Since its inception in 1930, the Graduate Program in Hospital and Health Administration has offered two degree programs, each having distinctive, 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 accepted 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 requires a period of 64 semester hours of graduate work. Each master's student must complete eight required core courses which represent a core of disciplines and fields of knowledge. These courses are as follows:

80:101 Introduction to Health Care Organization  3 a.h.
80:102 Health Administration  3 a.h.
80:104 Economics of Health Care  3 a.h.
80:106 Legal Aspects of Health and Medical Care  3 a.h.
80:122 Financial Management of Hospital and Health Institutions  3 a.h.
80:227 Quantitative Methods in Health Administration  3 a.h.
80:236 Quantitative Applications in Health Care  3 a.h.

40:240 Issues in Health Administration  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 College 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 graduate 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 should apply directly to the program during the third year of undergraduate college. Application for admission will be made possible for the applicant to be advised regarding prerequisites. Letters of inquiry and applications should note that early admission is desired.

Joint Programs

Students may wish to pursue an integrated graduate program leading to a graduate degree in health administration and a graduate degree in another discipline such as business administration, urban and regional planning, joint programs of study are encouraged. Application for admission to a joint program should indicate whether the student anticipates combining application for admission.

Doctor of Philosophy

The primary purpose of the doctoral program is to prepare scholars who are committed to the pursuit of excellence in 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.
Medical Scientist Training Program

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 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, genetics, anatomy, and histology. In the second semester they take physiology, microbiology, genetics, pathology, and neurobiology. The fall semester of year two is devoted to the study of pharmacology, systemic pathology, community health sciences, neurobiology, 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 clinical skills, knowledge, and skills necessary for building and maintaining a relationship with the patient. This semester provides information and 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, five, and six 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 scientific 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 or her considerable and growing fund of information and sophistication 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 fee support, provided by a Medical Scientist Training Program awarded to The University of Iowa by the National Institutes of Health. The current annual award is $5,040 per year. Support from this grant will be continued for up to six years if the trainee makes progress and maintains satisfactory performance. Fellowship trainees admitted to advanced standing in the program are 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 scientific research usually through productive research experience as an undergraduate. 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 College Application Service (AMCAS). Program applicants should instruct 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, 6-580 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. 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 applications regardless of their state of residence.

All candidates are invited to the Medical Scientist Training Program should take both the Medical College Admissions Test and the Graduate Record Examination (GRE) aptitude Test, preferably in the spring and no later than the fall of the calendar year in which the application is submitted.

Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog.

Microbiology

Chair: Irving P. Crowther
Faculty: virologists Robert P. Ashman (Chair), John J. Butler, John Casteel, J. Irving P. Crowther, Michael G. Fahey, Thomas L. Feshbach (Emory), Rudolph Frey, George A. Graham (Emory), Luise G. Groh, William J. Hines, David D. Lukens (Emory), Allen J. Marks, and John D. Sinits.
Donald P. Stahl
Emeritus professors George D. Eacker, Charles D. Fox, Jesse R. Fristedt, Mark H. Stover, C. Martin Burke, and Donald F. White
Honorary professor Beverley S. Cogg, Larry Daniels, and David Deal
Degree offered: B.S., M.S., Ph.D.
Neurology

Department head: Maurice W. Van Allen
Assistant professor: Robert T. Church
Faculty: Robert T. Church, Jonathan Z. Cohen, C. Peter Ross

Neurology is the branch of medical science concerned with the diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Training and postgraduate training, carefully integrated with patient care, has long been a significant function of the department.

The department offers clinical and categorical training in third- and fourth-year medical students, commensurate to the Doctor of Medicine degree. An active three-year approved residency program qualifying physician residents for board certification in neurology is a major aspect of departmental activity; experience in clinical electroencephalography, pediatric neurology, psychiatry, and neuropathology is part of this training.

Course Work for M.D. Students

The courses in obstetrics and gynecology are designed to give M.D. students a comprehensive survey of female reproductive problems. This is done through a series of didactic lectures, student and outpatient assignments, ward rounds, teaching seminars, and special elective courses. The third-year clerkship (880-0 Clinical Obstetrics and Gynecology) gives the student core knowledge, skills, and attitudes needed to provide health care to women patients.

The department offers four-year students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology. In addition to clerkships at The University of Iowa Hospitals and Clinics, these electives include rotations at Broadlawns Polk County Hospital, Des Moines; Ochsner Clinic and Convoy Memorial Hospital, Monroe, Louisiana; Medical Associations, Dubuque; The Gundersen Clinic, LaCrosse, Wisconsin; and Orlando Regional Medical Center, Orlando, Florida.

Residency Program

The department offers a four-year residency. After passing a written and oral examination, graduates are eligible to be certified by the American Board of Obstetrics and Gynecology.

During the fourth year, the resident rotates through the various divisions of the department and cares for both inpatient and outpatient patients. Additional training is offered in prenatal clinics, gynecologic surgery, and Dorsey.

During the first two years, the resident spends time at Iowa Mediacare and Broadlawns hospital in Des Moines, and at St. Luke’s Hospital in Davenport. The resident is trained in normal and abnormal obstetricians, gynecologic surgery, office gynecology.
Ophthalmology

Department of
Frederick C. Bold
Faculty professors: J. H. P. Stedman, Robert G. Bold, \(^\star\) William D. Hay, \(\dagger\) Harry E. Brink, \(\ddagger\) Jay R. Kazimierz, \(\ast\) Karl F. Oveson, \(\ast\) Edward S. Perhala, \(\dagger\) Charles D. Prell, \(\dagger\) Harry Stenstrom, \(\ddagger\) Robert C. Wexler, \(\ast\) associate professor \(\dagger\) Frank Jothick, \(\ast\) Thomas A. Wentworth, \(\ast\) assistant professors \(\ast\) James C. Feld, \(\dagger\) Ronald V. Neumann, \(\ast\) Andrew J. Parker, \(\dagger\) Donald T. Yao

Degree offered: M.D.

Ophthalmology is a medical and surgical specialty concerned with research, diagnosis, and treatment of diseases of the eye and its adnexa, including correction of refractive errors. Several subspecialties are represented in the department: corneal pathology and physiology; pediatric ophthalmology; retinal disorders; glaucoma, neuro-ophthalmology, ophthalmology; and external diseases and vascular diseases, plastic surgery, contact lens and refraction service, and medical ophthalmic 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, opthalmology, and vascular diseases. Clinical facilities are available not only at the University Hospitals, but also at the Veterans Administration hospitals in Iowa City and Des Moines. The department also maintains an eye clinic at the Broadlawns Community Hospital. The department sponsors biennially an Educational Symposium, an Annual National Conference, and monthly a statewide program of continuing education.

Two features of the department are outstanding: a large clinical faculty, and the opportunity it offers to prepare for a career of teaching and research in ophthalmology.

Courses

61101 Elective in External Eye Disease 4.0 h.
Four-week course in common diseases of the eyelids, conjunctiva, and cornea.

61102 Elective in Neuro-Ophthalmology 4.0 h.
Four-week course in neurological, neurosurgical, and internal medical emphasized on visual and ocular motor dysfunction due to systemic diseases; cerebrovascular and head trauma.

61103 Elective in Ophthalmology 8.0 h.
Four-week course in training in orthoptic and general amblyopia, emphasis on ocular motility, and long-term amblyopia.

61104 Introduction to Clinical Ophthalmology 8.0 h.
Two-week course for students who have not intend to become ophthalmologists. Cover ocular anatomy, physiological and pathophysiological processes, diagnostic and therapeutic procedures, and principles of ocular motility.

61105 Special Study in Ophthalmology 8.0 h.
Two-week course in basic and clinical science related to ophthalmology: diagnostic lense, perimetry, laboratory work, and research; clinical training is pending with permission of American Board of Ophthalmology.

61106 Special Study in Ophthalmology 12.0 h.
Two-week course in basic and clinical science related to ophthalmology: diagnostic lense, perimetry, laboratory work, and research; clinical training is pending with permission of American Board of Ophthalmology.

61107 Special Studies in Ophthalmology 12.0 h.
Two-week course in basic and clinical science related to ophthalmology: diagnostic lense, perimetry, laboratory work, and research; clinical training is pending with permission of American Board of Ophthalmology.

Orthopaedic Surgery

Department head: Reginald R. Cooper
Faculty professors: John F. Allardyce, Richard A. Beam, \(\dagger\) Robert L. Cates, \(\ast\) Jerry A. Maynard, \(\dagger\) Walter A. Pepi, \(\dagger\) Irwin Y. Powell

Research director: \(\dagger\) Edward M. Baldwin, \(\dagger\) John F. Cooper, \(\dagger\) Mary B. Ireland, \(\ast\) Thomas R. Lehman, \(\dagger\) Patrick J. O'Reilly, \(\ast\) Donald T. Wirtshafter

The department offers two types of full-time clinical training—a five-year integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery and science related to the musculoskeletal system, and a five- or six-year program for those interested in full-time academic orthopaedic careers.

The 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
orthopaedics, but in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesia, and other services.

During the following years, residents gain experience in trauma, children's orthopaedics, adult orthopaedics, neurovascular disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science as related to orthopaedics. 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 joints and prosthetics.

Program for Full-Time Academic Orthopaedics

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 biochemistry of mucopolysaccharides and collagen, both normal and those altered in epiphyseal dysplasia and scoliosis. 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 bones, cartilage, tendons, and muscles, and on those altered by experiment and disease.

Tissue transport, radioactive isotopes, and metabolic bone disease—Skin, bone, and cartilage transplantation, skeletal physiology, qualitative and quantitative aspects of histology, cell composition and 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 Veteran's Administration Medical Center.

The department includes 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.

Surgery clinics deal with such problems as scoliosis, club feet, congenital dislocations, hip, 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
70:1 Orthopaedic Surgery for Physician Assistant
70:5 Advanced Clinical Orthopaedics
Open to senior medical students only.
70:80 Handicapped Teens
Open to senior medical students only.
70:50 Surgical Care of the Hand
Open to senior medical students only.
70:30 Laboratory Experience
Open to senior medical students only.
70:80 Special Studies in Osteoporosis
Open to senior medical students only.
70:80 Special Studies in Osteoporosis
Open to senior medical students only.

Otolaryngology—Head and Neck Surgery

Department head: Brian T. McVicker

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 carries a large patient load in head and neck oncology, head and neck plastic reconstructive surgery, maxillofacial trauma, and congenital defects (such as cleft lip and palate), audiology, neurotology, pediatrics, and genitourinary problems, voice problems, parotid endoscopy, surgery for deafness, and all the areas usually considered otolaryngologic.

There are seven divisions in the department which make this program comprehensive: utilitarian, neurotology, plastic and reconstructive surgery of the head and neck, oncologic surgery of the head and neck, rhinology, craniofacial defects, speech pathology and audiology, and research.

Another major objective of the department is to under research programs designed to provide 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 introduced, 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, audiology, facial nerve conductions, microvascular free bone grafting, new techniques in the subject of hearing by stapedotomy, auditory, bone resorption in ear disease, and electrophysiology 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 one year of house staff. 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 clinical phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of otolaryngology in the various surgical fields.

To complete the requirements for the Master of Science degree, the student must have at least 54 semester hours of credit, one-third of which must come from the thesis research course, and must present and defend a thesis. Students...
add depth to the educational program in community pediatrics and primary care.

The Division of Pediatrics is responsible for all facets of the pediatric section of the clinical pediatrics curriculum. 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 examination, growth and development, nutrition, and symptomatology of the newborn, toddler, and adolescent.

For the junior and senior medical student the inpatient service 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 certification. Fellowships are available in all of the subspecialties of pediatrics as well as the major subdivisions of pediatrics. The programs are research and clinically oriented, with emphasis on the development of knowledge and skill in the chosen discipline. Upon satisfactory completion of the program, residents meet the requirements for ABP eligibility for the subspecialty.

Facilities

The Department of Pediatrics is located in The University of Iowa Hospitals, with inpatient and outpatient areas immediately adjacent to faculty offices, and the pediatrics floor.

The inpatient service comprises more than 180 beds, and more than 24,000 patients per year are treated. It includes general, specialty, and continuing care facilities.

Laboratories performing both clinical and research studies are maintained within the department.

The Hospital School for Handicapped Children is available for the child with developmental disabilities, cerebral palsy, and mental retardation.

Courses

189 Clinical Pediatrics 3.6
Principles and practices of health maintenance and treatment of acute and chronic diseases in children, lectures, demonstrations, participation in patient care, daily rounds, ward rounds, ward staff, conferences and rounds, didactic programs, in-service education, and review of special problems, and survey of important recent affecting children. For fourth-year medical students.

190 Introduction to Medical Genetics 3.6
190 12 Maternal, Child Health Care, and Developmental Disabilities 3.6
Preparation elective with emphasis on the development and evaluation of educational programs for the handicapped child and their families.

190 Community Pediatrics from Mental Health to the Parents 3.6
Work in community-based hospital: experiences in pediatrics and in special problems related to the care of children with special needs.

190 Pediatric Nephrology 3.6
Basic concepts of physiology, biochemistry and clinical nephrology and renal disease and renal functions in pediatric patient emphasized.

190 Pediatric Nephrology 3.6
Participation in the multidisciplinary evaluation of children referred to the Nephrology Division; screening tests for developmental and renal problems in children; mechanisms available in normal communication for these problems.

190 Pediatric Cardiology 3.6
Opportunity to participate in all clinical activities, including cardiology examinations and pasting some expertise in cardiac evaluation. Cardiac surgical and internal medicine aspects of cardiovascular disease and arrhythmia emphasized.

190 Chronic Illness in Child 3.6
Participation in the clinical aspects of the patient with chronic illness, including techniques and management of children presenting medical problems.

190 Nutrition 3.6
Nutritional assessment and dietary consultation with emphasis on the patient with chronic illness of infants, children, and adolescents in pediatric patient emphasized.

190 Psychopathology 3.6

190 Developmental Disabilities 3.6
Student involved with children with developmental disabilities and their families: clinical evaluations, pediatric examination, family counseling, and intervention to bring the handicapped child.

190 Medical Genetics 3.6
Student works as part of ward team in the Pediatric ICU with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Trauma 3.6
Student works as part of ward team in intensive care unit with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Audiology 3.6
Student works as part of ward team in intensive care unit with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Intensive Care Unit 3.6
Student works as part of ward team in intensive care unit with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Ophthalmology 3.6
Student works as part of ward team in intensive care unit with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Gastroenterology 3.6
Student works as part of ward team in intensive care unit with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Hematology 3.6
Student works as part of ward team in intensive care unit with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Rheumatology 3.6
Student works as part of ward team in intensive care unit with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Nephrology 3.6
Student works as part of ward team in intensive care unit with board-certified pediatric intensivist and pediatric intensivist fellow, to be the primary intensivist for care given to each patient.

190 Pediatric Cardiology 3.6
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Pharmacology

Department head: J.P. Long
Degree offered: M.S. Ph.D.

The department provides professional training in pharmacy and other fields of science for students, offering a major option in clinical pharmacology and training for students to the degree of Ph.D. and offers a doctoral program in educational and research experience.

For qualified graduate students, a 4-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.

Pharmacology is located primarily within the Department of Pharmacology, with departments involved with each other departments in such educational and research activities at the National and Behavioral Sciences Program, the Diabetes Center, 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 7:120 Drugs: Their Nature, Action, and Use emphasize the natural history of a drug in an attempt to give students a background for rational decision-making concerning the proper use of drugs.

The department offers research training in all areas of pharmacology and toxicology at the predoctoral and postdoctoral 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 clinical departments in the College of Medicine, the Department of Ph.Mc.g electrolyes offers a Master of Science program in clinical pharmacology to applicants who already hold the Doctor of Medicine degree. The specific objective of the program is to provide increased emphasis on the training in the science of clinical pharmacology for residents in the various medical 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. All students must pass the oral examination of the resident or his or her advisor agree that the resident has met them satisfactorily at a prior time.

Pharmacology Research Seminar
Pharmacology Seminar
Biochemical Pharmacology
Special Topics in Pharmacology
Biometrics and Bioscience
Toxicology or
Clinical Toxicology

Students may audit 7:105 Pharmacology for Health Sciences: Medical, and may take additional courses appropriate to their program, including:

Advanced Cardiovascular Physiology and Pathology
Advanced Neuropharmacology
Renal Pharmacology
Subjects in Therapeutics

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

Courses requirements for the Ph.D. in pharmacology are as follows:

Chemobology
The Chemistry of Biological Materials
Metabolism
Metabolism of Drugs: Their Nature, Action, and Use

Medical Physiology
Pharmacology for Health Sciences: Pharmacy
Biochemistry and Biophysics
Pharmacology and Toxicology
Biochemical Pharmacology
Pharmacy

Pharmacology Seminar
Pharmacology Seminar of Excitable Cells
Introduction to Pharmacology and Biochemistry and Microbiology courses

The student must complete at least one additional course in any area of interest, and individual faculty research advisors may require more than one.

Pharmacology/COLLEGE OF MEDICINE

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

Chemobiology
Philosophical and experimental approaches to drug design: emphasis on concepts and tools of biological systems, from cell to organism to whole organism. Offered fall seminars. Prerequisites: consent of instructor.

Pharmacology for Health Sciences
Lectures, course, general principles of pharmacology, pharmacology of drugs and correlating with therapeutic and medical problems. Open to all students in preclinical science. Prerequisites: consent of course director. Offered fall seminars. Prerequisites: 75:100 and 99:45 or equivalent.

Pharmacology and Toxicology
Lectures on 7:101: lectures and discussions; course 10, preclinical principles of pharmacology, pharmacology of drugs and correlating with therapeutic use. Open to preclinical students. Prerequisites: 75:100 and 99:45 or equivalent. Consent of instructor.

Pharmacology for Health Sciences Dental
Lectures, course, general principles of pharmacology, pharmacology of drugs and correlating with therapeutic use. Open to dental students. Prerequisites: 75:100 and 99:45 or equivalent. Consent of instructor.

Pharmacology for Health Sciences Dental
Lectures, course, general principles of pharmacology, pharmacology of drugs and correlating with therapeutic use. Open to dental students. Prerequisites: 75:100 and 99:45 or equivalent. Consent of instructor.

Steady State Drugs: Their Mechanism, and Use
Lectures and discussions on drugs and their mechanisms of action. Prerequisites: 75:100 and 99:45 or equivalent. Consent of instructor.

Pharmacology for Health Sciences: People
Lectures, course, general principles of pharmacology, pharmacology of drugs and correlating with therapeutic use. Open to all students. Prerequisites: 75:100 and 99:45 or equivalent. Consent of instructor.

Intermediate Pharmacology
Lectures, course, fundamental principles of pharmacology, pharmacology of drugs and correlating with therapeutic use. Open to preclinical students. Prerequisites: 75:100 and 99:45 or equivalent. Consent of instructor.

Pharmacology for Health Sciences: People
Lectures, course, fundamental principles of pharmacology, pharmacology of drugs and correlating with therapeutic use. Open to all students. Prerequisites: 75:100 and 99:45 or equivalent. Consent of instructor.
Physiology and Biophysics

OM1100: Lead, Roderic C. Farahmier
Pacific, students Francine M. Alhadeff-Beamer, Robert A. Hayes, G. Sagar P.R., M.D., Carl V. Swient (Physiological), C. Adams Hughes, G.S. Reynolds Sukhram (Neurophysiology), Charles Tips (Physiological Education), Charles V. Wunder.
variable, admission to the course; 1:136-1 at: 13th.

Graduate Study

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, sensory information, sense organ, and nervous system physiology. The student is advised to take a limited number of courses in other departments appropriate to meeting his or her educational goals.

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 maintains a number of facilities devoted to research and teaching in the Brown Science Building and in a number of research laboratory facilities at the nearby Ostade 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 microscopy and fluorescence microscopes, a computerized calcium fluorescent microscope, an electron microscope, a computerized calcium devices, and a cell culture facility, as well as a laser and machine shop facilities. Through the first two years, graduate students are provided 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 at a four-year institution and have an overall grade-point average of 3.0 and a science grade-point average of 3.0.
Courses

72111 Cell Biology 3 a.h.
Phenomena of cell growth, structure, and function in the eukaryotic cell, Prokaryotic cell biology, physical principles, and functional morphology of the cell.

72128 Human Physiology 4 a.h.
Basic concept of human physiology. Offered fall semester. Prerequisites: B157, A106 or equivalent, and consent of course director.

72136 Horse Physiology 4 a.h.
Basic concepts of equine physiology. Offered spring semester. Prerequisites: B176, A106 or equivalent, and consent of course director.

72150 Animal Physiology 4 a.h.
Principles of physiology and detailed treatment of organ systems in selected types. Selected of locomotion, endocrine, respiratory, renal, visual and auditory systems in selected classes. Methods and advanced understandings with background in biology, chemistry, and anatomy. Offered spring semester. Prerequisite: consent of course director.

72230 Neuronal Physiology 4 a.b.
Principles of physiological and detailed treatment of organ systems and cell types. Open only to senior students. Offered spring semester.

72240 Research, Inpatient rotate for 2 credits. Prerequisite: consent of director of courses.

72250 Exercise Physiology 4 a.h.
Basics concepts of exercise and clinical adaptations to exercise. Students must register in T72260 concurrently for laboratory credit. "Open only to sophomore and junior students.

72260 Molecular Endocrinology 3 a.h.

72270 Cellular Endocrinology 3 a.b.
Seminar dealing with mechanisms of hormone synthesis and action including release, transport, and regulation of complex physiological phenomena. Prerequisite: consent of director.

72280 Exercise Research Seminar 3 a.h.
Presentation of recent research in animal and human physiology. Prerequisite: consent of course director. Offered spring semester.

72310 Medical Physiology 4 a.h.
Required of medical and graduate students. Special graduate students must approve in consultation with the department. Offered spring semester. Prerequisite: consent of course director.

72315 Animal Physiology 4 a.h.
Advanced level readings, discussion and research; examination of experimental results with concern regarding 7232/121 Prerequisite: consent of course director.

72330 Graduate Physiology 3 a.h.
In depth approach to selected laboratory experiences. Required of graduate students. Offered fall semester. Prerequisite: consent of graduate students.

72331 Animal and Plant Physiology 4 a.h.
Application of physiological principles of endocrine, nervous, and musculoskeletal systems to both animal and plant species. Consent of course director.

72346 Animal Cardiovascular Physiology 4 a.h.
Cardiac cell membrane properties, mechanisms of excitation-contraction coupling, cardiac automaticity, and mechanisms of cardiac arrhythmias. Prerequisites: 723321 and consent of instructor.

72350 Research Seminar in Animal Physiology and Biophysics 4 a.b.
Studies related to animal and animal related studies examined through critical evaluation of current research. Prerequisite: consent of course director.

72355 Environmental Physiology 3 a.h.
Physiological responses, adaptations, and interactions of marine and terrestrial organisms to environmental changes. Offered fall semester. Prerequisite: consent of course director.

72360 Cardiovascular Physiology 3 a.h.
Application of cardiovascular physiology in behavioral and biological sciences. Offered fall semester. Prerequisite: consent of course director.

72370 Seminar in Cardiovascular Physiology 3 a.b.
Reports from current research and literature in self-selected topic area. Literature review and discussions with emphasis on experimental design and data analysis. Consent of instructor.

72375 Animal Endocrinology 3 a.h.
Studies of hormones and the effects of hormones on the body. Offered spring semester. Prerequisites: 723311 or equivalent, and consent of instructor.

72380 Animal Physiology II 3 a.h.
Integrated approach to animal physiology. Concepts of cellular, organ, and system physiology and animal systems. Offered fall semester. Prerequisites: 723321 and 99-150 and consent of course director.

72385 Animal Physiology I 3 a.h.
Integrated approach to animal physiology. Concepts of cellular, organ, and system physiology and animal systems. Offered spring semester. Prerequisite: consent of course director.

72494 Advanced Exercise Physiology 3 a.h.
Open to candidates for advanced degrees in physiology and biochemistry.

72540 Advanced Exercise Physiology 3 a.h.
Open to candidates for advanced degrees in physiology and biochemistry.

72560 Exercise Physiology 3 a.h.
Exercise in depth of problems of information. Experimental design and analysis with emphasis on ethical and behavioral research in exercise research. Offered fall semester. Prerequisite: consent of course director.

72584 Advanced Techniques in Exercise Physiology 3 a.h.
Demands in special advanced research in exercise physiology, biomechanics, and clinical exercise physiology. Offered fall semester. Consent of course director. Same as 7232/12, 99-105, 7118/44.

72590 Special Topics 3 a.h.

72592 Research Physiology and Biophysics 3 a.h.
Open to candidates for advanced degrees in physiology and biochemistry.

72597 Special Topics 3 a.h.
Open to candidates for advanced degrees in physiology and biochemistry.

Preventive Medicine and Environmental Health

Department head: Peter Leeson
Faculty professor: John Rean, Louis Wodach, Peter Leeson, Stephen Lee, Hans Lindegger, Richard Rean, and others.
Graduate office: 72360, Agricultural Research 12/321, Priscilla Clare, 72312, 72321.
Graduate assistant: Cheryl Bury, Irving Bura, Hal Par- Cole, Cline Miller, Frank Tun, and others.
Graduate assistant: John Berg

Preventive medicine relates the individual patient when knowledge and techniques from biological, medical, social, and behavioral science are applied to prevent disease or its progression. It relates to health of the entire community when the knowledge and skills of medical and allied sciences are applied in organized community effort to maintain and improve the health of populations.

Environmental health is the study of the control of the physical, biological, and social factors of the environment and the manner in which they influence the health of the individual or group of individuals.

The department offers courses in many areas of preventive medicine and public health including epidemiology and communicable disease control, institutional and food sanitation, industrial hygiene, biometry, and international health services research, comparative medicine, agricultural medicine, and many other areas related to the health of communities. Many graduates of the department have gone on to national and international achievement in public health work.

The department sponsored the development of the Institute of Agricultural Medicine, the FDA agency in the western hemisphere dedicated to the study of the occupational health problems of the agricultural worker. The varied programs of the institute provide practical training for students of the health professions as well as medical students at the graduate and postgraduate levels, and reflect a significant increase in our national resources.

The department has a comprehensive program for both graduate and undergraduate instruction. Besides individual research in statistical
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 shigellosis (bacterial food poisoning). 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, coronary 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 traumas. 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 Services, Engineering Research Laboratory, College of Engineering, Health Services Research Center, and other health care delivery programs.

Graduate Programs

The master's program offers a degree with emphasis in environmental health, bioclinical, community health, or for those who already are health professionals. The Ph.D. program is available with an emphasis in epidemiology, biometry, or environmental health.

While pursing a degree program, students are expected to maintain a 3.0 grade-point average in all courses. Students receiving more than 8 semester hours of grades lower than C+ in any departmental course will be dismissed from the program.

A joint master's option exists between the Urban and Regional Planning Program and the Preventive Medicine and Environmental Health in the College of Medicine. This option results in an 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 Osage 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.

Admission

Application deadlines are July 15 for fall semester, December 1 for spring semester, and May 1 for the summer session. These deadlines apply both to University of Iowa and to non-University of Iowa students. Minimum grade-point average requirements for admission to the master's program, 3.0 for the Ph.D. Acceptable completion of the Graduate Record Examination (GRE) Aptitude Test is also required. The acceptable score for most students is a combined verbal and quantitative score of 1050.

The applicant must have an undergraduate major or course background in science, mathematics, or statistics, depending on his or her proposed program of graduate study. However, to be considered for admission to the master's program with emphasis on community health, applicant should have a B.S. or B.A. in a health science who wish to apply preventive medicine and environmental health principles to their respective professional activities.

Applicants who meet the requirement for the M.S. or Ph.D. programs but who do not wish to work toward an advanced degree may be admitted on Professional improvement status. Also, applicants are required to: (1) specify on the application form the program (public) to which they are applying; (2) forward three letters of recommendation; and (3) submit a short description of why they want the degree and their professional goals.

Courses

0200 Cooperative Education Internship 0.5
0206 Internship for teaching occupational health professionals (C. D. H. agreement) 0.5
0210 Dynamics of Health 3.0
0222 Survey of Environmental Health 3.0
0226 Current Topics in Environmental Health 3.0
0228 Introduction to Environmental Science 3.0
0230 Basic Environmental Science 3.0
0234 Environmental Science, Health and Society 3.0
0236 Introduction to Occupational Health 3.0
0238 Human Exposure to Environmental Health Hazards 3.0
0240 Environmental Health Hazards: An Introduction to the Study of Environmental Health 3.0
0242 Hazard Assessment 3.0
0244 Toxicology of Environmental Health Hazards 3.0
0246 Environmental Health Hazards: Problems of Community Health and Human Disease 3.0
0250 Introduction to Epidemiology 3.0
0252 Environmental Health Hazards of Food and Housing 3.0
0254 Principles of Epidemiology 3.0
0256 Methods of Epidemiology 3.0
0258 Application of Principles to the Control of Communicable Diseases 3.0
0260 Introduction to Biostatistics 3.0
0262 Statistical Analysis of Epidemiologic Data 3.0
0264 Design and Analysis of Experiments in the Behavioral Sciences 3.0
0266 Biostatistics 3.0
0268 Design and Analysis of Experiments 3.0
0270 Design and Analysis of Experiments in the Behavioral Sciences 3.0
0272 Design and Analysis of Experiments 3.0
0280 Principles of Epidemiology 3.0
0282 Principles of Epidemiology 3.0
0284 Principles of Epidemiology 3.0
0286 Principles of Epidemiology 3.0
Courses
73:150 Psychology for Physicist Assistant
73:250 Research in Psychology
73:320 Medical students, graduate students, and physicists who have had training in scientific methodology are admitted for special investigations in biological or psychological problems related to psychiatry.
73:350 Psychiatry
Courses Open Only to Medical Students
73:450 Child Psychiatry

Graduate Programs
The M.B. 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.

Undergraduate Study
Two courses, 77:103 Introduction to Radiocarbons and Radiobiology and biophysical and biological Health Physics, are open to upperclassmen in the natural arts or professional colleges. These courses should be of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or similar programs.

Graduate Programs
The M.B. 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.

Radiation Biology
Program director: James W. Osborne
Faculty: professor Frank Hughey, Jr., Robert A. Shafer, James W. Osborne, and James W. Nelson.

Special Programs
Postdoctoral training is available by arrangement with the program chairman and individual faculty members.
Surgery

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 of its kind 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, gynecology, histology, microbiology, pre-clinical vascular, transplantation, open and closed, cardiovascular, and rheumatology and oncology.

Courses

75-110 Basic Emergency Skills 0.5 cr.
Seven-week primer course in emergency medical service techniques, practice exercises and application of material.

75-120 Vascular Research 1 cr.
Introduction to vascular research and current vascular research in the United States.

75-130 Clinical Surgery 4 cr.
Six-week course, open to all medical students; students interested in surgical specialty must take course in general surgery.

75-150 Emergency Room Physician for Assistant Students 2 cr.

75-195 Advanced Emergency Medicine 4 cr.
Four-week course of intensive instruction in acute management of trauma, shock, trauma and multiple trauma problems. Includes lectures, small group discussions, and practical exercises to improve the student's skills in management of the critically ill patient.

75-155 Advanced Clinical Surgery 3 cr.
Advanced residency program for those who desire to specialize in surgery.

75-165 Advanced Surgical Endoscopy 1 cr.
Experiences in advanced endoscopy with emphasis on upper gastrointestinal tract.

75-200 Emergency Room Physician on Call 1 cr.

75-225 Emergency Room of Campus 1 cr.
Practical experience with house officers on call for the Emergency Room. Student works under the direction of the service residents.

75-230 Operating Room Of Campus 1 cr.
Practical experience with house officers in the operating room. Student works under the direction of the operating room residents.

75-235 M.D. Program In Emergency Care 1 cr.
Students receive clinical experience in emergency care and in the management of the critically ill patient.

75-240 Pediatrics 1 cr.
Designed for interested in pediatrics. Intensive clinical experiences in the medical, operating room, and outpatient clinics of pediatrics.

Facilities

Both surgical and pediatrics conferences. Prerequisite: 75-200 and consent of instructor.

75-245 Transplantation Surgery 1 cr.
Surgical experience in renal transplantation intended primarily to provide students with an understanding of the surgical technique involved in this operation. Prerequisite: 75-200 and consent of instructor.

75-246 Urology 1 cr.
Intensive daily training in urologic diseases. Prerequisite: 75-200 and consent of instructor.

75-247 Urology 1 cr.
Advanced clinical urology in renal diseases. Prerequisite: 75-200 and consent of instructor.

75-248 Research 1 cr.
Research, planning, and operating unit with a member of faculty. Prerequisite: 75-200 and consent of instructor.

Urology

Department Head: David A. Emery

The Department of Urology offers courses in all areas of urological tract anatomy, urologic infections, diagnostic urology, and the results of urinary tract obstruction, urology also includes urological pathology, diastology, homotransplantation, urologic oncology, uroligic endoscopy, and pediatric urology.

The Department of Urology is The University of Iowa College of Medicine offers courses in all these fields, as well as the undergrounld and postgraduate tracks and the 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 50:111 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 genitourinary 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, resectoscopic 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, reproductive physiology, urologic oncology, and prostatic diseases.

The department has earned international recognition for its studies of prostatic disease.

The urological laboratories are active and offer instruction in various urology research areas. The department offers special elective courses in these areas.

**Courses**

71:001 Clinical Urology 3 h.
A practical two-week course of study on urology wards. Junior medical students responsible for patient care under supervision of residents.

70:198 Advanced Clinical in Urology 4 h.
Student assigned integral member of urologic staff, spends full time in department for four weeks; assignment is subject to department, under direction of junior and senior staff.

70:110 Individual Study and Research 4 h.
Individual project, either experimental or clinical, designated to class member, supervised by staff and, where applicable, a member of another clinical department or preclinical department. Upon completion of project, the student will prepare a thesis and undergo oral examination.

70:111 Biophysics 2 h.
Full time in department of Urology and Radiology, where techniques, instrumentation, surgical and other techniques, and applications of urographic procedures are presented and discussed. Prior to registration, students must be approved by chairman of urology and chairperson of department of radiology and must obtain written permission of department.

70:112 Biophysics 2 h.
Participation with Urinary and Pathology departments to study of urographic material derived from patients' examinations and surgical procedures, analytical study of collected pathological material, basic gross and microscopic, provided from various medical institutions in both departments.

70:114 Podiatric Disease 2 h.
Research and clinical study of prostatic disease; requirements need to include experiences in department's surgical research in correlative medicinal and surgical research in correlative medical research.

70:115 Transplantation 2 h.
Intensive clinical experience in diagnosis and management of all types of podiatric diseases; emphasis on techniques, with correlation of prostatic carcinoma expected at completion of course. Student prepares thesis on some aspect of one of these topics, takes written examination.

70:116 Basic Pathology and Hematology 4 h.
Acquaintance with current status of static urology, hematologic methods of measuring essential parameters, assessment and management of clinical problems, time devoted to evaluation of renal insufficiency problems.

70:117 Urology for Physically Handicapped 2 h.
Intensive study of cases of physically handicapped, by class members, allied professionals, and urologic staff of faculty, where surgery, a member of urologic staff or -department; no program approved or registered without permission of department head; out of hospital project, student prepares thesis, takes final examination.
The College of Nursing is an integral part of the University Health System, sheltered in and contributing to teaching, research, and patient-care resources which have earned international recognition. This provides an unusually fine setting for college preparation for nursing, because the educational and clinical resources which are needed to educate nurses are available on or near the campus. This also makes it possible for the faculty and students to participate fully in University life and to contribute their time, interest, and abilities to the many general and special activities of a major and modern university.

Both the baccalaureate and graduate programs are accredited by the Department of Bachelor's and Higher Degree Programs of the National League for Nursing, the professional accreditating agency for college and university programs of nursing education. The baccalaureate program is approved by the Iowa Board of Nursing, and 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 jobs and settings throughout the community health nursing services, doctors' offices, clinics, hospitals, armed forces, the Peace Corps, the World Health Organization, the Red Cross, home and foreign missions, youth camps, and professional organizations. A professional nurse may be engaged in general nursing, nursing research, or private practice.

A bachelor's degree program, such as that offered by The University of Iowa, provides college-level preparation for careers in the hospital 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 other 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 potentials, 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-quarter-hour program consists of 36 semester hours of general education courses, 43 semester hours of supportive preregistration courses, and 50 semester hours of course work in nursing. Most students complete the program in four and one-half academic years.

Course offerings are based on the concepts of health, deviations from health, and nursing interventions, and are presented in progressive levels of complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward greater emphasis on nursing as a service rendered outside hospitals and to others than the acutely ill.

Approaches to the College of Nursing

The student may complete the entire program at Iowa, enrolling 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 institutions Iowa State University, the University of Northern Iowa, and Upper Iowa University.

Cooperating state institutions are the two-year transfer plan institutions, which include the following:

- Morningside College
- Luther College
- Simpson College
- Wartburg College
- Valley College
- Muscatine Community College
- Clinton College...

A two-year transfer student who graduates with a degree from an accredited institution does not have to meet the College of Nursing minimum standards for transfer for two-year students. The student must contact the cooperating institution of his or her choice.

Registered Nurses

With some modifications, registered nurses who enroll in the baccalaureate program in nursing at least 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...
Iowa State University offers special information and advice to the College of Nursing.

Faculty Advisers

Advisors from the college are available to help prospective nursing students plan their programs, and each student in the college works with a faculty advisor.

Student Organizations

College of Nursing students have their own Association of Nursing Students, and are also eligible for membership in the state and national associations of nursing organizations.

Expenses

Students are the general University Tow throughout the program, and purchase their own uniforms. The cost of a uniform order currently is about $110. Students must also purchase white gowns, a stethoscope, and a wrist watch with a full, sweep second hand. Students usually need to provide their own transportation once enrolled in clinical nursing courses.

Financial Aid

In addition to the assistance available to University students generally, there are assistance programs specifically for nursing students. For further information about financial assistance, write to the University Office of Student Financial Aid.

Admission

High School Background

The college strongly recommends four years of English, three years of mathematics, and one year each of biology, chemistry, and physics, plus other college preparatory courses selected with the help of the high school counselor.

College Background

Applicants for admission to the undergraduate program in nursing must present a minimum of 30 semester hours completed in an accredited college, including three of the five required biology courses (General organic biochemistry, animal biology, and microbiology) and satisfactory performance of the following general education requirements:

- Rhetoric—eight semester hours; a student who has earned six semester hours of credit in English composition may complete the speech component as well.
- Mathematics—three years of high school mathematics, or a score of 26 on the American College Tests, or completion of a college course in mathematics comparable to or higher than (22D:1) Intermediate Algebra.
- Chemistry—high school chemistry or its equivalent (II taken at the college level it may be included in the 30 semester hours required for admission);
- Physics—high school physics or its equivalent (II taken at the college level, it may be included in the 30 semester hours required for admission);
- Credits earned to satisfy the following general education requirements may be included in the 30 semester hours presented for admission.
- General education requirements:
  - Historical perspectives—3 semester hours;
  - Humanities—3 semester hours;
  - Foreign civilization and culture—3 semester hours; and
  - Statistics—3 semester hours.

Preclinical Background

Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing coursework:

- Animal biology 6 s. h.
- Chemistry (organic and biological) biochemistry 6 s. h.
- Human anatomy 4 s. h.
- Human physiology 4 s. h.
- Microbiology 4 s. h.
- Nutrition 2 s. h.
- Psychology 3-4 s. h.
- Sociology 3-4 s. h.
- Anthropology 3-4 s. h.

- Human development and behavior 3 s. h.

(Also may be concurrent with the first clinical nursing course)

Standards

To be considered for admission to the College of Nursing, the applicant should have satisfactorily completed college coursework taken.

American College Tests

All applicants for admission to The University of Iowa must complete the American College Tests. For information on the tests, write to the American College Testing Program, Box 451, Iowa City, Iowa 52240.

Selection Factors

No minimum admission requirements do not guarantee admission to the College of Nursing. From applicants who meet minimum requirements, the college's admission committee selecting those who appear to be most qualified. The committee may require personal interviews. A physical examination report and specific health screening requirements are to be on file at Student Health Services ten days prior to the opening of classes for the first clinical nursing course.

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 a 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 afford extension 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 special areas and types of field experiences to fulfill the practical component of the specialization courses; through selection of relevant concepts to be developed in these courses; by selection of specific courses in the supporting area; and through the use of study projects for study in their thesis project.

Similarity, role preparation is available in three areas: education, administration, and advanced clinical practice. Because the curriculum is semi- flexible enough to accommodate diverse student needs, the content of totaling is flexible in the role preparation areas. Students, for instance, may select most of their supporting course work in administration or management in order to allow for maximum preparation in that role area.

Although the courses offered by the College of Nursing emphasize a holistic approach to patients or clients, it is possible to concentrate on either the behavioral or biological dimension. Students interested in mental health nursing, for example, may elect courses including self-awareness and stress. More preparation in advanced clinical practice with an emphasis on the behavioral, child health nursing would further accommodate that interest area. The M.A. would be that, with the assistance of their academic advisor. Students can design
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 divided into five components:

- Advanced nursing core (17 semester hours): Core courses 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).

- 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 and related work and clinical experiences. For example, students selecting adult health nursing as their area of specialization may choose experiences with patients in a long-term care facility, a medical/surgical clinic, or a cardiac care unit. Students with unique career goals have the option of further modifying their plan of study under the direction of their academic advisor.

- Role development (one semester hour): Students may select administration, advanced clinical practice, or educational/curricular preparation areas. Two courses, with a practicum, are offered in each of their role areas through the College of Nursing. Students entering advanced preparation for graduate study must complete one of these courses required for the nursing specialization component. Students may select particular settings and/or preceptors compatible with their own career goals in fulfilling the practicum requirements of these courses.

- Supporting courses (one semester hour): Students may choose their supporting courses from a decided area related to their nursing specialization or from any other course in the supporting science course related to the nursing specialization area is required.

- 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 wishing 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
- 90:221 Conceptual and Theoretical Foundations for Nursing II 4 s.h.
- 90:226 Child Health Nursing I 4 s.h.
- 90:228 Adult Health Nursing I 4 s.h.
- 90:234 Community/Family Health Nursing I 4 s.h.
- 90:210 Methods of Research in Nursing I 3 s.h.
- Supporting course 3 s.h.
- Total 12 s.h.

Second Year

Fall Semester
- 90:211 Methods of Nursing Research II 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.
- 90:250 Nursing Administration: Process, Roles, and Strategies I 3 s.h.
- 90:258 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
- Total 12 s.h.

Spring Semester
- 90:261 Professional Seminar: Issues in Nursing 2 s.h.
- 90:247 Nursing Education: Process, Roles, and Strategies II 3 s.h.
- 90:251 Nursing Administrations: Process, Roles, and Strategies II 3 s.h.
- Total 11 s.h.

Graduate Admission

Students should seek admission to the graduate program in nursing through 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 2.2 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;
- 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;
- Have recommendations from three persons familiar with his/her competency in the practice of nursing and potential for leadership and scholarship;
- Submit the score from the Miller Analogies Test;
- Submit a 600-word essay detailing career goals; and
- Have successfully completed a basic science 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 summer admission is May 1. The application deadline is December 1. Initial course enrollment may begin at any term. All regulations of the Graduate College pertaining to academic probations and dismissal are applicable to graduate students in nursing. Transfer credit 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 objectives of professional or personal improvement only. Such individuals may request admittance in the professional improvement category. This admission status will allow the student to take 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 Nursing Building is centrally located on the University's main campus in close proximity to the colleges of Medicine, Pharmacy, and Dentistry; University Hospital; the Bowes Science Building; and the Heath Science Library.

Completed in 1971, the Nursing Building consists of five floors with varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are located on every floor except the second, which is utilized entirely for classrooms, laboratories, and the Learning Resource Services. Additional classrooms and laboratories are located throughout the building. Conference rooms, student lounges, and meeting rooms are conveniently located. Research facilities in the building provide quick access to computing/calculating equipment and programmable minicomputers.

Courses

Undergraduate

- Health Science

B.5.0 Introduction to Health and Health Care

Overview of health and health care services, with emphasis on consumer and patient care or health, various selected factors affecting health, current health care systems, and trends in health delivery systems. prereq.: Prereq.: Prereq.: 3.0 in 3.0.

B.5.00 Human Development and Behavior

- Health and Society

D.10.00 Mental Health


B.5.0 Introduction to Health Science

- Health Promotion

B.5.00 Public Health


B.5.00 Public Health

Health promotion and disease prevention in individuals, families, and communities. Social, cultural, and economic factors. Prereq.: Prereq.: Prereq.: Prereq.: 3.0 in 3.0.

B.5.0 Introduction to Health Science

- Health Promotion

B.5.00 Public Health


B.5.0 Introduction to Health Science

- Health Promotion

B.5.00 Public Health


B.5.0 Introduction to Health Science

- Health Promotion

B.5.00 Public Health

NURSING 383

90.230 Theory/Methods in Mental Health Nursing
3 a.h.
Theories and concepts of mental health and mental illness, treatment modalities and their applications in mental health nursing practice.

90.250 Nursing Administration: Process, Roles, and Strategies
3 a.h.
Policies and responsibilities of the nurse administrator, emphasis on the administrative functions of the nurse manager in planning, organizing, and directing the delivery of nursing care in a hospital setting. Includes a discussion component of a weekly practicum of four hours minimum. Prerequisites: 90.201 and 90.204.

90.251 Nursing Administration: Process, Roles, and Strategies I
3 a.h.
Analysis of the functions and responsibilities of the nurse administrator, emphasis on strategies used by the nurse manager administrator in a hospital setting. Includes a discussion component of a weekly practicum of four hours minimum. Prerequisites: 90.201 and 90.204.

90.356 Clinical Specialization: Process, Roles, and Strategies
3 a.h.
Involves the role of the clinical specialist through the process of intervention and application of clinical techniques; requires with emphasis on practical decision-making and preparation for a beginning clinical specialist. Students are exposed to a variety of clinical situations. Includes a discussion component of a weekly practicum of four hours minimum. Prerequisites: 90.250 and two nursing specialization courses.

90.359 Clinical Specialization: Process, Roles, and Strategies II
3 a.h.
An emphasis on leadership, administrative, and integration of the role of a clinical specialist role in the application of skills geared to work within a specific clinical area. Prerequisites: 90.250, 90.254, and two nursing specialization courses.

90.359 Advanced Topics in Nursing Research and Theory
3 a.h.
Prerequisite: consent of instructor.

90.389 Topics
3 a.h.
College of Pharmacy

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, direct, 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, physiological, and physical properties, manufacture and usage, 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 on various drugs— their availability, activity, toxicology, contraindications, 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 practises. 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 responsible for the availability of prescription drugs. More than 100,000,000 men and women practice in community pharmacies.

Another group of pharmacists is employed in pharmaceutical work. The government uses 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, 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 acquainting 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 are the College of Pharmacy are in a Baccalaureate Science program, and they receive professional training and education in a number of areas, including pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical biotechnology, 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.

Basilically, the Baccalaureate Science program in pharmacy consists of one year of prepharmacy study, taken in the College of Liberal Arts at The University of Iowa or an accredited community or liberal arts college, and four years of pharmacy studies.

It is possible to transfer into the College of Pharmacy after two years of 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 pharmacist examination given by the Iowa Board of Pharmacy Examiners.

The professional curriculum includes a minimum of 16 semester hours of electives; six 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.
  - 37:19 Principles of Animal Biology 5 s.h.
  - 4:121 Organic Chemistry I 3 s.h.
  - 4:110 Elementary Qualitative Analysis 4 s.h.
  - Total: 15 s.h.

- **Second Semester**
  - 46:14 Pharmacy Orientation 2 s.h.
  - 8E:1 Principles of Economics 4 s.h.
  - 4:120 Organic Chemistry II 3 s.h.
  - 4:141 Intermediate Chemistry Laboratory I 1 s.h.
  - *60-102 Principles of Human Anatomy 3 s.h.
  - *Elective 3 s.h.
  - Total: 16 s.h.

*Also offered first semester for students on a 2-3 program only.

**Note:** 18 semester hours of electives are required, of which at least eight must be taken in the P-4 year.

## Second Year
- **First Semester**
  - 46:23 Pharmacology I 4 s.h.
  - 96:162 Biochemistry for Pharmacy Students 4 s.h.
  - 81:147 General Microbiology 4 s.h.
  - *46-105 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 Medicinal Chemistry: Natural Products I 4 s.h.
  - 72:150 Intermediate Physiology 4 s.h.
  - Total: 16 s.h.

*May be taken in second semester of first year.*

## Third Year
- **First Semester**
  - 46:131 Medicinal Chemistry: Natural Products II 4 s.h.
  - 46:203 Introduction to Human Pathology 4 s.h.
  - 71:101 Pharmacology for Health Sciences: Pharmacy 5 s.h.
  - 46:38 Pharmaceutical Social/Economics: Practice Management 3 s.h.
  - Total: 16 s.h.

- **Second Semester**
  - 46:132 Medicinal Chemistry: Natural Products III 4 s.h.
  - 71:103 Pharmacology and Toxicology 3 s.h.
  - 46:52a Pharmacology II 3 s.h.
  - 46:10a Clinical Pharmacy: Case Study 3 s.h.

*46:61 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 Pharmacotherapeutics IV 4 s.h.
  - 46:46 Clinical Pharmacy: Community Pharmacy 2 s.h.
  - 46:101 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 46:81). Some of the remaining clerkships may be used to satisfy the P-4 electives.

## Professional Electives
- 46:48 Community Pharmacy 3 s.h.
- 46:50 Pharmaceutical Chemistry: Drug Analysis 3 s.h.
- 46:52e Seminar: Seminar 1 s.h.
- 46:55 Non-Prescription Drugs 2 s.h.
- 46:13: Pharmacies: Family Practice Therapeutics 2 s.h.
- 46:65 Clinical Pharmacy: Geriatric Therapeutics 3 s.h.
- 46:35 Clinical Pharmacy: Surgical Therapeutics 2 s.h.
- 46:97 Clinical Pharmacy: Neurology 2 s.h.
- 46:59 Clinical Pharmacy: Geriatric Therapeutics 2 s.h.

## Admission
- **General Chemistry:** 3 semester hours
- **Mathematics:** 3 semester hours
- **English Composition:** 2 semester hours
- **Lab:** 6 semester hours

*Must be taken in first semester of first year.*

## Transfer Students
- **Admission:**
  - Applicants transferring after the sophomore year must show evidence of satisfactory academic performance and must have satisfactorily completed core courses in English language, biology, or chemistry, economics and quantitative analysis.
  - Applicants planning to transfer in after the sophomore year must show evidence of satisfactory academic performance and must have satisfactorily completed core courses in English language, biology, or chemistry, economics and quantitative analysis.

*Most applicants will be admitted.*

## Admissions Office
- **Address:** 300 Campus Drive
- **Phone:** 516-348-2199
- **Fax:** 516-348-2199
- **E-mail:** admissions@suny-oldwestbury.edu
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 must 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 clerkship. The major goal of the program is to provide the health-care system with pharmacists who are specifically prepared to undertake an extended role in monitoring, evaluating, and optimizing drug therapy in hospitalized and ambulatory patients. This program is available to all students who have completed a degree at a highly qualified pharmacy graduate.

Prospective students may obtain application material and further information from 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 of Science (M.S.) and Ph.D. Philosophy programs are available in pharmacology, medicinal chemistry, pharmacy administration, and pharmaceutical socioeconomics. A Master of Science Degree is available in clinical-hospital 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 and health care organizations.

The application deadlines, grade-point average for admission, GRE score and any necessary letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate status and for the successful completion of the course work are determined by individual divisions of the College of Pharmacy.

Facilities

The Pharmacy building is located in the Health Center complex on the University's main campus, in close proximity to the colleges of Medicine, Nursing, and Dentistry; University Hospitals; the Basic Science Libraries; and the Health Science Library.

The Pharmacy building is a five-story structure especially 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 separate laboratories for instruction at the undergraduate and graduate levels.

The Pharmaceutical Services Division of the college serves as a teaching unit as well as a service unit. 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, student work with other health professionals and has the opportunity to monitor drug therapy in hospitalized patient in hospital and non-hospital settings. In clinics, under the supervision of clinical instructors in pharmacy, students learn about patient care. The various clinical sites in which students are involved include many areas of the University and Veteran Administration hospitals, the family practice clinic at Oakdale, Mechanicville, and Davisport, Iowa City Family Health Center, and the Waukon Hospital in Cedar Rapids; Scholl Hospital in Waterloo; the Burlington Medical Center in Burlington; St. Joseph Hospital in Mason City; the State Hospital in Dubuque; the Community Health Care Clinic (Pediatrics) in Des Moines; the State Mental Health Institute at Mt. Pleasant; the Iowa Medical Security Facility; selected community pharmacies and nursing homes; and the Iowa Drug Information Service.

Courses

Undergraduate Pharmacies

4101 Pharmacy Staff

4131 Application of systems of weights and measures and an introduction to practical statistics. Pharmacist who conducts a pharmaceutical practice laboratory should have a thorough understanding of the fundamentals of statistics and the use of statistical methods to evaluate the performance of the pharmacy practice laboratory. For more information, please consult the College of Pharmacy.

4141 Pharmacy Orientation

4151 Ethics, organization, and development of the science and profession of pharmacy.

4152 Preclinical

4162 Lecture and laboratory on particle size measurement, characteristics of crystalline and amorphous, formulation, preparation, and evaluation of solid dosage forms and compounds 4163 4 4101 and 298.

4163 Pharmacology I

4164 Lecture and laboratory on principles of medicine, biochemistry, and phamcy, formulating, preparation, and evaluation of solid dosage forms and compounds. Preparatory 4101, 4 4101 and 298.

4172 Pharmacology II

4173 Fundamentals in drug, absorption, distribution, and elimination. Termination of these processes to during pregnancy. A study of pharmacology with emphasis on the action of therapeutic agents. Formulations and clinical uses of these processes. Preparatory 4124 and 7 7101.

4174 Pharmacology III

4175 Lecture on availability and formulation of agents, including topical, transdermal, opthalmic, aerosol and oral laboratory formulations techniques for preparing and dispensing, patient record systems, recognition of drug interactions, and an introduction to the use of computers in pharmacy. Preparatory 4101.

Graduate Pharmacies

4191 Pharmacies, Products

4192 Basic and applied research problems in pharmacy, products, and services. Preparatory 4192 or above standing. Open to graduate students.

4193 Product Pharmacy

4194 Surface and interfacial phamacies, sorption, and applications in drug delivery. Preparatory 4192 or above standing. Open to graduate students.

4195 Phamaceutical Biopharmaceuticals

4196 Studies in pharmaceutical, formulation, and administration. Involves studying formulations, development and characteristics of pharmaceuticals. Preparatory 4192 or above standing. Open to graduate students.

4197 Pharmacology, Clinical

4198 Lecture on availability and formulation of agents, including topical, transdermal, opthalmic, aerosol and oral laboratory formulations. Preparatory 4192 or above standing. Open to graduate students.

4199 Product Development

4199A Advanced treatment of selected topics in pharmaceuticals and biopharmaceuticals. Preparatory 4192 or above standing. Open to graduate students.

4199B Advanced treatment of selected topics in pharmaceuticals and biopharmaceuticals. Preparatory 4192 or above standing. Open to graduate students.
or drug selection, adverse effects of drugs and adverse modifications of therapeutic and home responses. Prerequisites: Ph 411 and consent of instructor.

46.115 Clinical Pharmacy: Drug Dosage Forms and Related Topics
Lectures in hospital pharmacy practice, both in clinical aspects and techniques of preparing and handling drugs. Prerequisite: consent of instructor.

46.120 Clinical Pharmacology
Applications of pharmacokinetics to the clinical setting by summarizing pharmacokinetics studies done in animal and human subjects. Prerequisites: 46.115 and consent of instructor.

46.205 Hospital Pharmacy: Pediatrics
Theory and applications in preparation, packaging and labeling in pediatric dosage forms.

46.211 Nuclear Pharmacy
Design criteria and evaluation of radiopharmaceuticals: standards for nuclear pharmacy practice; administration and management of radiation safety and radiopharmaceutical drug information. Prerequisite: consent of instructor.

46.231 Clinical Pharmacology
Applications of pharmacokinetics to selected diseases causing: tissue damage from non-therapeutic or therapeutic administration of dosage regimens, rate and dosages and risks or drug therapy. Prerequisites: 46.115 or consent of instructor.

46.250 Clinical Pharmacy Seminar
Lectures and laboratory course in rational use of antidepressant drugs in treatment of psychiatric disorders, Prerequisite: P4 or graduate standing, consent of instructor.

Doctor of Pharmacy (Pharm. D.) Program

46.311 Advanced Therapeutics
In-depth analysis of selected near disease states and their drug therapy. Prerequisites: Pharmacology, Pharm. D. standing and consent of instructor.

46.312 Therapeutics
Continuation of 46.311. Prerequisite: Pharm. D. standing and consent of instructor.

46.320 Drug-Related Diseases
Severity of drug-related diseases according to a pharmacological classification of drugs. Prerequisite: Pharmacology, Pharm. D. standing and consent of instructor.

46.325 Food and Nutrition Therapy
Theory and application of contemporary foods and dietary therapies. Prerequisites: Pharm. D. standing and consent of instructor.

46.350 Clinical Investigation
Course in participation 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

46.401 Hospital Pharmacy Service
Hospital as part of Altona health-care system: hospital pharmacy services, organization, and management, with particular attention to pharmacy; organizing, staffing, and operating hospital pharmacy; pharmacy in hospital pharmacy; pharmacy functions on supervisory and technical level. Prerequisite: consent of instructor.

46.402 Hospital Pharmacy Service
Continuation of 46.401: medico-legal pharmacy related, pharmacy management, inventory control, staffing, supervision and teaching. Prerequisites: 46.401, consent of instructor.

46.410 Hospital Pharmacy Service
Applications of principles of pharmacoeconomics to the treatment of hospital patients with allergies. Prerequisites: 46.401, consent of instructor, conference with the medical staff, 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, geophysics, German, history, home economics, journalism, Latin, letters, mathematics, nursing, physical education, political science, psychology, religion, social work, sociology, Spanish, and zoology. Noncredit courses offering CEU awards are available in areas such as advertising, medical technology, 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 federal Department of Defense, the University offers many correspondence courses to men and women in the armed services. Armed services personnel should ask their education officer for information.

Veterans may enroll for correspondence courses concurrently with other academic study under Public Law 627-545. 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 serve 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**

This 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 newshaper, 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 firms in Iowa and throughout the nation. For catalogs, write to Education Tests, W315 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 cooperation among the college and the various colleges, departments, and disciplines within the University. The marshaling of appropriate resources, coupled with the professional planning and execution of conferences and other off-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 instructional 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 related services provided 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 issued for course completion. For current offerings, contact the Office of Conferences and Institutes.

Radio Broadcasting Services

WSUI and KSUB-FM serve the needs and interests of the people of eastern Iowa with 18 hours of daily broadcast time which extends the resources and activities of the University. The broadcast schedule consists of educational, cultural, and entertainment programming not available elsewhere. As an affiliate of National Public Radio (NPR), WSUI contributes program materials for two non-commercial FM stations in 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 their 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; primary 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 saving 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, provides on-campus office internship opportunities. OCCA provides services to the private two- and four-year colleges and the State. The office assists them with educational systems and their respective personnel in these ways:

Provides a liaison service between the University and the state-wide 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;

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 certification activities;

Provides regular information, consultation, and coordination services to specialized groups of community college personnel and students;

Provides peer counseling outreach programs to prospective community college transferring 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 field laboratory 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 housing and study are available. For information, write to the Division of Continuing Education.

Macbride Field Campus

The University holds a lease from the U.S. Army Corps of Engineers on two tracts of land in the Corralville Reservoir area near Iowa City. The two tracts total approximately 820 acres. One tract is reserved for biological research, the other for University-wide activities. Development in the near future is planned for summer programs for middle school and high school students. The facility is located near the heart of the Iowa City area, providing easy access to local activities.

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 off-campus requestors. Smaller collections of audio and video recordings, filmstrips, 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, filmstrips, opaque, and overhead projector; portable projector screen; audio tape recorders; record player; portable public-address systems; and display devices (exhibits, easels, boards). There is a nominal charge for projectionist service and for equipment requested for conferences and off-campus use. Repair services 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—portraits, passports, slides shows, filmstrips, slides, slide duplication, printing, and processing services
- Telecine—video production, color and black and white (1-inch, 3-inch, and cassette); systems design; equipment maintenance; post-press rental
- Fabrication—design and construction of displays, specialist audiovisual equipment and furniture
- Marketing—sales, 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.

Satellite centers currently include the Medical Audiovisual Center, Dental Audiovisual Center, Nursing Audiovisual Center, the Educational Media Laboratory, and the Music Audiovisual Center.
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, Emmetaburg
Peg Anderson, Bettendorf
Pam G. Harris, Cedar Rapids
Ann Jorgensen, Garrison
John McDonald, Dales Center
June Murphy, Des Moines
Arthur Nes, Carroll
Fred W. Nolling, Waterloo
Peter J. Wensmeyer, Eax
Executive secretary: H. Wayne Richey

Central Administration
President: James O. Fredman
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. Spiering
Vice-President for Finance and University Services: Randall P. Bezanson
Vice-President for Student Services and Dean of Academic Affairs: Philip G. Hubbard

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Acting Dean: Emmett J. Vaagh
Industrial Relations Institute Director: Anthony J. Stotz
Institute of Accounting Research
Director: William R. Kinley
Institute for Economic Research
Director: Jerzy Bansard
Institute for Insurance Education and Research Director: Emmett J. Vaagh
Institute for Entrepreneurship
Management: Emmett J. Vaagh
Labor Center: Emmett J. Vaagh
Management Center: Emmett J. Vaagh

College of Dentistry
Dean: James H. McLaran
Down Institute of Dental Research
Director: Ian MacKensie

College of Education
Dean: Charles W. Case
Iowa Institute for School Executives
Director: George A. Chambers
College of Engineering
Dean: Robert G. Hering
Institute of Hydraulic Research Director: John F. Kennedy
Graduate College
Dean: Duane C. Spiering
Dean of Advanced Studies: Donald W. Rohula

College of Law
Dean: R. William Hosler

College of Liberal Arts
Dean: Howard Laster
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School of Social Work Director: Ralph E. Anderson

College of Medicine
Dean: John W. Eckstein

College of Nursing
Dean: Geraldine Felson

College of Pharmacy
Dean: Dale E. Wurster

Division of Continuing Education
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Center for Conferences and Institutes Director: Russell A. May
Center for Credit Programs Acting Director: M. Dean Sato
Community College Affairs Director: Duane G. Anderson
Institute of Public Affairs Director: Clayton Ringenberg
Iowa Lakeside Laboratory Director: Richard V. Bolberg
Macbride Field Campus Director: N.R. Hotzepiel
Radio Stations WUI-KSUI Director: George S. Klinger

Iowa Center for the Arts
Choir: Philip G. Hubbard

Libraries
University Library: Dale M. Bentz
Museum of Art
Director: Margaret Keyes
Summer Session
Director: Philip G. Hubbard

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Vice-President: Duane C. Spriegerstraush
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Office of Project Development
Director: Jay Semel
Institute for Child Behavior and Development
Director: Gerald S. Solomon
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Director: Samuel Levy
Office of International Education and Services
Director: Stephen M. Anum
Weeg Computing Center
Director: James W. Junsson

Public Information and University Relations
Director: Elaine J. Jessen
Environmental Health and Safety
Director: David W. Drummond
Radiation Protection
Director: William E. Tewks
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. Fite

Student Services
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Director: John E. Moore
Registrar
Dean of Convocations and Records: W. Albert Cox
Registrar: Gerald W. Dallum
Residence Services
Director: George L. Droll
Hancher Auditorium
Director: James H. Wuekenbus
Iowa Memorial Union
Director: Jean Kendall
Career Services and Placement
Director: University Counseling Services
Director: Ursula Delworth
Special Support Services
Director: Paul Chang
Student Financial Aid
Director: John E. Morett
University Examination and Evaluation Services
Director: T. Anne Glass
Orientation
Director: Emil Ritterbush
Campus Programs and Student Activities
Coordinator: Kevin Taylor
Services for Handicapped
Coordinator: Sharon Van Meter
Women's Resource and Action Center
Coordinator: Patricia Down

Finance and University Services
Vice-President: Randall Beazle
Business Office
Business Manager and Treasurer: Ray B. Mosman
Controller and Secretary: Leonard R. Brook
Director of Purchasing: Wayne F. Chadima
Physical Plant
Director: Duane A. Hollisch
University Personnel Service
Director: Fred H. Bode
Facilities Planning and Utilization
Director: Richard E. Silsby
University Archivist
Richard R. Jordan
Intercollegiate Athletics for Men
Director: Olehnera W. Eichler
Intercollegiate Athletics for Women
Director: Christine Grant
Recreational Services
Director: Harry R. Getrander

University Hospital and Clinics
Director: John W. Colloton
Psychiatric Hospital
Director: George Winkler
State Hygienic Laboratory
Director: William J. Hauker
University Hospital School
Director: Alfred Healy
Student Health
Director: Harley G. Feldick
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
The following persons held University of Iowa faculty appointments with the rank of instructor, assistant professor, associate professor, or professor: May 1, 1962. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses.

Abouleil, Paul A., B.S., Massachusetts Institute of Technology 1968, Ph.D. Johns Hopkins 1974; associate professor, Speech Pathology and Audiology, 1974 (1979)

Abraham, Francois, Ph.D., University of Paris, 1962; associate professor, Microbiology, 1962 (1979)

Abraham, Nabil, S.B. Iowa 1972, instructor, History, 1972


Alfaro-Youcef, Mounim M., M.B., B.Ch. Cairo (Egypt) 1970; assistant professor, Radiology, 1970


Anderson, Dennis, M.D., B.S. Iowa 1963, assistant professor, School of Architecture, 1963 (1968)

Anders, Dennis, M.D. Iowa 1961, M.S. Nebraska 1969, assistant instructor, School of Social Work, 1969


Anadi, Sadiq, S.B. M.S. Iowa 1964, professor, History, 1964

Albers, David F., B.S. Duke 1967, Ph.D. 1970; M.D. 1974; assistant professor, Internal Medicine, 1974

Arens, Richard C., B.S. Wisconsin (Madison) 1959; M.S. University of Wisconsin 1972; M.S. Iowa 1980; assistant professor, Pediatrics, 1980

Albin, Judith P., B.A. Oregon 1965, M.A. 1968; Ph.D. California (Berkeley) 1971; associate professor, German, 1971 (1976)


Aloise, Marie G., B.S. Iowa State 1949, M.D. Creighton 1952; assistant professor, Family Practice, 1952

Alden, L. Elizabeth, B.A. Lawrence 1941, M.A. Mills 1943, Ph.D. Wayne State 1960; associate professor, Economics, 1960


Alexander, Margaret A., B.A. Wheaton 1930, M.A. New York 1941, Ph.D. 1945; professor, School of Art and Art History, 1945 (1948)

Alexander, Michael B., B.S. Iowa 1952, Ph.D. 1958; professor, School of Art and Art History, 1952 (1973)

Alexander, William J., B.S., B.S., Iowa State 1958, assistant professor, Internal Medicine, 1958; assistant professor, Anesthesiology, 1958


Alley, Louise E., B.S. E.C. Central Missouri State Teachers 1936, M.S. Wisconsin 1941; Ph.D. Iowa 1948; professor, Physical Education, 1948 (1959)

Allison, Alfred C., M.D. B.C.H. Cape Town (South Africa) 1964; assistant professor, English, 1964


Anderson, Charles W., B.S. Wisconsin 1963; M.D. University of Wisconsin 1967; associate professor, Urology and Surgery, 1967

Forsell, George W., B.D., Luther: Theological Seminary 1842; Th. D., Princeton 1843. T.D. Union Theological Seminary 1845; Crack president; School of Religion, 1842-1844.


Frank, Alan R., B.S. California (Los Angeles) 1959, M.A. California State (Los Angeles) 1963, associate professor, Chemistry.


Frelinghuysen, Rose M., B.S. Iowa 1916, M.A. 1917, associate professor, Communications.


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 universities shall be classified as a resident or nonresident for administrative, tax 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 designated person, 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 resident is domiciled in Iowa is upon the student.
b. In determining resident or nonresident classification, tax laws of every state are essentially the same as domicile. In most cases, the domicile of a person is that place where he or she resides permanently and in which he or she is domiciled. As the law is applied in different states, the regulations for determining domicile may vary from one state to another. The determination of domicile is made by the state in which a person has resided for at least three years. The state in which a person has been domiciled for the longest period of time is considered the state of domicile. A student shall be considered domiciled in Iowa unless the student is a continuous full-time resident in the state and intends to make a permanent home in Iowa.

c. A person who comes to Iowa from another state and enrolls in any institution of postsecondary education for a full program or by attendance at a full-time program shall be classified as a nonresident. The resident status of a person who comes to Iowa for educational purposes shall be determined by the state in which the student was domiciled for the three-year period prior to enrollment at the university.

1.4(2) Facts.
a. A person is domiciled in Iowa, who has been domiciled in Iowa for the three-year period immediately prior to the beginning of the term for which resident classification is sought.
b. A nonresident student who enters Iowa and attends Iowa State University shall be subject to the same tuition rates as residents.
c. A nonresident student who enters Iowa and attends Iowa State University shall be classified as a nonresident for administrative, tax, and tuition purposes.
d. A nonresident student who enters Iowa and attends Iowa State University shall be subject to the same tuition rates as residents.

1.4(3) Requirements.
a. A person who has been domiciled in Iowa, who has been domiciled in Iowa for the three-year period immediately prior to the beginning of the term for which resident classification is sought, shall be classified as a resident for administrative, tax, and tuition purposes.
b. A nonresident student who enters Iowa and attends Iowa State University shall be subject to the same tuition rates as residents.
c. A nonresident student who enters Iowa and attends Iowa State University shall be classified as a nonresident for administrative, tax, and tuition purposes.
d. A nonresident student who enters Iowa and attends Iowa State University shall be subject to the same tuition rates as residents.

1.4(4) exceptions.
a. A nonresident student who enters Iowa and attends Iowa State University shall be classified as a nonresident for administrative, tax, and tuition purposes.
b. A nonresident student who enters Iowa and attends Iowa State University shall be subject to the same tuition rates as residents.
c. A nonresident student who enters Iowa and attends Iowa State University shall be classified as a nonresident for administrative, tax, and tuition purposes.
d. A nonresident student who enters Iowa and attends Iowa State University shall be subject to the same tuition rates as residents.

1.4(5) Procedure.
a. A nonresident student who enters Iowa and attends Iowa State University shall be classified as a nonresident for administrative, tax, and tuition purposes.
b. A nonresident student who enters Iowa and attends Iowa State University shall be subject to the same tuition rates as residents.
c. A nonresident student who enters Iowa and attends Iowa State University shall be classified as a nonresident for administrative, tax, and tuition purposes.
d. A nonresident student who enters Iowa and attends Iowa State University shall be subject to the same tuition rates as residents.
720—1.5(262) Registration and transcripts—general.
A person may not be permitted to register for a course or course in a state board or public institution for which an admission or exiting agent has been paid.

A state board of regents institution may withhold admission to the academic record of a person upon any admission or exiting agent for which an institution acts as agent has been paid.

Admission Rules
Common to the Three State Universities
720—1.1(262) Admission of undergraduate students directly from high school.

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must present a formal application for admission, together with a $10.00 application fee, and have their secondary school provide a transcript of their academic record, including credits and grades, rank in class, and certification of graduation. Applicants must also submit a signed copy of the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or an equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or documentation to support their applications.

1. (1) Graduates of approved high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating classes will be admitted.

Applicants who are not in the upper one-half of their graduating class may, after notification of their academic and test records, and at the discretion of the admissions officers:

(a) be admitted conditionally,

(b) be required to enroll for a tryout period during a preceding summer session, or

(c) be denied admission.

1.2(2) Graduates of accredited high schools in other states.
Graduates of accredited high schools in other states may be admitted. A person should have the alternate credentials for admission in the above-mentioned states, and the level of the high school should be comparable to that of the same level in the state of college attendance. The alternate credentials for admission in the above-mentioned states may not necessarily be accepted in the state.

1.3(3) Applicants who are graduates of non-approved high schools.

Applicants who are graduates of non-approved high schools will be considered for admission as a non-graduate applicant. Applicants will be approved high schools, but the final decision will be given to the student's ability to show the benefits of the school.

1.4(4) Review committees.
These committees shall be established by the registrar or someone appointed by the registrar. The function of the registrar or the registrar's appointee is to select a student for inclusion in the committee.

The functions of the university review committee are to appeal the findings of the state board of regents.

IOWA ADMINISTRATIVE CODE: BOARD OF REGENTS 425
Supplemental Specific Rules for The University of Iowa

720—2.1(262) Formal application for admission.

All applicants for admission to any college of The University of Iowa must submit a formal application for admission with the required official transcripts and other official documents required by the director of admission. Students may not be accepted until and unless they have been based on an admission statement by the director of admission.

720—2.3(262) College of Business Administration.

2.3(1) Application for admission.

Applications to the College of Business Administration should be submitted to the director of admission.

Applications are accepted on a continuous basis. Therefore, students may apply at any time.

2.3(2) Requirements for admission.

For admission to the College of Business Administration an applicant must have:

a. Completed specific course work as prescribed by the faculty of the college.

b. Achieved satisfactory grades on the university’s required admission examinations.

c. Maintained a satisfactory grade-point average on all course undertaken or on all courses undertaken at The University of Iowa, and at all courses undertaken in business and economics.

Applications from students who have other credentials in meeting grade-point requirements specified above and who are graduated from the appropriate committees of the college, and on favorable recommendation of the committees, such students may be granted conditional or probationary admission.

*Notwithstanding the minimal requirements listed above, IFWPR, does not accept admission to the College of Business Administration. From those applicants who meet the minimal requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

720—2.4(262) College of Dentistry.

2.4(1) Application for admission.

Address all correspondence regarding admission to the Director of Admissions, The University of Iowa. Applicants are urged to apply as soon as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete a premedical leading to a baccalaureate degree before entering dentistry. Applicants should consider a combined program of liberal arts and sciences, in order to meet the baccalaureate degree upon the completion of the treatment year in dentistry. Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

*Notwithstanding the special regulations for admission, unless otherwise stated, all students must submit completed applications to the College of Dentistry. Only those students meeting the minimum requirements, the admissions committees will select the applicants who, in their judgment, appear to be best qualified for the study and practice of dentistry.

Each applicant must submit the file to the office of the director of admissions the completed application form and all other materials within three college years.

The college curriculum must include at least three academic years of accredited work completing all less than sixty-four semester hours and including specific required courses as prescribed by the faculty of the college. Rooms should be assigned as soon as possible to give the applicant a readily available residence.

In order to meet the schedule requirements the applicant should enroll in a cumulative grade-point average of 2.5. Since the quality of course work may be measured by any number of factors, the cumulative grade-point average is based on The University of Iowa’s rank-order system. All grades in courses completed in foreign language in the undergraduates’ senior college are converted to the minimum. All other college work and any grades higher than the minimum are included in the cumulative grade-point average. All grades lower than the minimum are included in the cumulative grade-point average of two.

Preference will be given to applicants who are residents of Iowa and who have been graduates of an approved high school.

Persons interested in being selected for admission to the College of Dentistry, Applicants will be notified when they should report for a required interview with members of the admissions committee.

All applicants must complete the dental aptitude test approved by the council on dental education of the American Dental Association. Tests are given three times yearly. The University of Iowa is a test site.

To facilitate early acceptance, applicants for admission to the College of Dentistry are urged to complete the
2.7(2) Admission with advanced standing.

Applicants who have completed three years of a baccalaureate-medicine curriculum which qualifies the applicant to receive the baccalaureate degree on completion of the first year in medicine; or have completed three years of a baccalaureate program which includes the general preparation requirements of the College of Liberal Arts of the University of Iowa for the combined baccalaureate degree.

Each applicant must file an original and a certified copy from each college or university attended, and an original transcript from each college attended.

The college work as outlined below will satisfy the baccalaureate-requisite requirements for admission to the College of Medicine.

Applicants who have completed the baccalaureate degree and require courses five or more years prior to seeking admission to the College of Medicine will be considered on the basis of courses completed only under exceptional circumstances.

The college curriculum must include at least three years (twelve semester hours) of premedical courses in the biological sciences as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind that other college work required in addition to the baccalaureate degree is recommended. Wherever possible, they should have the opportunity to secure a well-rounded education, which is of special importance to those among the medical profession. In the selection of applicants, preference will be given to those who give evidence of having obtained such a broad education.

To be considered for admission, an applicant must have completed a grade-point average of at least 3.0 for all college work undertaken. As the quality of work in previous years is considered in an important aspect in the selection of applicants, preference will be given to those who have obtained advanced standing in the same or related fields of study.
In medicine, special attention will be given to the appointment committee to grades in science. The 12-hour average is based on The University of Iowa's reporting system in which a grade of A is equivalent to 4.0 points. Other marking systems will be evaluated by the office of admissions and the committee or administration of the College of Medicine. Performance will be given as approval with high, medium, standing who are residents of Iowa, and considerable will also be given to outstanding students. Applicants for admission are required to take the medical college admission test which is administered for the Association of American Medical Colleges. Applicants are required to complete the test by May or October of the year preceding that for which they are applying for admission. Students may make arrangements to apply for this examination through the university examination service, The University of Iowa.

Personal interviews will be required. Applicants will be contacted for the appointment for required interviews.

Applicants accepted for admission to the University Health Service, as well as the internal and external medical schools, will be reviewed for admission to medical schools of the University of Iowa, 1982.

2.8(2) Admission to advanced standing.

If the student is in good standing and has the admission requirements of the College of Medicine, the student may apply for advanced standing any time during the first year of medical school.

Only applicants for advanced standing schools will be considered.

The student must present certificates showing that they have satisfactorily completed college courses in the sciences that are required by the College of Medicine. The student must be determined to be advanced standing students.

The committee on admission to advanced standing will select those students who have satisfactorily completed college courses in the sciences that are required by the College of Medicine. The student must be determined to be advanced standing students.

Applications will be considered only after receipt of a letter of recommendation from the deans of medical schools that formally accept the College of Medicine. The College of Medicine will consider applications that are not complete and will consider the following:

Communications skills: Applicants must have demonstrated the ability to communicate effectively in written and oral forms.

2.8(3) Unclassified students.

Applicants for admission to the College of Medicine who are not residents of Iowa for one year and who are members of the College of Medicine, the University of Iowa, or the College of Medicine, the University of Iowa, will be considered for admission to the College of Medicine. The College of Medicine will consider applications that are not complete and will consider the following:

The College of Medicine will consider applications that are not complete and will consider the following:

Communications skills: Applicants must have demonstrated the ability to communicate effectively in written and oral forms.

2.10(1) General basis for admission.

Fullfilled of the specific requirements for admission does not assure admission to the College of Medicine. The minimum requirements for admission to the College of Medicine are:

The College of Medicine will consider applications that are not complete and will consider the following:

Communications skills: Applicants must have demonstrated the ability to communicate effectively in written and oral forms.

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 academic requirements for admission to the College of Pharmacy are:

The College of Medicine will consider applications that are not complete and will consider the following:

Communications skills: Applicants must have demonstrated the ability to communicate effectively in written and oral forms.

2.10(3) Scholarship and application deadline.

As a result, all applications submitted for admission to the College of Pharmacy, must have a grade of A equivalent to four points. Applications for admission and the required official transcript should be filed before March 1 for the class to enter the College of Pharmacy in September.

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 American 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.

720—2.11(282) 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. 7.12(281) 1. 7.12(281)

720—2.12(282) College of Education.

Students at the University of Iowa pursuing professional work in education are required to register in the College of Liberal Arts or the Graduate College. Approval for permission to take teacher-training courses is granted by the University Catalog.

720—2.12(282) College of Education.

Students at the University of Iowa pursuing professional work in education are required to register in the College of Liberal Arts or the Graduate College. Approval for permission to take teacher-training courses is granted by the University Catalog.
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